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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII January 4, 1919 No. 1



Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877. Combined with California Cultivator 1914. Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916.

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Saturday, January 4, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

A Central California citrus orchard—or rather orchards—of Tulare County has place on the cover of this week's issue. It gives something of an idea of the extent of the citrus industry in the central part of the state. It also gives an idea that the citrus orchardists are up to date in equipment and cultivate well and deeply by use of the large tractor.

STATE WATER COMMISSION

We have information from the state water commission that it has of its own accord made unanimous recommendation that the salaries of two of its $5000 a year commissioners be abolished. The commission is now composed of A. E. Chandler of Berkeley, W. A. Johnstone of San Dimas and Irving Martin of Stockton.

In the present campaign for the restriction of commissions, or of the taxes needed to support these commissions, this action is encouraging. The water commission has been instrumental in stabilizing water rights in this state.

BETTER PRICES

Secretary Houston recently remarked that one important factor in greatest food production for 1919 was not only bigger crops but better prices.

Every business man who is likewise a farmer must look to his bank balance. If prices are unsatisfactory bank balances will be affected and crop production is likewise affected. The biggest factor in securing the satisfactory prices is cooperation, and a definite cooperative marketing organization if possible, but in any case the cooperative spirit on the part of those who have goods to sell. The buyers cooperate much more closely than do the producers.

KEEPING BOOKS?

The question in the title is pertinent and does not come with so much force at this particular moment from the Cultivator as it does from Uncle Sam. However, Uncle Sam does not ask the question directly but he will be asking during the next two months "What has your income been the last year and what are your exemptions?" Next to the large and complicated business concerns we doubt not the farmer has the greatest difficulty in answering these questions of Uncle Sam intelligently and with justice to himself and the government. A few hints on this line are given by Collector Carter on page 5 of this issue.

A NEW CULTIVATOR SERVICE

The Cultivator takes pleasure in announcing that arrangements have been completed whereby Bruce S. Bennett joins the staff in the capacity of live stock field man.

Mr. Bennett has been engaged in live stock newspaper work in the East and South for a number of years and brings to this paper a rich fund of experience and knowledge that will be of value to our readers and the live stock interests of the state.

Mr. Bennett will spend all his time in the field and his work will keep him in the closest touch with the breeders of the state, with whom he will be glad to advise and assist in every possible way. His intimate knowledge of the problems of the pure bred live stock business (he has been a successful breeder) will enable him to render splendid service to those interests.

From the reader's standpoint, Mr. Bennett's services can be utilized in the locating of breeding stock that will best suit the particular reader's need.

This new Cultivator service is free to all who care to make use of it and we trust that our readers will not hesitate to call on Mr. Bennett whenever he can be of help.

It is the earnest desire of the publishers to make the Cultivator an increasingly important factor in the agricultural activities of the state and we will, at all times, welcome suggestions from our readers as to how we can improve our service.

COMMUNITY COUNCILS

The state council of defense has issued an appeal for the formation of 5000 community councils located in various sections of California. The council hopes every section of the state will form these working units which shall operate under direction of the state council.

An immediate task of the community council will be the reestablishment of the returning soldier and sailor and the care of the man or woman thrown out of employment through the cessation of hostilities. The prime idea, however, back of these new new bodies is the belief that organization in time of peace will result in advancements almost as marvelous as the progress along military lines which organization produced during the war.

After the war problems that confront California are more important, if anything, than the problems during the war. This period of reconstruction and of readjustment will be one of the important eras of our national history. We on the Western Coast with unlimited possibilities ahead must organize as we have never organized before.

ELWOOD COOPER

Elwood Cooper, pioneer fruit grower of California and the first in America to make a success of commercial olive oil production, died on Sunday at Santa Barbara. Mr. Cooper was for years, (from 1885 to 1903) president of the State Board of Horticulture and when the board was legislated out of existence and the office of State Horticultural Commissioner created, he was appointed by Governor Pardee as the first State Horticultural Commissioner. His addresses made at state fruit growers conventions contain much of California's horticultural history. In addition to these addresses and official reports to the Governor of the state, Mr. Cooper is the author of books on eucalyptus and a treatise on olive culture. Some six years ago he sold the great Elwood ranch near Santa Barbara to a British syndicate and since that time has lived a retired life at the Arlington Hotel. He was 89 years old.

MOVING THE CLOCK AHEAD

Some Eastern farmers are complaining because of their calculations being upset by the daylight saving scheme of moving the clock ahead one hour during the longer days of the year. We have never heard this complaint from California farmers, at least not to a serious extent, for they have generally taken the position that farm help has been more directly concerned, at least during these war years, with accomplishing results regardless of the clock. Except under pressure of harvest time the nine or ten hour day prevails but even then the earlier hour has not proven generally objectionable. The clock has been principally a convenience to the farmer in informing him as to what the rest of the world might be doing. If the matter were left to the farmers and fruit growers to decide by vote as to moving it ahead, if they did vote in the negative, it would be more as a matter of indifference than active opposition.

COLD WEATHER

Up to Monday night the citrus grower was hopeful that he might be given immunity from extreme low temperatures. Tuesday morning rather changes the complection of things. Dr. Ford A Carpenter of the weather bureau reports that the temperature for a short time on Tuesday morning set the lowest December record in some sections. However, as to injury to fruit, there is strong hope that it has escaped for the reason that the exceptionally low temperature prevailed for only a short time about six o'clock in the morning. The thermometer registered a sharp "V" after five o'clock. One of the larger Valencia producing sections reports as low as 22 degrees, one other reports 25, and other citrus districts, not below 28 degrees. As the weather bureau gave warning some two weeks ago that it was well for orchardists to be prepared with frost fighting supplies it is thought most districts have been protected by liberal use of orchard heaters.

AS TO PORK IN 1919

C. B. Cunningham, president of the California Swine Breeders' Association and a member of the live stock commission for the federal food administration, has arranged for a meeting between producers, packers and food administration officials, to be held at San Francisco, January 10 and 11.

The announced purpose of the meeting is to attempt to establish a minimum price for hogs of 1919 farrow. Such an agreement will of course extend over into 1920.

Just what basis will be used in arriving at the proper minimum is not apparent. As a matter of fact, we doubt if any minimum is needed. With a heavy demand for pork products a certainty, and the probable supply rather short, we look for the market to be entirely satisfactory. Whatever is done must, in the end, conform to the world-old law of supply and demand—and just now no one seems to have much definite information on either point.

The meeting will serve a useful purpose in bringing the various interests together and will probably result in better understanding.

A GREAT INDUSTRY

The greatest of California fruits as represented by dollars and cents is the citrus. The greatest year in this industry was that of 1916-17. That year the total output of citrus from the state aggregated 54,504 carloads. We can not be exact in the value of this great crop to the state but presumably it was around fifty millions of dollars. The average box for that year's output has been approximated by the State Board of Agriculture as $2.16. The past year's values per box are vastly greater than any preceding year in the history of the industry but unfortunately the output, especially of Navels, has been greatly reduced. This because of the "June hot spell" of 1917. The variety which suffered most seriously was the Navel. The present year's output of Navels will however largely make up for last year's losses. The year's rest of the tree seems to be appreciated and it is returning with a large crop this year. The growers have been anxiously watching thermometers these snappy nights but there has as yet been no injury. If another week is passed through safely the orange grower will then breathe freely, for by the middle of January the crop is ordinarily supposed to have passed the danger line.

This condition has created additional interest in citrus planting and already the orchardist who is planning to plant more extensively is concerned as to securing sufficient trees.

PLANT A GARDEN

Now is the time to begin garden ing operations by securing a plot of ground, plowing, fertilizing, and fitting it for early planting. Irish potatoes, beets, carrots, peas, beans, corn, and tomatoes are among the most important garden crops from a food standpoint. Some of the garden vegetables are ready for use in five or six weeks after planting, and these will help fill our own tables and provide for the shipment of food to the million of destitute people overseas. Make a home vegetable garden now and do your share by providing at least a part of the vegetables used on your own table.

Eastern Europe and Western Asia are hungry—in some sections starving. Transportation and other problems will prevent their sufficient feeding for months to come, but Americans are willing to make the problem as easy of solution as possible, hence all making gardens.

The garden should be profitable; it isn't always, but it at least gives healthful exercise and fresh and crisp stuff for the table. Still more it saves wheat—it saves lives.

Start the garden at once.

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Citrus Culture---Beginners' Hints

By Ernest Braunton

HUNDREDS are each year added to the number who grow oranges, lemons or other citrus fruits. Part of this number come from our own residents and the remainder are newcomers drawn from every state in the Union. Few of the whole number are well informed as to the basic needs of one who contemplates entering this field of industry. Much of what is written is too academic in character or written on the assumption that the reader knows at least the first rudiments of citrus culture. We have need of a more elementary treatise on the subject.

Few who write make note of soil selection, and information on this phase of the matter is not needed by those who know something of this gi-



Intercrops in Young Orange Grove

The demands of the times, also the demands of the orchardists' bank account, call for using idle soil between rows of young trees in the production of intercrops. Here is a crop of milo and beans growing between on the grounds of the Southern California Citrus Experiment Station at Riverside.

gantic industry, but all novices are confronted by the question: What soils are best adapted to the growth of citrus trees? As a rule soil is not a serious problem, for some citrus fruits will grow on a great range of soils. No soil is too heavy if the drainage through the upper three feet is good. Sand and gravel only are to be avoided, yet splendid trees and good fruits may be grown in sand if heavily fed with fertilizer and organic matter is worked into the soil from the first year of planting; but on such soils citrus fruits will never prove a commercial success. Planting to suit the soil is a matter of selection of the proper variety of fruit. The Washington Navel thrives on the heaviest soils and does fairly well on very light soils. The same may almost be said of the Valencia Late, but this sort is often a commercial success on soils too light for Washington Navels and, per contra, is not so profitable on the heaviest soils. The latter is, however, but a matter of coloring, the eating quality being in no wise affected. Valencia Lates on heavy adobe soil generally turn green during midsummer, though of beautiful color in early spring. These green oranges are excellent for eating purposes but unmarketable.

The selection of land for citrus orchards should rest on climate rather than on quality of soil, for man has been overbold in selection of location. Year by year new plantings slip farther and farther down toward the valley floors. Then comes a destructive frost and cuts off all the frontier orchards. For a few years this misfortune remains a check on planting in the stricken sections. Finally, emboldened by several years without hard frosts, a few courageous souls creep down toward the lower levels. If more favorable years ensue this extension becomes universal and so continues until General Jack Frost again drives them back to their former position.

In hot interior valleys the Washington Navel is unquestionably the sort to grow. In the cooler coastal sections, where lemons thrive best, the Valencia will prove more successful.

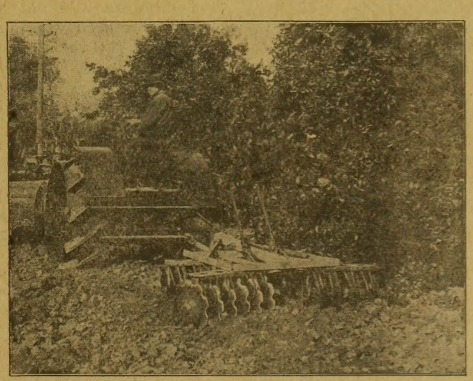
In heated sections lemons may produce a good winter crop, but the summer fruits will be few; therefore lands not far removed from the cooling ocean breezes are best adapted to lemon culture. Pomelos or grapefruit will endure as much heat as any of the family, but are more tender than the leaders among oranges and on a parity with lemons for hardiness. Of all oranges the Satsuma Unshiu, or Oonshiu, is the hardiest of the better varieties, and those who would slip down the slopes, past the danger line for navels and Valencias, are advised to confine their plantings to this hardy variety.

We have sought to make it plain to all that climate is far more of a serious consideration, even in the more favored parts of California, than is the question of soils.

Preparing the Land

As all citrus orchards must be irrigated it is of the first importance that land be even or smooth. It matters not if the land be level or on a ten per cent slope; it should have no uneven spots, for ease of irrigation depends on this more than on grade or slope. This is the most particular piece of work connected with citrus culture. If serious doubt exists as to where water will flow it is well to plow a few furrows and test the smoothness of your plane. Such preliminary work may save you from much labor and expense that would ensue if land is not uniform in surface. After a smooth, even face has been obtained the soil should be stirred as deeply as it is possible to go. A subsoiler should follow the plow especially if the soil be heavy. If an underlying impervious hardpan is present it will be better to use dynamite for every tree hole. No matter how excellent your soil the plowing should not be less than a foot deep. After plowing it should be harrowed until it is smooth, without clods, for a smooth surface will greatly facilitate the work of laying off the orchard for planting.

The question of how many trees to the acre is an interesting one and also very important. A common distance for the more popular citrus fruits is 24 feet apart, on the square system or method. This will give 75 trees to the acre. Practice varies as to distances with all sorts of fruits, and again, variety sometimes dictates. If one were growing Kumquats, ten or twelve feet is far enough apart. Satsumas will have room enough at 16 feet apart. Twenty-two feet is a favorite distance for the navel, but Valencias, lemons, and pomelos, or grapefruits, should never be placed closer than 24 feet and some planters place them at 26 feet apart. At the latter distance you will have 64 trees to the acre, and at 22 feet your navels would number 90 to the acre. By using the equilateral triangular method one would get 103 navels to the acre, but the square method of planting continues the most favored. After the distances have been decided upon the positions should be designated by substantial stakes. The rows should be perfectly straight and each tree precisely the same distance from its four nearest neighbors. Then will the trees line in every direction and the appearance of the orchard be satisfying and attractive to all beholders. All are aware that for economic reasons rows of trees should be straight, but instances are known where sales have not been effected merely because rows were crooked. When you are ready for planting dig the tree holes and do not be stingy in the amount of soil removed. It is best to dig them at least two feet deep and a-like distance across. If bare root trees are planted it matters not how deep the holes at planting time. But balled trees will settle if the loose soil is deep. Therefore it is advisable to fill in part of the soil if holes are deep, and if soil is damp and easily compacted, tread it down solid or run a little water in each hole if convenient. Remember that after planting you can never get under a tree to loosen the soil, therefore dig your holes deep and wide.



Modern Cultivation

Thorough tilth necessary in citrus orchards is secured by putting plenty of power on dependable deep working implements.

Planting the Trees

Set the trees so the union between bud and stock will not be less than three inches above the soil, and settle each tree with an abundant water supply. Never seek to save water in this part of the work or long delay its application after planting; even a few minutes' delay in hot weather may cause a loss, especially when bare root trees are planted in dry soil. It is always better to have water in the holes first if bare root trees are used and settle the soil with water immediately after planting. Bare root trees cannot be so carelessly planted as balled trees for the roots should be carefully and evenly spread, and to do so you will have to get down on your knees and distribute the roots evenly with your hands. If balled trees are used great care should be taken to prevent the balls from being split or broken. In planting, or firming the soil about the trees, never step on the ball and never cut cords on ball until tree is in place and the hole partially filled with soil so that ball cannot fall apart. Then cut cords on top and turn all parts of the sacking down into the hole before filling in remainder of soil. If sacking is left around the stem of the tree a cultivator tooth may subsequently tear the ball to pieces or even pull the tree out of the soil. The sacking will soon rot beneath damp soil. After trees are planted and given their first irrigation they should be carefully looked over before becoming firmly settled in position, to see that all are in line and upright. Many trees settle on one side only and thus get out of their former upright position. If any trees have settled too deep in the soil they should be raised at once. This work cannot be safely delayed. Newly planted trees should never suffer through lack of water. In light soils the trees should be irrigated every week until it is evident through new growth that they are thoroughly established; then irrigations every two, three or four weeks will suffice, according to the nature of the soil. In heavier soils the first waterings may be ten days or two weeks apart. The first irrigations need not be heavy for the lower soil will not be dry, it is a mere replenishment of moisture in the upper soil. Constant cultivation is necessary in young orchards, and if this is well done irrigations may be less frequent, especially if the soil close about the tree is loosened and pulverized with a hoe after each cultivation. Our orchard is now properly planted and started on its way to commercial success, and if any further advice or admonition is needed it is in regard to selecting the trees. One year old trees are preferable to two year olds and should be bought of dealers known to be thoroughly reliable and handling citrus trees on a large scale. You should not run the risk of buying a mixed lot of trees gathered from various sources by a small dealer. Uniform quality true to name is what you should insist upon having. Where soils are light buds upon sweet orange stock are considered slightly better, but if soil is heavy, subject to overflow, or drainage is poor, those on sour stock are best. In the colder sections trees on trifoliate stock have proven somewhat hardier.

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Agricultural News Notes of the Pacific Coast

Northern California

The J. K. Armsby Company denies that it would join the food products merger.

The Butte County farm bureau contemplates securing a permanent home demonstrator.

The Rio Bonita farm center is the newest added to the list of Butte County's farm bureaus.

An irrigation district has been organized in Modoc County. It is planned to cover 47,000 acres.

The Sutter-Butte Canal Company is issuing bonds to the amount of $800,000 for refunding and securing surplus for making certain improvements.

Amongst the prune growing counties of the Sacramento Valley Napa leads with 10,000 acres; Solano has 6145; Butte, 5942; Colusa, 4100; Sutter, 3505; Yolo, 2084.

At a meeting of horticultural commissioners held in Sacramento Geo. P. Weldon declared that the 8 to 1 orange test has been an entire failure north of the Tehachapi.

A storage proposition for the purposes of power and irrigation is contemplated for Concow Valley above Oroville. The impounded water will cover about 2500 acres.

Members of the farm center at Cloverdale, Sonoma County, are receiving information in pruning demonstrations given by Adviser Merrill and Horticultural Commissioner Bremner.

The first car of cured olives for the 1918 season, consisting of Greek, Sicilian, Calamarto and Italian style olives were shipped to Boston last week by the Pacific Products Corporation.

As a result of examination held at Redding on November 29, to fill vacancy caused by the resignation of Geo. A. Lamiman of Anderson, B. F. Stroup of Happy Valley has been appointed.

The fourth annual meeting of the Placerville Fruit Growers Association recently held at its packing house showed the association in excellent condition, its packing house paid for and over $2000 in the treasury.

There have been sold 83 farms on the Durham state colony in Butte County. There remains sufficient land which is under lease until 1921 to make six more farms. Including the labor allotments, there are now 125 families living on the colony.

The poultry producers of Central California have secured judgment against a member who sold his eggs outside the association and contrary to his contract with the association, of five cents per dozen on all eggs sold. The total amounted to $244.

It is predicted that there will be expended at least $2,750,000 on irrigation projects on the Pitt River in Shasta County. This will be primarily for the development of hydroelectric power but at the same time will greatly increase storage of irrigation water.

Railroad men running between Oroville and Winnemucca report that many sheep herders were victims of the effect of the recent influenza epidemic, and as a result whole bands of sheep, numbering thousands, were straying over the hills without any one to look after them. It is believed that the aggregate loss from this source may reach $100,000.

Central California

Merced shipped three tons of Christmas turkeys.

San Jose reports total rainfall of season to date ten inches .

The Bean Spray Co. at San Jose is making a $100,000 expansion.

Visalia announces that it will have a citrus fair some time during 1919.

Santa Clara County automobile owners have nearly $2,000,000 invested in autos.

Approximately 40,000 tons of prunes were ruined by the September storm is the latest estimate.

Farm Adviser Sullivan of Kings County is planning to form a dairy department in the county farm bureau.

The board of supervisors of Monterey County authorized an assessment of $60,000 on Reclmation District 1665.

The Santa Cruz farm bureau has outlined a program for the year 1919 touching nearly every angle of agriculture.

County Horticultural Commissioner Howard of Kings County has conducted one of the most energetic campaigns in squirrel eradication.

Some Fresno County raisin growers are suing picking contractors because fruit not picked at proper time was caught by the early rains and practically destroyed.

County Commissioner Collins of Tulare County and Rodent Control Superintendent Jacobsen announce that they will put Tulare County squirrels through their paces.

Ranchers of the beach road, Trafton and San Andreas districts in Santa Cruz County are considering a plan of cooperative buying of carbon bisulphide for squirrel control.

San Joaquin County reports the growing of sugar beets as becoming one of its most important industries. The Spreckels people now operate a million dollar factory at Manteca.

The California Grape Growers' Protective Association, after the suggestion of their attorney, has decided to remain an active organization indefinitely and to fight pending prohibition legislation.

The chamber of commerce of San Jose is exhibiting specimens of the Keesling walnut, said to be exceptionally well adapted to that section, and one of the most promising nuts recently brought out.

A favorable report on the Kern River watershed irrigation enterprise is expected to be filed in January. The proposed project is to include the fertilizing of the entire territory watered by the Kern River system.

Plans are being considered by the Oakdale irrigation district in Stanislaus County by which 125,000 acrefeet of water will be diverted from the Stanislaus River. The cost of the project will be about $2,000,000, and about 75,000 acres in the Oakdale district will receive additional water.

A state dairy council composed of representatives of all California milk producers and manufacturers of dairy products is created by resolutions passed by the California Creamery Operators' Association which recently met at Visalia. The association declined to adopt a resolution favoring the elimination of the state dairy bureau, substituting a single commission.

Southern California

Imperial Valley cotton gins are running day and night.

The cannery at Elsinore, Riverside County, is running on pumpkins.

Hemet orange growers are netting about $4.00 for early shipped navels.

A big dredger is working in the drainage district near Talbert, Orange County.

County Horticultural Commissioner Sharp reports 231,620 acres under cultivation in Riverside County.

County Commissioner Coy of San Bernardino is making thorough canvass of the squirrel situation.

Los Angeles announces the first exclusive rabbit show held on the Pacific Coast. It opens January 16.

Orange growers who received five and six dollars per box for Christmas fruit are highly pleased at the returns.

Los Angeles County farm bureau is conducting a vigorous membership campaign. The present membership is 2250.

Farm Adviser Wahlberg of Orange County has been conducting a series of pruning demonstrations. He was aided by Prof. H. S. Reed.

The La Verne Orange and Lemon Growers Association is building a 68 by 118 foot addition with concrete base to its packing house.

The fourteent annual show of the Southern California Poultry Breeders Association opens in Los Angeles January 8, continuing for a week.

Redlands shipped 114 cars of Christmas navels; Riverside, over 100. These are heavy shipments for holiday fruit from Southern California points.

Prof. J. C. Whitten of the University of California is giving deciduous pruning demonstrations under direction of various Southern California farm bureaus.

Hemet, Riverside County, reports the olive crop as somewhat less than earlier estimates. The fruit, however, is running to exceptionally large sizes and commanding long prices.

The Hemet-San Jacinto Growers Association has placed a value of $111,000 on its cannery. This association has made one shipment of eight cars of canned peaches to the war department.

The Charter Oak Citrus Association has elected for the coming year: Wm. Bowring, president; W. E. Clopine, vice president; P. B. Letchworth, Arthur Bowring, Martin Fesler, Charles Menefee, C. P. Colver, William Hoogendyke, manager.

At a meeting of the farm bureau directors of San Bernardino County it was urged that other county bureaus of the southern part of the state should unite in making an appeal to the college of agriculture for more direct help in solving agricultural problems.

The Covina Heights Citrus Growers' Association reports averaging for its last year's output; Navels $3.54, Valencias, $5.67, other varieties, $1.86, or an average all grades all sizes $5.15. Officers for the coming year are: D. J. Overholtzer, president; C. A. Leighton, vice president; R. L. Hendrix, manager and secretary; M. M. Knudtson, P. C. Bashore, S. Douglas, E. M. Bosworth, F. M. Sterling, C. D. Webb, W. L. Case.

The Coast and General

The first car of California mixed vegetables reached New York the second week of December.

Beet growers in the Inland Empire, Eastern Washington and Northern Idaho, received last year $14,000,000.

According to the Texas agricultural college a special effort is being made to restock France with pure bred poultry.

Florida's state food commissioner has served notice on shippers of citrus fruits that hereafter "short" boxes must be distinctly marked.

The movement of Florida lettuce continues quite slow. Only 181 cars had gone forward up to December 7 compared with 267 cars last year.

The war trade board has ruled that no individual licenses will be required for the export of raw cotton to Great Britain, France, Belgium or Japan.

The Florida Fruit Exchange reports selling but a small quantity of fruit at auction; f. o. b. orders are received for practically all holiday offerings.

It is stated that shipments of tomatoes on the West coast of Mexico will be about 100 cars. The season extends from the latter part of December to July 1.

Florida orchardists are appealed to to make trial of fumigation in Florida as a method of controlling scale pests. The use of fumigation in Florida has as yet been very limited.

The largest apple order ever placed in the Pacific Northwest is being handled by the Hood River Fruit Company. The order, of English origin, calls for $1,000,000 worth of apples of all varieties and grades.

From November 27 to December 3, 118 cars of dry beans were shipped from California. Seattle states that during the same period 325 tons of Japanese beans were received at that port while Portland received 500 tons.

The seed reporting board of the United States department of agriculture predicts that growers of commercial vegetable seed will meet a much larger foreign demand for their product during the year ending July 1, 1919 than during the previous year.

Castor oil plants growing in Florida and Georgia have been seriously infected by a fungous disease, ricinus communis. The plants wilt very much as do potatoes and tomatoes when affected by the ordinary wilt and instructions have been given to plant no castor beans on land where the solanums have been grown.

The Community Millers Association of America conducted the last season an increased wheat acreage campaign, offering medals and prizes aggregating thousands of dollars in prizes to the millers who secured the greatest wheat acreage increase. The first, second and third prizes were won by farmers in Oklahoma, Texas, Illinois.

Apple shipments from the five Pacific Coast states from December 4 to 9 inclusive, were as follows: On the 4th, Washington 160 cars, Oregon 35, California 23; on the 5th, Washington 153; Oregon 23, Idaho three; California 12; on the 6th, Washington 124, Oregon 25, California 20; on the 7th Washington 115, Oregon 26, Idaho two, Utah one, California 24; on the 8th, Washington 74; on the 9th, Washington 61, Oregon ten, California 2.

The Duty of Water

Written for California Cultivator by J. B. Neff

THE duty of water is usually defined as being the amount of water necessary to produce a crop, and varies according to the kind of crop and the soil as well as the climatic conditions.

The unit of measure for reservoirs is the cubic foot, but this is too small for convenient use, and the acre foot, or quantity which will cover an acre one foot deep, is more generally used for large bodies of water. The term "acre foot" is to be preferred as it bears a direct relation to areas to be covered with water. The time unit is usually one second, and flowing water is measured by "second feet' or the number of cubic feet passing a given point in one second of time. Measurement is frequently expressed in miner's inches, but a miner's inch is a variable quantity, though 50 miner's inches in California equal one "second foot," and a constant flow of 50 miner's inches for 24 hours will equal two "acre feet," that is, cover one acre two feet deep. One hundred miner's inches will cover one acre two inches deep in one hour.

Experiments have been made to determine the amount of water necessary to produce crops of different kinds. Among the most important of these are the experiments of Prof. King of Wisconsin, who has found that it requires from 300 to 500 pounds of water to produce a pound of dry material. That is, to produce a ton of hay it is necessary to have from 300 to 500 tons of water, which must be supplied by rain or irrigation, in addition to moisture which goes away through evaporation from the ground. Enough water to cover an acre one inch deep will weigh about 113 tons, so that if one ton of hay is to be grown on an acre there must be from three to five inches of water applied at the proper time, in excess of that wasted by evaporation. The amount used is always largely in excess of this, as rains do not come at the time nor in the quantity that will do the most good.

The water which passes into the air through the leaves of a plant is said to be transpired, in distinction from the general evaporation which goes on from the ground as well as the plants. The effect of dryness is to increase transpiration, and when the roots cannot get sufficient water to supply this transpiration, the plant withers.

Transpiration takes place chiefly during the heat of the day and is enormous at times. An ordinary crop of grass, which will make two tons of hay to the acre, will transpire six and a half tons of water on a dry day, or more than 200 tons in a month in addition to the evaporation from the ground.

An ordinary crop of wheat will transpire from 250 to 300 tons of water per acre during the growing season. One hundred pounds of growing meadow grass contains an average of 70 pounds of water, and 100 pounds of red clover or alfalfa contains over 80 pounds of water. Such moist plants as lettuce, cabbage, etc., contain as much as 95 to 98 pounds of water to 100 pounds of fresh material.

The amount of water to be used varies with the kind of crop that is being grown; thus the water required to produce one cutting of alfalfa hay on one acre will be sufficient to produce a crop of corn on five acres. When it is considered that from four to six crops of alfalfa are taken from the same land every year it will be seen that a large supply of water must be on hand to grow alfalfa successfully.

The quality of the soil being sandy loam and the climate being that of the Southern Coast counties, with 15 inches of rainfall, it may be said that corn will require, in rain and irrigating water, 20 inches to produce a crop; a walnut orchard with trees 12 to 18 years old will need 25 inches; an orange orchard in full bearing should have 30 inches; and an alfalfa field will not do well on less than 60 inches for the season. The amount necessary on cultivated orchards will be greater or less in accordance with the amount of cultivation they receive; the better cultivation the less water will be needed.

Soils that are sandy will require more water, but where there is danger of leaching, the water should be applied in smaller quantities and oftener, while heavier soils that are more retentive will need a less number of applications and it can be applied at longer intervals.

Very dry climates require more water and in some of the Arizona valleys where crops with shallow roots are grown, it is necessary to run water on the ground every eight to twelve days.

It is best to begin the season with the ground thoroughly wet and if the rainfall should be insufficient the irrigation should be done before the weather becomes hot, so as to avoid excessive evaporation.

The depth of water required to soak the soil varies, but it has been found that one inch of water will saturate dry soil about three inches deep, though moisture will in a few days reach several inches farther and give the ground the appearance of being wet when it is very much below the point of saturation and would retain considerable additional moisture.

Income Tax

AGAIN it's time to make income tax return. Here are suggestions and details regarding the report as made by Jno. P. Carter, collector for Los Angles district.

In addition the Cultivator will be glad to submit any questions sent this office regarding details of making out the return.

* * *

A special form of income tax return designated as Form D1 has been provided for the use of individuals whose principal income is derived from farming or ranching operations. These forms will be furnished by this office to those in need of same upon application.

A record of income received and amounts paid out for expenses should be kept by farmers and ranchers in such a manner that they will have the necessary data available at the close of the year to enter upon the return referred to. General instructions relative to the preparation of returns by farmers, ranchers, etc., are given below:

Inventories

This return may be used by farmers who take inventories of crops, live stock, etc., on hand at the end of each year (and thereby include in their income the value of the products raised but not sold). It may also be used by those who do not take inventories. Separate summary forms are provided for farmers who use inventories and for those who do not.

The government prefers the inventory method, as it shows each year's income more accurately. The total amount of tax due will be substantially the same under either method, as the sale price of all products raised must eventually be included in income.

The inventory method can not be used, however, unless you actually took an inventory at the beginning and end of the year for which your return is made.

If you made an inventory of animals, crops, products and supplies on hand December 31, 1916, and December 31, 1917, enter the amount of both inventories on the return. You may include in such inventories live stock, crops, etc., produced on the farm. Live stock purchased for draft, breeding or dairy purposes, or for any purpose other than re-sale, may be included in the inventory at a figure which will reflect the reduction in value estimated to have occurred through age or other causes. Such a reduction in value should be based on the cost and estimated life of the stock. The opening and closing inventories must cover exactly the same classes of items. The opening inventory must be the same figure as the closing inventory of the year before.

If inventories are used, losses of live stock bought for resale, or of any other articles included in your inventories, are not deductible as such losses will be reflected in the inventories.

What to Report as Income

All income from whatever source derived, must be included in this return, except the items enumerated below, under "Receipts exempt from tax."

Only income actually received need be included, but this does not mean that the taxpayer must receive cash. Anything of value received instead of cash must be considered income to the extent of its cash value. Any income received by your wife or dependent children under eighteen must be included in the return, unless wife or child make a separate return.

Receipts Exempt From Tax

The following classes of receipts are exempt from income tax, and need not be reported:

1. Salaries, wages, etc., received from states and political divisions thereof, such as cities, counties, townships.

2. Gifts, not made as a consideration for service rendered, and legacies (but the income derived from money or property received as a gift or legacy is taxable and must be reported).

3. Interest on bonds of the United States issued before September 1, 1917, and on bonds issued since that date, provided no more than $5000 worth are owned.

4. Interest on bonds of United States possessions (Philippines, Porto Rico, Canal Zone).

5. Interest on bonds of states and political subdivisions thereof, such as cities, counties and townships.

6. Interest on federal farm loan bonds.

7. Proceeds of life insurance policies paid on the death of the insured, and payments to policy holders under endowment and similar policies, provided such payments do not exceed the premiums paid in. The amount by which such payments exceed the premiums paid in is income and must be reported.

Deductions

Report as deductions only amounts actually paid out in carrying on your business. Do not deduct personal or family expenses.

Taxes—Do not deduct inheritance or estate taxes, federal income tax, drainage taxes, or taxes for any improvement or betterment. Be ready to show tax receipts, if possible.

Insurance—Do not deduct premiums for insurance on dwelling you occcpy, or life insrance premiums.

Labor—Do not deduct amounts paid to your own minor children unless you also report such payments in section B (page 4) as income to them (which must be included in your income). Do not deduct amounts paid to persons engaged in work in or around your dwelling.

Repairs—Do not deduct the cost of any permanent improvements or betterments to farm buildings, or of new machinery. Do not deduct the cost of repairs to the dwelling you occupy.

Depreciation—Depreciation of farm buildings and equipment not offset by repairs may be deducted.

The depreciation claimed should not exceed the actual cost of the property divided by its probable life in years.

Do not deduct depreciation on your dwelling or household furniture. If you have calculated your income by the inventory method (see instructions under "Inventories") do not claim under "Depreciation" any reduction in the value of articles that are included in your inventory at a figure which reflects the reduction in value. (See also caution under "Automobile expenses" below.)

Losses—You may deduct losses resulting from fires, storms, or other casualties, not compensated for by insurance or otherwise. However, if you calculate your income by the inventory method, you may not deduct losses of any property included in your inventory.

If you do not use inventories, you may deduct the actual cost of purchased live stock lost by disease or injury. The cost of live stock raised on the farm may not be deducted.

Automobile Expenses—You may deduct the expense of operation, repairs, and depreciation of automobiles used exclusively in your business. If an automobile is used partly for business and partly for pleasure, the claim for expense must be clearly established before it can be allowed.

"The efforts and achievements of the millions of farm men and women have been noble and remarkable. The farmers have occupied the first-line trenches of the food army. They and the agencies assisting them, the federal department, the state colleges, and departments of agriculture, were prepared when we entered the war and had been for years, and I venture the assertion that no section of our people and no agencies have done a better job."—Secretary Houston.

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Winter Management of Soils

Written for California Cultivator By H. Culbertson

THE following suggestions are for the red granite soils. Such soils when short in vegetable matter are inclined to run together with heavy rains and become very compact. Experience has suggested some things that are of value in handling them.

In the first place the preparation for sowing grain. It is important that the plowing be rather shallow. If deep plowing is done just before sowing in the fall or winter the ground gets very compact and unfavorable for plant growth. The surface that has been exposed for a number of months does not compact so much and hence should remain on the surface. Turning it under by deep plowing and placing on the surface the soil that has not had exposure to the surface conditions, the main object of plowing and tillage is defeated. The most of us come to California with deep preparation of soil ideas and are inclined to criticise the older experienced grain growers for their seemingly careless method of putting in grain. Sometimes it takes a number of seasons to get the reasons for the shallow preparation. The success of the shallow preparation is the proof that it must be correct. The main reason for it seems to be that the ground does not get so compact and is more favorable for the crop. The deep plowing comes in the spring where it is to be fallow all the season. The unexposed soil gets its preparation during the season, leaving it in good condition if allowed to remain on the surface.

There are some things in winter practice on soils intended for spring cropping that are of value. It is a common remark that some seasons when heavy rains come especially, that ground plowed before a heavy rain gets into much worse condition than the unplowed. It seems to run together as deep as it is plowed. Before it can be reached by tillage it gets so unmanageable that it cannot be put into proper condition during the season. While plowing a good depth under good soil preparation methods is a desirable thing under ordinary conditions, we might not do it if we knew a big rain of three or four inches was coming and would put the soil in worse condition than if not plowed. The man that tries to keep his work in good shape wants to begin fairly early and has to take some chances on the excessive rains.

One of the things that aggravates conditions is to leave the surface smooth. After plowing, the ground is harrowed to pulverize it and leave it in fine condition. Unfortunately this is the worst shape it can be in for the heavy rain. The difficulty can be largely overcome by cultivating with large tooth cultivator. The shovels should not be less than four inches across. Still better, put in regular irrigation furrows, close together, the object being to leave the surface as uneven as possible. Should the heavy rains come it will be in as good a condition as possible. The ground will absorb as much or more of the water and the ridges between the furrows especially will hold in good condition to pulverize longer and work much easier than if not furrowed.

All winter cultivation should be with wide shoveled cultivators to leave the surface very uneven.

If conditions are such that barley can be sowed early and make a growth that will be a foot or more high about the first of February, when such plowing should begin, soil conditions will be much improved. The ground at that time will be full of fine roots, and turning under the upper growth leaves it in condition to take in the largest possible amount of the rainfall to be stored in the subsoil. If the barley crop is a large one and two feet high or more the fresh plowing will need packing to decay the crop turned under. The best common tool for the purpose is the common disc cultivator. Set it the reverse from the position for cultivation. It is surprising how it will close up the open spaces between the furrows and leave the ground in condition to decay the turned under crop. It will be as little subject to the compacting by heavy rains as can be secured under ordinary circumstances.

The annual barley treatment as above will keep the best conditions for continuous summer crops or deciduous orchards and vineyards.

A point in the management of winter gardens along these lines will often make the difference of success where failure would otherwise be the result. The writer has plowed up his garden twice after heavy rains, because the ground became so packed that it was considered best and cheaper to plow it up than to try to work it. This trouble is easily overcome by simply making a good irrigation furrow between each two rows. Make the furrow deeper than ordinary. If the rain is an excessive one the furrows will carry off the injurious excess. It is surprising how easily the garden is hoed or raked after such treatment and it is in much better condition for the crops. Instead of solid compact soil it is loose and friable.

The ordinary preparation for a garden is to make it quite smooth and even. This is one of the best preparations for a compacted soil if the heavy rain comes. The irrigation furrow put in at the time of planting and renewed after each hoeing or raking is the effective remedy.

Fertilizing

THE problem of fertilization is one of the longest with which the orchardist has to deal. He is unable to rotate crops; he is confronted with an unnatural soil condition which calls for considerable ingenuity, to say nothing of information as to soil physics and soil chemistry. His knowledge of physics and chemistry may enable him to determine what he would like to do, but when possibilities of securing the material which he reasons is needed to improve his soil is considered, and, still more, when the cost of these humus formers and fertility givers is considered, the problem becomes a serious one.

The use of stable manure is generally recognized as giving the best returns, especially considering its physical effect, but the trouble with stable manure is that the supply, always limited, grows smaller day by day while the demand is increased. This lack is made up in part by the growing of green manure crops, but this fails, or at least has limited usefulness, in the oldest orchards, and does not, when used alone, give the returns desired. The liberal use of phosphorus and potassium with green manure crops does, however, aid materially in increasing its advantages.

Just at this time of the year, or within the next few weeks, the question of the use of nitrates or ammonia or blood or some other quick acting fertilizer, which may induce heavier setting of fruit, will be discussed. On California soils there has been almost invariable beneficial results from the use of nitrate, though the experiments at the Riverside station have shown advantage from continuous use of blood or an organic form of nitrate. As between nitrate of soda and sulphate of ammonia it must be borne in mind that the soil on which experiments are to be performed is to be considered. Nitrate of ammonia on a heavy moist soil which has a tendency toward acidity may not give most beneficial results. On such soils there is little question that a nitrate would be preferable.

Some interesting demonstrations have been made under direction of the United States department of agriculture in Porto Rico. From the summary of a report of the demonstrations we quote:

Summary

"The response to fertilization was very prompt and the effect pronounced on both trees and quantity of fruit produced.

"In each plat given but two elements the leaves were smaller and lighter in color than in those given a complete fertilizer. This difference in color was not great in the grove at Bayamon, and was most pronounced in other groves during period of drouth. In the grove at Pueblo Viejo the color was poorest in the plat given no phosphoric acid, and in the grove at Manati, where no nitrogen was given.

"The growth in the check plats was so slow and unsatisfactory that all except one were discontinued before the conclusion of the experiments. Where but two elements were given the growth of both trunk and top was much slower than where a complete fertilizer was given.

"The appearance and growth of the trees in plats given a complete fertilizer were practically the same except that in a plat given nitrogen in the form of dried blood they were not as thrifty.

"The weight of fruit per tree harvested from the check trees was but 27 per cent of that from the trees given a complete fertilizer.

"Where records of yields were made, the crop from plats given a complete fertilizer was decidedly greater than where but two elements were applied. In one grove the gain in yield by plats given three elements over those given two was 80 per cent, and in the other 44 per cent.

"When but two elements were applied, the plats given no nitrogen gave the poorest yield. The plats given no potash bore more than the plats given no phosphoric acid or those given no nitrogen.

"The average weight of the fruit per hundred was heavier in the plats given no nitrogen than in those where phosphoric acid or potash was omitted.

"Where potash was applied in the form of muriate, the crop was heavier in one orchard and slightly lighter in the other than where applied in the form of sulphate. These differences are too small to indicate that for the quantity of fruit production one form of potash is superior to the other. No differences were noted between these plats regarding quality, flavor, or color of fruit.

"In the grove at Pueblo Viejo, where the element nitrogen was applied in the form of nitrate of soda, the yield was but 83.7 per cent of that where an equal amount of nitrogen was given in the form of sulphate of ammonia. At Bayamon there was practically no difference resulting from the two treatments.

"The yield from the plat given nitrogen in the form of dried blood was but 75 per cent of that where sulphate of ammonia was given.

"No marked difference in flavor of fruit was observed resulting from the application of different fertilizers.

"Difference in time of ripening of the fruit in fertilized plats, resulting from different fertilizers applied, were not apparent. The fruit ripened earlier in the check plat than in the fertilized plats."

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Prunings for Humus

DISPOSAL of cuttings of either citrus or deciduous orchards has proven somewhat of a problem, and the question is often asked of the Cultivator, "Is it not best to return these prunings directly to the soil, securing from them in the course of years a supply of humus?" This has called for a satisfactory cutter or other means of working prunings up so they will incorporate with the soil. These cutters have been used and, it has been found, without prohibitive expense. We give herewith illustration of one of the newest forms of these cutters.

Heretofore the practice has been to burn these prunings. While the ashes possess some fertilizing value it is not nearly so much as is in the prunings themselves when cut up into short lengths, for besides incorporating all the fertilizing value of the stock with the soil it has the additional advantage, when handled in that manner, of putting humus into the soil and thus improving its tilth.

The method of using this vine cutter is to trim the trees or vines and drop the trimmings right on the ground every other row, driving the vine cutter down the row where there are no prunings and feeding it from either side, thus eliminating the work of piling the prunings and burning them, for with one handling the prunings are put into the machine which cuts them up into short lengths and scatters them over the ground so that they can be plowed in; the cuttings being sufficiently short that they will not sprout.



Humus from Orchard Prunings

Here is the latest improved implement for reducing orchard prunings to short lengths so they may be incorporated with the soil. It is on the principle of a feed cutter and it is declared to be a complete success. This engraving by error was used last week over the wrong caption.

Seed Wheat

THE distribution of seed wheat in California has resulted in great increase of average production. One institution alone, the Sperry Flour Company, has sold more largely of the improved varieties than any preceding year. For instance, Early Baart, originally introduced to Arizona from Australia, and since become practically the only milling wheat in Arizona, has had greater distribution than any other. Norman F. d'Evelyn writes regarding distribution that this season's totals are Early Baart, 10,761,693 pounds; White Australia, 1,320,880; Club, 1,265,121; Sonora, 390,265; Sperry No. 1 (Bunyip), 142,469.

Striking an average for the characteristic grain lands of the state, the wheat sold at the time these figures were compiled was sufficient to sow 163,299 acres. This represents a very substantial part of what has been the average acreage of the entire state in recent years. The true significance of this accomplishment is appreciated when one turns to the official figures: 1912, 370,000 acres; 1916, 350,000; 1917, 375,000.

At this writing the prospects for the season are very bright. Projecting the yield at as low an average as seven sacks to the acre, the land for which wheat was sold through this one source should produce 143,093 sacks. The value of this wheat as the sacks come from the harvester, figured at $4.35 a sack, would amount to the imposing sum of $4,972,364.55.

In a preliminary report George R. McLeod of the Sperry Company wrote:

"The writer has inspected several fields which were sown to Northern Early Baart wheat and in every in-



Saving One Man

In the issue of December 28 on Page 663 was an article headed Save One Man. It touched upon the necessity for labor saving appliances amongst which "The tractor has proved the most potent in making the farmers' campaign successful." The article then describes certain extensions which made possible the control and guiding of the plow and other implement which the tractor was hauling. By an unfortunate error the wrong engraving was used in connection with this article. By turning back to the article and then comparing with the Samson Sieve-Grip illustrated above a clearer idea of the advantages offered by this improvement may be had.

stance the germination of this wheat has been very satisfactory.

"If Early Baart wheat does as well in yield and proves to be as good in quality as it has the past two years, we are of the opinion that this drive will go a long way toward bettering the quality of wheat in California and will also prove to be a more satisfactory crop to the farmers than the varieties commonly grown by them."

At the very beginning of the season all available California Early Baart was disposed of and the bulk of the wheat sold was obtained from Washington, and a substantial amount from Arizona. Had it been possible all season to obtain a limited amount from these sources of supply, the sales would have swelled very materially. It may be added that the volume of sales of Sperry No. 1 (Bunyip) were negligible for the reason that very little of this new type is yet available.

EUROPEAN CORN BORER

Massachusetts opened its doors to one of America's worst insect pests, the gypsy moth. It has cost the state and nation millions and the fear that this pest will sweep the entire country still menaces us. Now comes the the report from the same state that it is entertaining another pest which, if allowed to go unchecked, will wipe out America's greatest crop, corn. It is the European corn borer. The pest only covers now a few counties in the eastern part of the state, but the seriousness of the situation has called for the organization of a plant test committee with headquarters at Boston. This committee has issued a statement regarding the borer from which we quote:

Sneaked in as a Stowaway from Europe

This enemy managed to somehow stowaway in a cargo of hemp that was brought from Europe some eight years ago for the benefit of a New England cordage factory. Its presence is known here now, and its capacity for destructiveness has been sufficiently demonstrated. Moreover, the study of its habits in this and other lands, that has already been made by our entomologists, shows that it is a thoroughly undesirable citizen and must be attacked at once with all the force of brain and money that can be mustered, and with exterminative purpose.

At present, so far as any one can discover, the corn borer is encamped on a relatively narrow area just to the north and west of Boston. To Medford, that was first forced to harbor the costly gypsy moth, is given the unenviable new distinction of having unwittingly given first sustenance to this new horror. Thus far its known range is but 325 square miles but its capacity for spreading even by natural means is great, and it is almost certain to be given a lift along the road by railway trains and automobiles, so that the entire country will be at its mercy unless the organized forces of the nation and its states act quickly and effectively in a determined effort to stamp it out.

Two generations of from 300 to 900 in a brood is the annual record in Massachusetts. The last brood of the year winters over in nearly full grown worm form well housed in some food plant. As the warmth of spring touches them the worms wake up, and after a brief further feeding within their burrow attain their grown up stage, and then curl up in chrysalis to win their wings. This period of probation, or of pupation, to be truly scientific, is of but two weeks' duration, whereupon there emerges along late in May a rather pretty little reddish brown or pale yellow moth, with a wing spread of an inch or a trifle more. The brown moths are the males. Another fortnight on the wing and this generation has done with life, its eggs having been laid on the food plants round about. In less than a week, however, generation number one for that year breaks free from the shell, and the destructive feast is on once more, the young worms first feeding on the tender shoots, boring down into the stems as they gain in strength. In a month and a half of ruinous gorging the worms have come to maturity, curl themselves up as their sires did before them, and late in July the moths once more appear flitting about the field. Where the parent moths of the spring were content to lay the foundations of families varying from 300 to 700 in number, this midsummer host is more ambitious and from 600 to 900 eggs to a batch are the common figures. And just as they are more numerous, so are these worms more destructive, so far as the corn is concerned, for they romp at once into both tassel and ear, and keep up their feeding until checked by the early frost.

GREASING THE WAGON

Short cuts, or elimination of details, have aided many a farmer in reducing costs and making his place pay while otherwise there might have been a loss. We have from W. F. Cook of Orosi his method of greasing a wagon which, he says, makes a material saving. It looks to us as if there might be danger of losing his wheel and dropping the spindle in the dirt. However, we give Mr. Cook's method as he sends it.

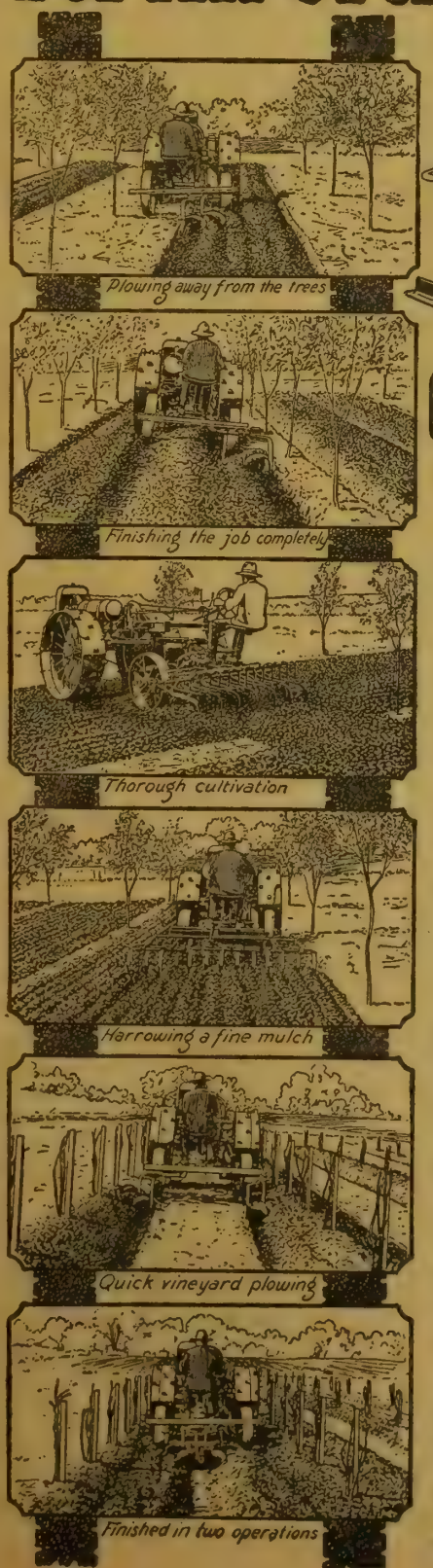
"First, take off all the burrs. Take hold of end of tongue and swing back and forth a few times to spread the wheels. Take hold of hind end of rack or box and spread apart by giving a few shakes sideways. Do not spread wheels more than two or three inches as you may have trouble in getting wagon back together again.

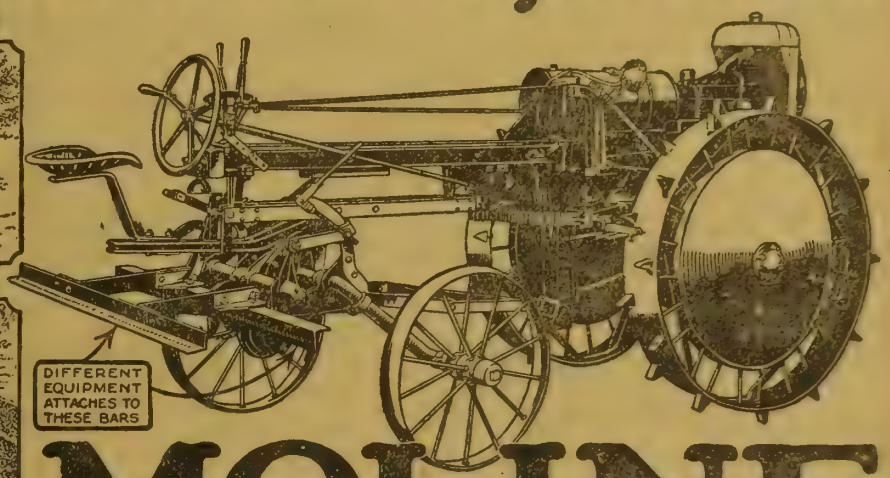
"Now grease the side that is spread apart. Go to opposite side and push the wagon over so as to make room to grease. Now put on burrs on first side greased. Go to other side and take hold of rack. Put both feet on spokes near hub and give yourself a few outward swings and you can pull the wagon together again. Of course the wagon should be on firm ground. If a little sidling so much the better if you put burrs on high side first as the pulling together will then be down hill.

"This is the easiest and best method I know of. If any of your readers have a better way please send it along. I used to have wagon jacks which I thought necessary, but since I learned how I have no use for a jack to grease a wagon.

"Another item while I am on this heavy wagon line. If your old wagon is hard to guide (binds in the bolsters), take an old rolling coulter blade, knock off the hubs, put under bolster and see what a difference it will make. A little axle grease will help but it will turn much easier on the steel."

One Tractor and One Implement For All Orchard and Vineyard Work





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Thus this one implement does away with all special tools which are used for only a few days out of the year. The Moline-Universal Tractor Attachor combines the main parts of all these machines such as wheels, axle, frame, lifting device, seat and control mechanism. The saving in expense is apparent.

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For orchard plowing the gang plow is used and the land is plowed as close as the branches of the trees will permit. Then the Offset Sulky or the Straight Sulky is attached in place of the gang plows and the last furrow or two are plowed out right up to the tree trunks. Plowing can be done away from or to the trees in this manner. After plowing the Orchard, the Cultivator or Spring Tooth Harrow can be readily attached for making a fine mulch. And if irrigation is practiced, furrows or ridges are quickly made by attaching this equipment.

For vineyard work, Moline-Universal Attachor enables a better quality of work to be done, and quicker and cheaper than ever before possible. The vineyard plow consists of a pair of right and left hand bottoms. These bottoms can be spaced wide apart or close together to suit any vineyard rows from 6 to 10 ft. apart. In two operations, with the bottoms spaced wide and close together, all the land can be completely plowed between the rows. Then by using Spring Tooth Harrow and Furrow Irrigators the entire vineyard work can be finished completely.

The Moline-Universal Tractor is especially well adapted to orchard and vineyard work, being light in weight, extremely powerful. All moving parts are fully protected from dust and many other features which other tractors do not have. Aside from this work it can be used for any farm work, including cultivation of row crops and for belt work.

This Moline outfit will make you more profit. If you are interested in orchard or vineyard work, send for folder R. F. No. 84 which explains in detail just how the Moline-Universal Tractor and Attachor are used.

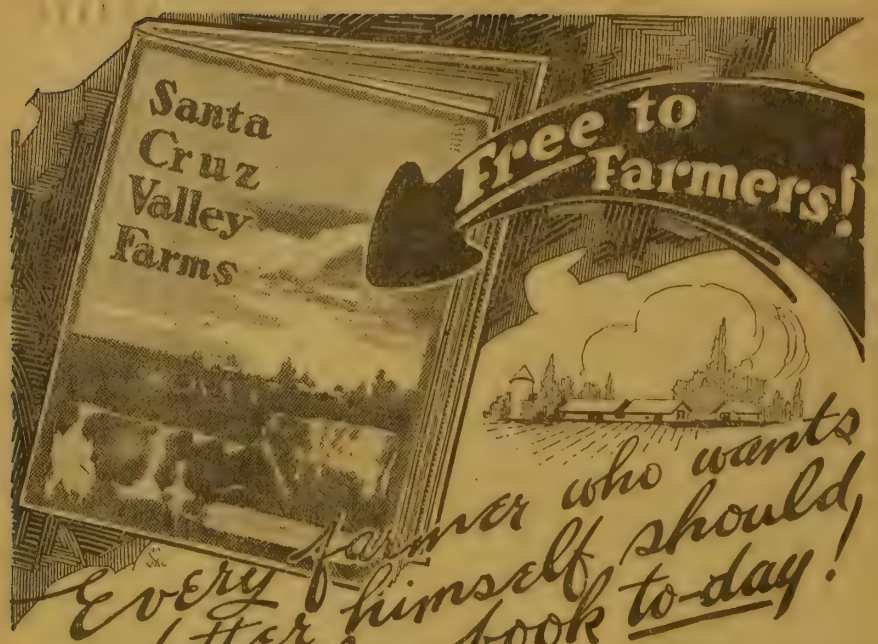
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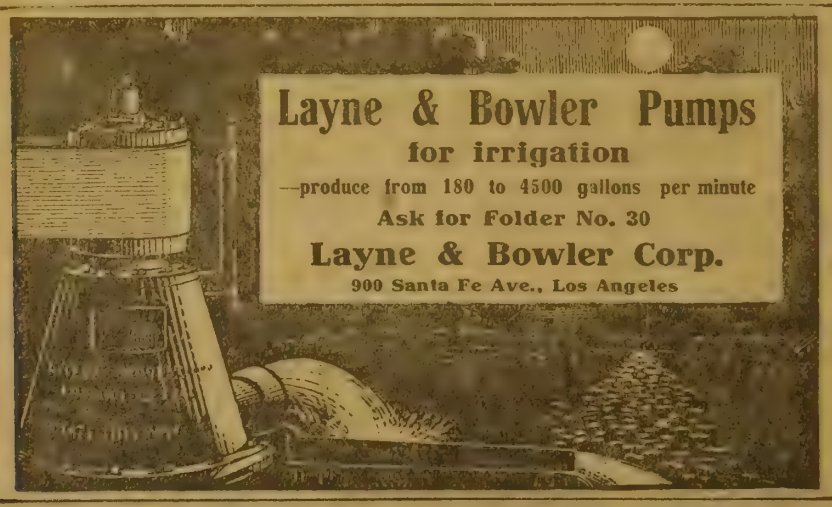
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Home Made Olive Oil

Written for California Cultivator By W. V. Cruess

THERE is no thoroughly satisfactory way of making olive oil upon a very small scale without expensive machinery. Where one has only a few Mission or Manzanillo olives, it will be better to make them into olive pickles in the way recently described in these columns. However, a number of growers have a few trees of an oil variety of olive, the fruit of which is unsuitable for pickling; or others may have a quantity of badly frosted fruit that will not make satisfactory pickles. All such material can be made into oil. It must be realized that the methods described below are the best that we have been able to find or devise for small scale use, but that the yields of oil when compared with commercial factory yields are low. The necessary utensils can be found on any farm.

Extraction of Oil Without Pressure

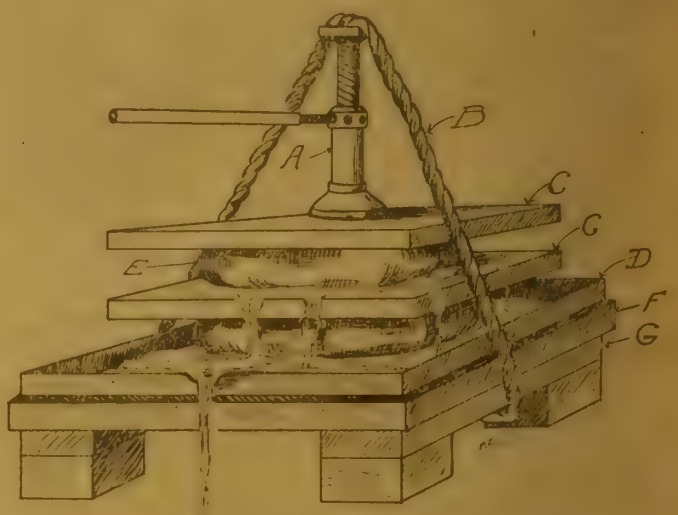
A pound or two of ordinary lye, such as Babbit's, Red Seal or Greenbank's lye, will be needed. Make up a solution of the lye of one-half pound of the lye per gallon of water, using an agate ware or iron pot. Do not use your aluminum ware; it will dissolve in the lye. A small basket of wire screen such as is used for making French fried potatoes will be needed or a piece of cheese cloth can be used.

Heat the lye solution to boiling and while it is boiling dip the olives in it for about 20 seconds. The time will vary with the toughness of the skins. Leave the olives in the lye until the skins are softened; that is, practically dissolved. Then plunge them into cold water for a few seconds to check the action of the lye.

Place the lye treated olives on a piece of fly screen tacked to a frame over a large dishpan. Rub them on the screen until the flesh has separated from the pits and dropped through the screen into the pan. A heavy pair of gloves is useful in this process to prevent the hands becoming badly stained and roughened by the lye and olive juice.

Place the pulp, which should now be of a pasty or mushy consistency, in a pot with about two or three times its own volume of water. Heat with stirring to the simmering point for about one-half hour. Set aside for several days to permit the oil to rise to the surface. Usually a fair yield of oil can be obtained by skimming it from the surface of the pulp. The pulp may then be heated to boiling a few minutes with more water and allowed to stand again. The process should be repeated several times. We have obtained about two-thirds the yield of oil by this process that can be obtained by use of a commercial press. The secret of success lies in rubbing the olive flesh to a fine grained pulp on a screen.

The oil obtained by this process must be washed and should be filtered as described later in the article. It has been found that the yield of oil is sometimes increased by adding about one-fourth pound of salt per gallon of water used with the pulp. Always use a large excess of water with the pulp as this facilitates separation of the oil.



Home-Made Olive Oil Press
Plan and drawing by Prof. W. V. Cruess. Specifications in Prof. Cruess' article.

Home Made Olive Press

A simple press made from materials usually found about the place is shown in the accompanying figure. This press has been described by F. B. Pinkus in the Olive Journal. The



A Big California Olive Oil Mill

Such a powerful mill and big press as is shown in the background is not possible in home making of olive oil but this illustration gives an idea of the industry as conducted in this state.

writer has made several modifications in the original plan of the press.

"A", heavy wagon or automobile jack. "B", small iron or steel cable or chain or heavy rope. "C", two pieces 2x12x12 inches. "D", shallow wooden water tight tray. "E", heavy burlap cloth to hold crushed fruit. "F", floor of 2x12 inch material. "G", 2x4 inch braces. The tray "D" and floor "F" are 16x16 inches.

One of the greatest difficulties to met will be the crushing of the fruit. This may be done as described for the method above. If this method is used, return the pits to the olives before pressing. The olives may also be crushed by placing them in a strong sack and by hammering the sack with the broad side of an ax or with a heavy board in the same way that ice is crushed in a sack. The fruit must be thoroughly broken up. It will crush better if it is boiled a short time to soften it.

Place the crushed fruit and pits in a piece of heavy burlap and fold the edges of the burlap in to give a press cake about 10x10 inches and about four inches thick. Make two of these and place them in the press as shown in the figure. Press slowly until no more juice can be obtained; save all juice and oil pressed from the fruit. The pressed pulp should now be boiled with an equal volume of water and pressed again. This pressed pulp should again be boiled and pressed. Usually a fourth heating pressing will pay. Combine all of this pressed liquid and allow it to stand in a tub or barrel over night. The oil can then be skimmed off.

Washing the Oil

Oil obtained by either of the above methods will be bitter and not clear. It must be washed with water to remove the bitterness and rough flavor. To do this first prepare a bucket or five-gallon can with a hole and faucet or cork near the bottom. Place the oil in this container and add an equal quantity or more of warm water. Mix oil and water by stirring for several minutes. Allow water to settle several hours. Draw off the water and replace it with fresh warm water. Stir; settle and draw off after several hours. Repeat until the oil no longer has a bitter taste. Usually two days' washing will be sufficient.

Filtering the Oil

The oil will be cloudy and mixed with a little water. It can be made clear by filtration. A tin funnel can always be bought from the hardware store. One about seven inches in diameter is a convenient size. Filter paper can be bought from the drug store. Ask the druggist to fold the paper for you and tell you how to place it in the funnel.

Place the funnel in a wide mouthed bottle or place a 1x3 inch piece of wood over a bucket and bore a large hole in the wood to take the stem of the funnel easily. Pour the oil into the filter paper in the funnel and allow it to filter. Oil filters slowly; do not become discouraged if it requires several days for it to run through the filter.

Aging the Oil

Olive oil is not fit to use as soon as it is made. It should be kept for at least one year before it can be expected to have the proper flavor. Keep it in well cleaned bottles away from bright light. Too much light will cause it to lose color and flavor. A warm room will cause it to age more rapidly. The oil will also age more rapidly if the bottles are only three-fourths full and if a small piece of cotton is used to close the bottle.

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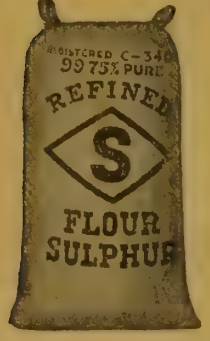
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This Month in the Vegetable Garden

Northern California

Written for California Cultivator By A. R. Gould

A PROSPEROUS New Year to all readers of this calendar, and it is the sincere hope of the writer that the bountiful rains which appear likely to extend over the next few months will enable this wish to be fully realized. Practical knowledge will also help and we shall endeavor to impart that which has proven best in our past experience. Garden preparation has been possible at intervals through the past month and the ground, although in many sections it has been well soaked, was not unworkable. Altogether it is much easier to dig and plow, and many crops such as carrots, onions, etc., may be thinned out with considerable ease. Where the peas were sown on the sloping ground and in a sheltered position, being well drained, they are making excellent growth and early crops will be the result. The frosts in most sections have been very severe and the lettuce has been slightly hit, at least the outer leaves of the large headed varieties, but where a slight covering of straw was given it is intact. It is a good plan to construct a few frames of rough boards in which to grow some lettuce during the winter months, as these frames can be easily covered with cheesecloth or other material. Where possible these frames can be made up on a foundation of farmyard manure, which will supply bottom heat. Several inches of soil should be placed on the manure. Such a structure is of value in every garden, not only for raising lettuce but for other subjects besides. Where plots have been recently cropped and are now being dug or plowed for future use it is advisable to leave them in the rough state for several weeks to allow the air and frost to do their work, as the value of these agencies are all important, and furthermore avoid all work on heavy soil if it becomes at all "sticky" after a rain, as soil once "packed" is hard to get into working condition again, and there is nothing to be gained by being in a hurry. Study your soil conditions. Sandy soils are not so much affected, naturally. In view of the severe frosts we are yet likely to experience we advise that sowing of lettuce be deferred for a month at least.

Carrots

It will be possible to sow the early French forcing variety in rows 16 inches apart and if a frame is available on the hotbed of manure, soil may be filled in on this several inches deep and the seed of this same variety sown very thinly in rows nine inches apart. By this method you will be able to raise a very early crop of carrots. If the frame can be covered with glass for a few days germination will be assisted, but, failing this, some other covering can be used. The frame should be placed in a warm sheltered position.

Turnips

Sow thinly on well prepared soil in rows 18 inches apart. Extra Early Purple Top Milan, White Egg and Early Snowball—any one of these are good varieties.

Onions

The main crop varieties as advised last month, Ailsa Craig, Prizetaker, etc., should be sown without delay, and where the early varieties are well through the ground and the weather and soil conditions permit, the soil between the rows should be stirred with the hoe. This will also be a good month to transplant seedlings of the early varieties which have to be thinned to five or six inches apart.

Parsley

A successional sowing of this may be made at the end of the month, using the variety Moss Curled. Sow this around the edge of the garden plots.

Peas

Successional sowings of Stratagem, Senator, Little Marvel, and Alaska should be made at the first favorable opportunity between the rains. Where a tall variety is required, which must be staked, Telephone is recommended. Melting Sugar, an edible podded variety, is of the same type and is very popular with some.

Southern California

Written for California Cultivator By D. F. Reichard

OUR Victory Garden year is at hand. The preliminary rains have been most effective and the weather ideal. Conditions are right for all to have their gardens; most satisfactory for many a year. This is our opportunity to help the food administration to supply the 20,000,000 tons of provisions for the hungry, ill fated people of Europe.

Everyone who has any vacant land and a few minutes a day should grow something; if not vegetables for human consumption, grain or coarse vegetation for feeding animals and poultry. Grow flowers to cheer those who do not have a garden or time to work in one.

Anything we use or consume that is produced by ourselves is just that much more left to go overseas. Even though the cost of home grown stuff is more (it should not be) than that purchased on the market, the fact remains that you are detaining the delivery of food to starving people and should induce us all to plant and care for as much garden as possible.

The first step in planting a garden is the preparation of the soil. This is accomplished by thoroughly working and pulverizing your ground to a depth of at least ten inches, fifteen inches is better. If your soil is heavy and of a clayey nature, each year work into it roughage of different kinds and lime, sand and ashes. These all tend to break it up and after a few years' you will be surprised at the improvement. Any part of the garden that is not planted should be kept cultivated deeply to keep the soil in shape and clean for the reception of seeds and plants when the time is right to put them in. Always cultivate as soon as the ground will break up nicely after a rain storm or an irrigation so as to keep the top soil in pulverized condition. If your plants need more food than your soil naturally supplies it is advisable after the plants get started to apply commercial fertilizers. This will help out the

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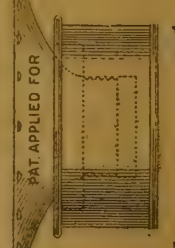
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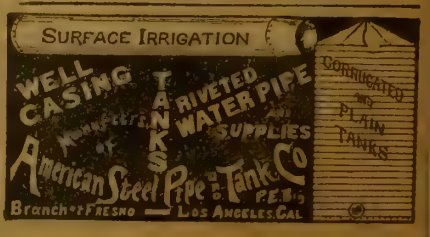
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present crop but next fall it will be well to keep the condition of your soil in mind and just before the rainy season put on a good dressing of coarse manure to be worked in later.

During January planting should be confined to the warmer valleys where a wide range of vegetables should be put in. Plant Early Egyptian beets, Swiss chard and stock beets; Half-long and Oxheart carrot; Los Angeles Market, Cos and Cream Butter lettuce; radish, onions and turnips in variety; Giant Amsterdam spinach and Stratagem or Senator peas. Sow seed of Cannon Ball and Winningstadt cabbage and early cauliflower for setting out later.

Set out plants or roots of asparagus, artichokes, horse radish, rhubarb, cabbage and cauliflower and berry plants and dormant trees and vines.

In protected spots plant Canadian Wonder and Ventura Wonder wax beans.

Keep growing plants cultivated and hoed. Watch for any insect or disease. As soon as they appear spray them with the proper material for their destruction.

This Month in the Ornamental Garden

Northern California

Written for California Cultivator By A. R. Gould

IN THIS department much cleaning up and digging will be necessary and very few idle moments will be found except on rainy days, and even then seeds may be sorted over in the garden shed and various tubers examined such as dahlias, gladiolus, begonias, etc., which are being stored, and these must be closely inspected for any sign of disease which may be cut out in its early stage. See that they are kept in a dry place.

Where it has been possible to prepare for laying new lawns and the weeds have been given a chance to show up, after the surface has been well prepared the seed may be sown, and should be well raked in. Soil should be made ready for seed sowing in boxes and frames of summer flowering subjects. The mixture should consist of garden loam, leaf soil and sand. This should be placed under cover from the rains and the shallow boxes or pots may be filled as required.

Tree Seeds

Many people derive much pleasure from raising various trees of an ornamental nature from seed, and while we would not recommend our readers to try any subject, yet there are a few which we shall name here that are fast growing and may be raised in boxes or pots in a mixture of soil such as we advised above. Pepper tree, acacia Baileyana, A. latifolia, A. lopantha, A. mollissima, eucalyptus globulus, E. citriodora, E. obliqua, E. robusta, E. ficifolia, E. crebra, and many other eucalyptus, cupressus arizonica, C. macrocarpa, C. pyramidalis (Italian cypress) and pinus insignis. Some of these subjects take quite a few weeks to germinate and need careful watering. Never make the soil too wet, and the seeds must be sown thinly. After the seedlings are showing through, moderation in watering is even more essential as damping off will result otherwise. Pots sown with these may be placed in a sunny window in the house, and as these young trees develop they will prove interesting to all the members of the family. To the children especially they should provide an object lesson in nature study, while there is also a place for these in the school windows.

Double Hydrangea

A few days ago we saw a very choice double type of hydrangea in a nursery. This should prove a useful novelty. The nurseryman informed the writer that it had developed amongst some French hybrids. The color is a pleasing pink. These shrubs are ideal for a shady position but while growing under large trees it should be remembered that frequent applications of manure must be given as they will always repay for rich soil conditions and in the summer they need lots of water.

Roses and Flowering Shrubs

Now is an excellent time to prepare for planting new roses, and the beds or borders should be deeply trenched and manured for them. Plant firmly. Only the best varieties should be secured. Hoosier Beauty, Sunburst, Lady Hillingdon, Los Angeles and Mad. E. Herriot are all good roses. Amongst the flowering shrubs spirea Van Houttei, S. Billiardi, weigelia candida (white), mock orange (very sweet scented white flowers), laburnum, lilacs, forsythia suspensa (golden bell), are all very useful and easy to grow.

Conifers Which Are Choice

If single specimens are desired it will be necessary to plant 30 to 40 feet apart. Among the spruce the very best we have seen for a long while is Abies excelsa aurea, the "Golden Spruce" or fir. Abies pinsaps has glistening cones which look beautiful, while Abies noblis glauca is the silvery red fir. A conifer always admired is Picea pungens glauca, the Colorado blue spruce, also Picea Kosteriana pendula, the weeping blue spruce. The junipers, such as juniperus japonica aurea, a small creeping shrub, and J. virginiana glauca, somelarger, are very pretty. The thuya or arbor vitae, T. gigantea aurea and T. orientalis pendula are well worth a prominent place in the home garden. They may be planted any time this month.

Propagating

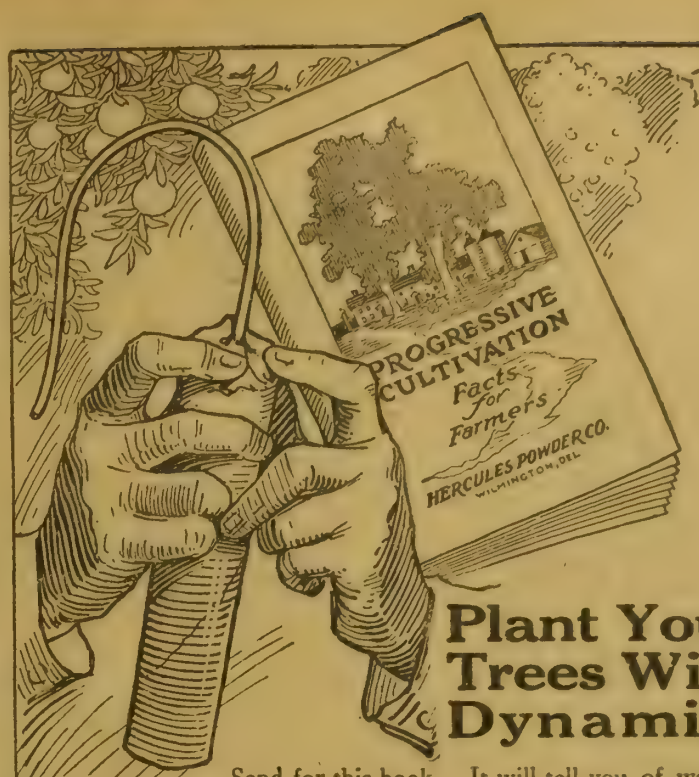
In sandy soil on a warm border or in boxes insert cuttings or slips of Mesembryanthemum roseum, Vinca variegatum, varieties of ivy, hydrangeas, box, privet, fuchsia and roses. Plant these firmly.

ORANGE COUNTY TRACTOR COURSE

Santa Ana has been selected as one of the 36 centers where short practical courses for the training of all interested in the repair, upkeep, and operation of farm tractors, gas engines and farm implements will be given.

These courses have been arranged for by the state board of education and the state board of control.

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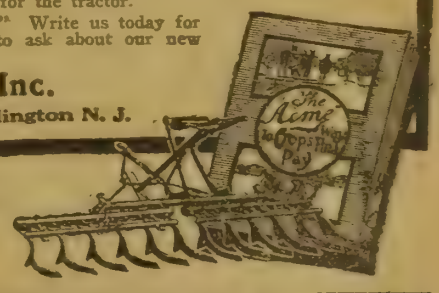
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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Literature on Fig Culture

Where can I get books or bulletins on culture of figs?—Subscriber, Fresno.

There is no book published on fig culture in print, though we may refer to "The Smyrna Fig at Home and Abroad," by George C. Roeding, Fresno. This was a very valuable 88-page book but we believe is now entirely out of print. Mr. Roeding also published in 1914 a circular on the fig which contains valuable information. In addition we may refer to Bulletin No. 9, "The Fig, Its History, Culture, and Curing," by Gustav Eisen of the Division of Pomology, U. S. Department of Agriculture. This was published in 1901 and is also out of print. The Arizona Experiment Station has issued Bulletin 77, "Practical Fig Culture in Arizona," by W. H. Lawrence. The address of the station is Tucson, Arizona.

Forcing Ration

Please give me a formula for a forcing feed. Some of my hens are going on three years old. The first year they did very little, as I was not here and they got little care. Last year they did very well. I want to feed them to get all the eggs possible and then sell them.—Subscriber, Dos Palos.

There is no better forcing ration than that used at Storrs, Connecticut, in the fifth annual International Egg Laying Contest. The mash consisted of equal parts by weight of wheat bran, corn meal, ground oats, flour middlings and meat, the meat being equal parts beef scrap and fish meal. The scratch grain was equal parts by weight of wheat and cracked corn. If you cannot get flour middlings—and you probably cannot as yet—you might substitute equal parts ground barley and soy bean meal—J. A. K.

Chicks Peck Each Other

I have 100 chickens, Rocks, Reds and Orpingtons, about four weeks old, and very suddenly they began pecking one another on the heads and would peck the heads until they were perfectly raw. The moment they get a taste of blood they seem to go wild and there seems to be no way to stop them. What causes this and what can one do for it?—Subscriber, Woodland.

The best way to stop your chickens pecking at each other is to get them out on good range where they will have something else to do. Possibly it is a lack of animal food that makes them begin pecking; maybe it is pure idleness. In any case, see that they have good pure beef scrap in their mash and room to run. You will have to put the chicks with raw heads by themselves till they are well. Perhaps you will need to protect them even from one another. A thick salve, like resinol ointment, is good for this purpose. Chicks of the heavy breeds do not fight and peck each other unless there is some reason. Either they are crowded or they lack animal food or their run is so bare that they peck at one another for lack of other occupation. Keep them busy and properly fed and you should have no more trouble.—J. A. K.

What Poults Need

"Curd is not necessary in raising young turkeys, neither are onions," writes a Dos Palos subscriber. "I had neither, and out of 25 birds hatched I raised 16."

No, no particular ration is warranted to bring poults through that first critical three or four months. It is not a question of what, but of how much. The Rhode Island station is quite emphatic on this point. There was a time when the experts at this station considered curd almost absolutely necessary, but their most recent conclusion is: "We are not in a position to state that one food is essentially better than another for poults that are on range. Vigorous flocks have been raised on corn meal alone, while equally good flocks on a neighboring farm have never tasted it; and on another the sole ration for the young birds is bread and milk, which gave equal success. In none of these instances is it the kind of food that counts so much as the manner and amount in which it is fed as a supplement to the food obtained on range. The successful turkey raisers of the present day—and they are few in number—are those who understand the feeding of turkeys from the quantitative point of view—who have succeeded in adapting a certain method of supplementary feeding to the conditions existing on their particular range."

Old Hens for Breeders

I have some very fine three year old hens. How long can I keep them for breeders?—Subscriber, Dos Palos.

It depends to some extent on the breed. Orpingtons, Rocks and other heavy hens are apt to become so fat by the time they are three years old that it is hardly worth while keeping them. Leghorns should be valuable breeders a year longer. As long as the hens lay well they ought to be good breeders. But few poultrymen keep a hen more than three years unless she is an exceptional bird.—J. A. K.

Deciduous Orchard

Kindly give me list of deciduous fruits, say 20-25, best adapted to growing in the foothills of La Canyada.—Subscriber.

It is not usually best to plant too many varieties of fruit. If the planting is for market the varieties should be limited to those that sell best in that market and ripen at such time they will not have excessive competition from other localities. When there are too many kinds there is not enough of any one kind to supply a demand which may be worked up.

Of the apricots the Royal is the best all round variety though the Blenheim is a good second. Summer apples can be grown if plenty of water is supplied in irrigation. The Red Astrachan, Gravenstein and Fall Pippin will succeed. Peaches are subject to "late dormancy" in many places, which causes loss of crops, those of southern origin being best adapted to our conditions. The following will be found among the best: Early Crawford, Late Crawford, Elberta, Henrietta, Phillips Cling, Yellow Tuscan (cling), Salway. The Bartlett pear is the best for all purposes. The Satsuma is the surest of the plums. The Pineapple quince is the best flavored of the quinces and can be cooked for sauce like an apple.—J. B. N.

Assuming that the inquirer may have desired a family orchard we may add that according to our idea the first consideration is to plant those fruits which may not be secured on the market in freshest and best condition, that is, fruits like figs. Where one enjoys figs as does the writer he would plant one or two of the black varieties, San Pedro or Mission, a White Adriatic, one of the small so-called Smyrnas or honey figs. The Kadota is also an excellent table fig.

Apricots are also much nicer fully ripened on the tree. Royal and Moorpark would perhaps give all the variety desired.

Peaches should be in every home orchard. Some varieties like the Briggs Early May are not of exceptionally high quality but are of the earliest. The Hale's Early comes early in July, as does the Strawberry, a small pink peach with white flesh, red about the pit. Then comes the Early Crawford, the Elberta, the Foster, Muir, Lovell and Salway. If one likes clings for canning the Phillips and Tuscan are among the best.

One should have a few plums. Amongst the earliest are the Burbank. Clyman, Early Golden Drop; and these may be followed by Green Gage, Kelsey, Satsuma, Santa Rosa, Wickson and Yellow Egg.

Then there is that combination of peach and plum, the nectarine, which always needs to be fully ripened on the tree. There is the white and the

red; one of each should be planted.

One should have a collection of grapes, dewberries, raspberries, logans and blacks.

Amongst the early fruits are the loquats, of which there are some exceptionally fine varieties.

Where conditions are right the growing of the avocado may give fruit the year around if right varieties are chosen.

The persimmon not only yields a fruit acceptable to most of us, but makes a strikingly beautiful tree in the fall after the leaves have dropped leaving branches covered with the brilliantly colored fruit.

In apples Mr. Neff has given a good list, but in most valley sections only the Astrachan or some early variety succeeds.

One of the handsomest trees of all is the California walnut which affords magnificent shade in summer and nearly always proves a most profitable tree as well.

Olives in San Diego County

As a reader and admirer of your paper I would like to ask your opinion on olive culture in San Diego County. As I have on my farm some steep but very deep and fertile hillside soils which would undoubtedly grow good olives, I would like to ask your opinion on same. Do you think it would be a profitable thing to do? Do you think the olive market will average good for the next 15 years? In your opinion which would be better, to plant oil or pickling olives?—Subscriber, San Marcos.

The olive is a native of southern Europe, and since the California climate is similar it will do well wherever there is sufficient moisture and suitable soil conditions. The soil should proferably be loamy and deep. While the olive requires less water and its roots will reach farther for moisture than most fruit trees it must have sufficient moisture, either from irrigation or from a retentive soil which will hold the winter rains. If it is expected to grow the trees without irrigation it will be better to plant trees of which the roots have been grown from seeds and then grafted or budded. These have better root systems which will reach farther and deeper for moisture than the roots of trees grown from slips. Do not plant too closely. Thirty feet apart is close enough where water can be supplied and as much as 40 feet apart under more adverse conditions. There must be cultivation to conserve moisture in the dry season as well as to allow the winter rains to penetrate the soil, which might not be practical on very steep hillsides. You can determine from the foregoing whether your conditions are suitable. There will undoubtedly be much more olive oil imported than has been in the last four years but there is no reason now apparent which would make the business unprofitable. Plant selected strains of Mission olives as the large olives can be used for pickling and the small olives for oil.—J. B. N.

Trees for Heavy Wet Land

I am a subscriber to the Cultivator and learn many things from the "Questions and Answers" column. May I ask a question? I have a piece of land near an irrigation ditch; this land is red, sticky clay-like adobe, free from alkali. The moisture stays in it all the year excepting the three hot summer months, July, August and September. It is rich but just always wet, even very boggy at times in driving the team over it. I wish to ask, "What kind of trees would be adapted to this, as it is a portion of my lemon orchard—no frost—I wish to cultivate this piece and also have my tree rows of the orchard even.

You do not say so, but we presume the seepage from the irrigation ditch has something to do with the excessive amount of water in your soil. As a preliminary operation we would suggest that the ditch banks and bottom be made water tight. If that is not sufficient tile drains should be put in deep enough and close enough to take off all the surplus water. You say there is no alkali in the soil, but it is likely an application of four to ten tons of gypsum to the acre will be very beneficial in improving the texture of the soil after the surplus water has been removed or prevented from returning. Plow deeply and turn under large quantities of straw or any strawy material. Keep the surface well cultivated and we think you will have no trouble in getting lemons to grow. We do not know any tree that would do well under present conditions.—J. B. N.

Curing Chili Peppers

How are chili peppers dried? What kind of dryers are used; how much do they cost; what kind of fuel should be used?—Subscriber, Bostonia.

The curing of chili peppers was formerly done on strings suspended from any convenient place in the sunshine, and as many as half the chilis were often lost by decay if the weather was unfavorable, but the industry has grown to such proportions that drying plants costing as much as $20,000 can be found, and at least one grower and dealer in the Garden Grove district will handle from 600 tons to 700 tons of cured chilis this year. The houses used are low buildings varying from 20 feet by 30 feet to 30 feet by 60 feet inside and all in one room. An excavation from five to seven feet deep—the deeper preferred if the soil is free from surface water—and arranged with furnaces and ventilating tubes to receive the cold air which after being heated passes up through the chilis and out through ventilating pipes extending above the roof. The drying is done on trays seven feet by two feet made of one inch by two and one-half inch redwood covered with wire netting known as one-inch chicken netting. These have at least one cross piece same size as the ends of tray to add strength to the tray. The floor is open and the trays are arranged in tiers with the end of one tray slightly overlapping the tray below so as to secure free circulation of the heated air. The end trays in the tiers are supported by extra pieces of one by two and one-half inch laths. These tiers of trays, after having a layer of chilis spread over them, are built as high as the cross beams of the house, which is usually about nine feet. The houses are built with double board sides having paper between the boards. Shingle roofs have been found to be the best.

Natural gas is the best and cheapest fuel, but low grade distillate, known as stove distillate, is used where gas is not obtainable and is burned in a special burner. The drying is done at a temperature of from 125 degrees to 130 degrees and requires from five to seven days to cure the chilis, depending on the ripeness of the chilis

Continued on Page 23



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The dealer in your town will sell you Dr. Hess Stock Tonic according to your needs and refund your money if it does not do what is claimed. Buy 2 lbs. for each average hog, 5 lbs. for each horse, cow or steer, to start with. Feed as directed and see how your animals thrive.

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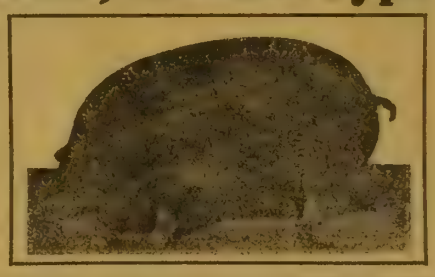
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To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

Reliable Market Reports for the Asking

Written for California Cultivator By F. P. Allen
Representative United States Bureau of Markets

AMONG the many activities of the United States department of agriculture in California as well as in all other states of the Union for the improvement of all lines of agricultural pursuits, the bureau of markets plays an important part.

Occupying a suite of rooms in the International Bank building in Los Angeles, the live stock and meat division of this bureau, located in the heart of the wholesale and retail section of the city and connected by leastd wire with San Francisco, Portland, Salt Lake City, Denver, Kansas City, St. Louis, Chicago, Washington, D. C., and all of the large Eastern cities, the bureau is in hourly touch with the live stock and meat market variations of every market center of the United States.

Local representatives of the bureau of markets in each of these cities assemble market information on both live stock and meats and this information is telegraphed on an "open wire" to be received simultaneously by every office in the circuit, including Washington, D. C. General marketing conditions and prices paid for live stock and meats thus obtained and assembled are arranged in bulletin form, published and dispatched to those interested in the industry with the least possible delay.

Every division superintendent of every railroad in the United States, each night in the year, including Sundays, telegraphs the number of cars of live stock loaded or passing through his division, to the Chicago office of the bureau of markets. This telegram shows the number of cars of each class of stock, their shipping origin and their destination. These figures are compiled by the bureau representatives and at 4 a. m. Chicago time are sent over the leased wire to all bureau of market offices in the United States. The local representative then publishes these figures in bulletin form, known as "Destinations of Live Stock Loaded" and "State Origins of Live Stock Loaded." This information is of great value to shippers of live stock as it enables them to determine when best to ship their own stock to market in order that it will not arrive at a time when the market is congested with supplies.

A bulletin entitled "Daily Report of Meat Trade Conditions" which includes the local, San Francisco, New York and Boston market conditions, is released at 8:30 a. m. each market day. The information and prices obtained for this report are based on actual transactions that have been consummated on that market. Unlike the former commercial method of reporting the daily market prices when the figures were obtained from one of the largest establishments in the city whose individual point of view alone was expressed and whose selfish interests were advanced by placing the figures at a high or low level, whichever served his purpose best, the bureau of markets prices are taken from the entire market, unbiased and dependable and in the interest of everyone connected with the industry.

On Friday of each week after the close of wholesale meat markets a brief yet comprehensive review of the market for meats is published in the form of a bulletin entitled "Weekly Report of Meat Trade Conditions." This report is valuable not only to the wholesalers and retailers of meats but to the producers as well. It enables them to follow the upward and downward trend of the market for the finished product and serves as a guide to the producer in the finishing and marketing of his stock.

The "Live Stock and Meat Trade News," a weekly report, is released for publication every Thursday. This bulletin is made up of items contributed from offices of the bureau in various parts of the country. It tells of the in and out movements in the feeder districts, of breeding, feeding and marketing live stock in various localities. Briefly, it has items of interest on every phase of the live stock and meat industry.

"Live Stock at Stock Yards," a ten page monthly publication, is released about the tenth of every month. This report shows the number of cattle, hogs and sheep received at 71 live stock market centers, the out shipments, the local slaughter and the stocker and feeder movements of these cities. A comparison with the same month one year ago and a recapitulation of the entire receipts and disposal of this stock is made.

Monthly reports of cold storage holdings are issued in two forms. One of these forms, known as "Summary of Cold Storage Holdings," is received by wire soon after the end of each month and includes the reports of from 350 to 575 cold storage establishments in every part of the United States. Under the heading, "Frozen and Cured Meats," the number of pounds of the following food products held in all cold storage houses are shown; frozen beef, cured beef, lamb and mutton, frozen pork, dry salt pork, pickled pork, lard and miscellaneous. Under the heading, "Frozen Poultry," the number of pounds of the following classes are shown: broilers, roasters, fowls, turkeys and miscellaneous. Cold storage holdings of dairy products include creamery butter, P. S. butter, American cheese, case eggs, frozen eggs, Swiss cheese, brick and Munster cheese, Limburger, cottage cream and neufchatel cheese. Storage holding reports also include fish and apples. The other form of cold storage report is a detailed statement of all cold storage holdings of every food commodity shown in the summary, and comparisons with the same month one year previous, and also two years ago.

Any one or all of the foregoing named bulletins are for free distribution to whoever they will benefit.

Every market day in the year messages over the leased wire are received from Chicago, Omaha, Kansas City and St. Joseph at 6:00, 7:00, 8:30, 9:15 and 10:30 o'clock and the close of the market at 1:30 p. m., central time, giving the estimated receipts of live stock at these markets, the actual receipts of the day before, the hold over of hogs, the market conditions and prices on all grades and classes of live stock at these hours of the day. This information is available at 12 o'clock noon, Pacific time, in the local office of the bureau of markets, and can be obtained by telephone on or after that hour. The data of these telegrams are gathered by the bureau of markets representatives in the cities named and are furnished to all commercial news agencies and press associations throughout the country.

The local representative of the bureau has aided some associations of live stock producers in their effort to work out a plan that will be an improvement over former methods of marketing live stock in Los Angeles. A tentative plan for the establishment of stock yards in Los Angeles is nearing completion.

Under the provisions of authority conferred on the president of the United States by an act of congress approved August 10, 1917, the bureau of markets, under the direction of the secretary of agriculture, has been designated to govern and regulate public live stock yards, and the handling or dealing in live stock in connection with stock yards. That the bureau of markets will govern and regulate the stock yards located here, as elsewhere, along lines of square dealing and in the interest of all concerned, needs no comment.

In addition to the above reports, the bureau issues a "Quarterly Wool Stock Report." This report shows the available supply of wool held by wool dealers and textile wool manufacturers in the United States on March 31, June 30, September 30 and December 31, tops and noils, in all of the generally accepted commercial grades, combing and clothing, in both domestic and foreign. The report shows the stocks held by manufacturers in the leading textile manufacturing states and the amounts held by dealers in the principal wool makets of the country. The "Monthly Wool Consumption Report" shows the amount of wool in the United States which entered into the process of manufacture during the month, in pounds of grease, scoured and pulled wool, in all the various commercial grades, combing and clothing, in both domestic and foreign. It also shows the amount of wool consumed in the principal textile manufacting states, in pounds of grease, scoured and pulled wool. The "Monthly Report of Wool Machinery" shows the number of active and idle machines in the United States and the number engaged in government work as reported by wool manufacturers.

As stated above, any or all of the reports referred to are available for free distribution and will be mailed to all who ask for the service.

SHEEP CAMPAIGN VERY SUCCESSFUL

Written for California Cultivator
By Professor R. F. Miller

TO INCREASE sheep and wool production in California, to assist farmers in securing small flocks of sheep, a sheep campaign was proposed by the animal husbandry division of the college of agriculture early in July to be carried out in cooperation with the extension division of the college of agriculture. The project was formally adopted on August 1, to be carried on four months, closing on December 1.

The plan was that farmers should be told of the government's need for all the wool available and the desirability of farmers keeping small flocks of sheep on farms. Those who were willing were asked to sign pledges of the number of sheep they would keep and on these pledges they might signify whether they would get the sheep themselves or whether they wished the farm bureau to buy the sheep for them. If the farm bureau was to buy the sheep they would be purchased locally if possible, but if not, the animal husbandry division of the college of agriculture would get the sheep and ship them into the county at cost. The actual total increase in the number of sheep kept on farms as a result of this campaign was 47,123, of which 30,038 were placed on farms through the bureau, of which 20,186 were actually covered by signed pledges from 259 farmers. The great majority of these were procured locally but 2456 were supplied through the animal husbandry division.

Upon notification that the sheep were available, the farmers having ordered sheep, deposited the required amount of money in the local banks,



Professor Miller selecting "Liberty Flocks" to be distributed through the farm bureaus.

and sometimes sent a man to look over the sheep. Upon receipt of the final order, the sheep were shipped to some central point where the farm advisor, with the assistance of the sheep committee, distributed them among the farmers. Freight charges were pro-rated among farmers receiving the sheep, and the farm bureau committee collected and forwarded payment to the animal husbandry division.

The regents of the University of California upon request by the dean of the college of agriculture set aside a special fund of $15,000 to be used in purchasing and distributing sheep. This amount was found insufficient and an additional $10,000 was later added to the above fund.

The sheep supplied were mostly secured from range men who discard their older ewes every fall. These ewes varied in age from five to seven



Country Hide *Packer Hide*

Good hides make your cattle worth more money

Leather tanners are very careful about the hides they buy.

They want hides that are as nearly perfect as possible — hides that are without cuts and scores, and that are properly cured.

There are two classes of hides on the market—"country hides" and "packer hides."

Country hides are those taken off by small butchers and farmers. Packer hides are those taken off by the packers.

* * *

To take a hide off correctly is not easy. Unless great skill is used the hide will be marred by cuts and scores.

The packers have made a careful study of hides. They have trained experts who do nothing else but take them off. Hence, packer hides have few cuts and scores, and are uniformly and properly cured.

Swift & Company sorts its cured hides into grades or classes, according to quality and to the purposes for which they are best adapted.

Some country hides are good; others are very poor.

They usually have cuts and scores and are not cured so well. Some have also begun to deteriorate because of being held too long. Besides, they cannot be graded so uniformly. In the same batch there are both good and poor hides.

Because of this superiority of packer hides, tanners pay from two to five cents a pound more for them. If country hides were as good, tanners would gladly pay an equal price.

This increased value of packer hides means that you get for your cattle from $1 to $3 or more per head, additional.

Swift & Company does not deal in country hides at all, and has no interest in their purchase or sale. It is the hide dealers and tanners who notice the difference in quality, and pay accordingly.

Swift & Company uses skill in taking off hides, not because it wants to see country hides bring lower prices—but because it is part of its policy to produce articles of the highest quality.

* * *

This is only one way the packer has increased the value of your cattle. Many other by-products have been improved in a similar way.

Swift & Company is constantly on the lookout for new ways to improve the value of its products, and hence to make your cattle worth more money to you.

When Swift & Company says that its profit on beef averages ¼ of a cent a pound, this includes the profit from the sale of hides.

Swift & Company, U.S.A.

A nation-wide organization owned by more than 23,000 stockholders

SANTA ANITA RANCHO

Anoakia Breeding Farm

Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion, and Don Castano, five gaited saddle stallion, winner in many prominent shows.

Mammoth Jacks

We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

Poland China and Berkshire Boars

Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited

Anita M. Baldwin

Santa Anita - Calif.

W. H. Taylor, Supt.

SAFETY

We believe our conditions of sale are as definite and favorable to the buyer as it is possible to make conditions covering anything as variable and flexible as living animals.

Safe sales are good for the buyer and best for the seller in the long run.

We accept high class registered animals in our consignament sales, or will sell your whole herd. Write us.

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Mgr.

Sacramento - Cal.

Shorthorn Cattle and Berkshire Hogs

Shorthorn herd headed by Count Glory 426982, Grand Champion at the California State Fair, 1916. Berkshire herd won Premier Exhibitor's banner at P. P. I. E.

513 Hearst Bldg., San Francisco

Carruthers Farms, Live Oak, Cal.

Duroc-Jersey Hogs AT

IRELAND

Ranch at Owensmouth

City Office: 1219 Brockman Bldg., Los Angeles

Phone A5368

Gilts Bred to Cherry Volunteer 2nd for August Farrow For Sale

Brighton Farm Herds

Registered Shorthorns

and

Berkshires—Both Sexes

H. L. & E. H. Murphy

Perkins, Cal.

Prize Winning Berkshires

Two High Class Jr. Boars, choice $65.00. Six Fall Boars, choice $50.00. Sired by Ames Rival.

F. P. Hall Perris, Cal.

AYRSHIRES

REGISTERED

Herd Sire, Dairy King of Arizona

CHOICE BREEDING STOCK FOR SALE

A. MACMINN

Phoenix *Ariz.*

When Writing Advertisers, Mention The Cultivator.

years and would not be satisfactory in range bands any longer where feed was often short and conditions severe. However, in small numbers under farm feed, such ewes are serviceable for one or two more seasons and can then be disposed of for slaughter. The ewes were Merinos or cross-breds and bred to good Shropshire or Hampshire rams. In some cases the ewes were bred to pure bred rams at the university farm at Davis, which necessitated holding them there at least six weeks.

The following counties were supplied: Stanislaus, 450 head; Yolo, 275 head; Merced, 300 head; San Joaquin, 124 head; Contra Costa, 190 head; Napa, 420 head; Monterey, 393 head; Santa Cruz, 116 head; San Diego, 178 head.

Total number of sheep distributed in this way, 2456 head. In addition to these, 1872 head were selected for individual parties and were not distributed through the farm bureaus. I am not in possession of the exact number of farmers receiving sheep, but it is safe to assume that at least 200 farmers are now keeping a flock of sheep where no sheep were kept before. It is also very gratifying to know that the farmers were universally well pleased with the sheep supplied.

In addition to the number of sheep supplied by the animal husbandry division, many farmers bought sheep personally from neighboring flocks, due to this sheep campaign. Napa County alone increased its sheep population by 4548 head; Contra Costa about 1500 head; Stanislaus County 2500 head. From these figures it is safe to conclude that there is an increase of at least 15,000 head of sheep on the farms throughout California due largely to the "Liberty Flock Drive."

Live Stock News Notes

84 Shorthorns Average $7090

In the dispersion of the herd of Shorthorns owned by F. A. Gillespie & Sons, Muskogee, Oklahoma, 84 head sold for an average of $1090 Twenty-two bulls averaged $1838 and the 62 females $824. H .C. Lookabaugh of Watonga, Oklahoma, paid $10,700 for the bull, Maxwalton Commander. Maxwalton Commander is a son of Avondale and is out of a Roan Lady dam. Roan Lord, a two-year-old son of Revolution and Maxwalton Roan Lady, a full sister to Maxwalton Commander, was purchased by Strong Bros., Clinton, Oklahoma, for $10,000.



California's Winning Pen of Barrows

The pen of Poland-China barrows shown by the University of California, at the International Show held in Chicago. In the single classes the barrows were second, third and sixth, being beaten in class by the champion. Shown together, they were reserve champion pen of the show.

Edward Bishop

Edward Bishop, member of the firm of Bishop Bros., San Ramon, and one of the most prominent men identified with the Western sheep industry, fell a victim of influenza while attending the recent International Live Stock Show at Chicago,

Community Sales in Nevada County

The second annual report of County Farm Adviser H. I. Grasser of Nevada County has been issued. During the past year two community live stock sales were held. Cattle and hogs to the value of $30,000 were disposed of. The farm adviser also states that the campaign for more live stock resulted in an increase of 1000 hogs and at least 700 sheep.

Uneeda Durocs in Demand

Clayton N. Slocum, manager of the Uneeda Glenn County herd of Durocs, Willows, writes that they are having a splendid demand for their Durocs.

Quite recently this herd furnished a number of foundation herds to settlers of the state land colony at Durham.

Hotel Trophy for Berkshires

Berkshire breeders who will exhibit at the California International Live Stock Show, San Francisco, in February, will have an opportunity to compete for a number of fine trophies offered as special premiums. The Hotel Whitcombe, San Francisco, is offering a $300 silver tea set for the best herd bred by the exhibitor. The herd to consist of one boar and three sows.

Wool Growers to Meet

The 55th annual convention of the National Woolgrowers' Association will be held at Salt Lake City, January 16, 17, 18.

One of the principal questions that will be considered will be the outlook for next year's wool clip.

654,375 Holsteins Recorded

Volume 38 of the Holstein-Friesian Herd Book is off the press and ready for delivery. It contains a record of all pure bred Holstein-Friesian cattle approved and admitted for entry since the close of volume 37. The registrations include bulls numbering from 216626 to 230705, and cows from 391506 to 423670—a total of 14,080 males and 32,165 females recorded between September 1, 1917 and February 26, 1918. The grand total registrations of Holstein-Friesian cattle recorded in the herd books to date reach 654,375, with volume 39 in course of preparation.

Volume 38 contains a complete record of animals registered, their age, sire and dam, also their breeders and owners. The price charged for the

Alfalfa Seed

HAIRY PERUVIAN

SMOOTH PERUVIAN

DRY LAND (Chilian)

SANDY LAND (Chilian)

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WET LAND (Chilian)

COMMON COMMERCIAL

Plant the kind of alfalfa that will yield heaviest and live longest under your own soil and moisture conditions.

Write for our FREE BOOKLET which tells you which kind of alfalfa to plant on your own land.

BOMBERGER SEED CO.

Desk "A," Modesto, Calif.



SELDOM SEE

a big knee like this, but your horse may have a bunch or bruise on his ankle, hock, stifle, knee or throat.

ABSORBINE

TRADE MARK REG. U.S. PAT. OFF.

will clean it off without laying up the horse. No blister, no hair gone. Concentrated — only a few drops required at an application. $2.50 per bottle delivered. Describe your case for special instruction and Book 8 R Free.

W. F. Young, P.D.F., 244 Temple St., Springfield, Mass.

Sweetwater Durocs

California's Most Popular Big Type Sire

Great Model

(By Great Wonder and Model Lady 4th)

WINSOR RANCH, Bonita (San Diego Co.)

M. C. Allen, R. M. Allen Pelers, Lamson and Walker

Herefords - Shorthorns

250 Head Eastern Registered Bulls and Cows

HARRIS & SONS

Los Angeles

Come to Stanislaus County for Registered Holsteins

STANISLAUS COUNTY LEADS

All counties of California in number of herds of registered Holsteins and number of 30 pound sires in service

Segis Pontiac De Kol Dutch

Whose three nearest dams are 1000 pound cows that average over 30 pounds in 7 days, heads my herd. Bull calves for sale. E. E. Freeman, Rt .B, Modesto

HOLMES STOCK FARM

Registered Holsteins of best breeding. Young bulls for sale.

R. L. Holmes Modesto, Cal.

Our Senior Herd Sire is KING KORNDYKE HENGERVELD ORMSBY 7th

Five of his sisters sold at public auction for $23,800, an average of $4760.

This blood has made some of the world's greatest producers.

Our junior herd sire is TOYON KING KORNDYKE SOLDENE, son of a 33.23 pound daughter of King Hengerveld Aaggie Fayne.

Young bulls for sale. No females.

REGISTERED BERKSHIRE BOARS, sons of the $1500 boar Star Leader, for sale.

Kounlas Registered Stock Farms, Modesto, Cal.

herd book—$2.75 delivered—is much below the actual cost of compilation, and every owner of pure bred Holstein cattle should avail himself of the opportunity to obtain a copy by ordering one immediately from the office of The Holstein-Friesian Association of America, Brattleboro, Vermont.

Higdon Sells Richly Bred Calf

Wingard & Bellows, of Kern County, recently purchased a richly bred young bull to head their Holstein dairy herd from W. G. Higdon, Tulare. The youngster is by Prince Riverside Walker and out of the great two year old Madrigal Mooike 2nd, who will finish her year's test in January with over 20,000 pounds milk and around 750 pounds butter.

Higdon Sells a Foundation Herd

J. H. Posty of Atwater recently purchased a foundation herd of registered Holsteins from W. J. Higdon, Tulare. The selection included three A. R. O. heifers, two of them with records above 20 pounds butter in seven days, and a great bull calf. The future herd sire, King Korndyke Pontiac Fobes, was only 40 days old at time of purchase, being the oldest son of the $6500 bull King Korndyke Pontiac 20th that Mr. Higdon had. This choice young fellow is out of the 25.61 pound senior four year old Mona Fobes, thus giving him an average of 31.71 pounds butter in seven days for his dam and sire's dam.

Abbott Back on the Job

The Holstein fraternity will be glad to know that Kenneth W. Abbott has recently received his discharge from the army and plans to return to his home at Milpitas and resume his breeding activities. Mr. Abott, a former secretary of the California Holstein Breeders Association, won his way to a sergeancy while in the army.

Eastern Stables to Show at San Francisco

Joseph E. Painter announces that among the Eastern stables that will exhibit at the San Francisco show in February will be Mrs. Lulu Long-Coombs of Kansas City; John R. Thompson, Chicago; Chas. E. Bunn, Peoria, Illinois; Geo. A. Heyl, Washington, Illinois. Mr. Painter also expects the famous Swift six horse hitch.

Karakul Sheep for California

The Fresno Farms Company, Kerman, has purchased a half interest in a flock of 200 Karakul sheep from Dr. C. C. Young of El Paso, Texas.

Karakul sheep come from Central Asia and are valued highly for their skins which are used in high class fur trade.

Jenkins' Jersey to the Top

The Jersey cow, Irene's Cadora, owned by A. A. Jenkins, Tulare, completed a year's test November 28, during which she is credited with a production of 804 pounds butterfat and 13,485.4 pounds milk. It is stated that Irene's Cadora is the first cow owned in Tulare County to exceed 800 pounds.



Store Your Grain in Bulk

Don't Sack it

The bulk way of handling grain is the safe—the more economical way. It cuts out the entire cost of sacks, twine and the wages of extra help needed to sack grain for shipment.

The Wasteful Way

Threshing, sacking and dumping grain on the stubble means large waste to every crop you thresh.

Moulded grain after an early rain, or even sunburned sacks which weaken and break, cause a large loss of grain each year.

Rodents—rats, mice, gophers; birds, thieves, all these are enemies to economic grain handling. They cause waste that cannot be replaced.

Leaking sacks, either at the twine or from weak weaving or snags and rips, allow a constant, costly flow of grain.

Often thieves obtain grain from the fields or during shipment—a whole sack at a time, maybe several sacks.

Handling grain in sacks costs more each year. It wastes more as your crop becomes bigger. Stop it.

The Economic, Saving Way

Thresh your grain directly into dump wagons and haul immediately to a safe metal storage bin on your own farm.

Stop the waste of sweating and blistering sacks. A metal bin will keep your grain clean and sweet—away from the weather.

Calco Metal Grain Bins are proof against the attacks of rats, mice, and gophers. Birds cannot reach grain in a metal bin.

Since you need no sacks with a metal bin there is absolutely no loss through leakage, carelessness or forgetfulness.

A door with a lock keeps thieves out—and bulk shipments of grain do not tempt the thief, he has no way to carry off his plunder. Metal bins are the "save first" method of handling grain.

Write for the Calco Grain Bin Booklet

In this booklet, one grain grower makes a comparative cost tabulation of handling his grain in sacks and handling it in bulk. He found out, and set down exactly where he saved in handling grain in metal bins. This letter and a great deal of other information are in the booklet "Calco Grain Bins." It is free—write for it at once.

California Corrugated Culvert Company

419 Leroy Street, Los Angeles — 408 Parker Street, Berkeley

Calco Metal Grain Bin



A Healthy AYRSHIRE

This champion three-year-old is a notable example of perfect health. Her yearly record is 15,056 lbs. of milk and 589.2 lbs. of butterfat.

JOIN THE
"HEALTHY COW"
MOVEMENT

Present - day prices for dairy products are making dairymen everywhere think more about the milk production of their cows.

The "poor-milker" is usually non-productive because of some disorder of the digestive or genital organs that is sapping at her health and strength. Even apparently slight troubles of this nature usually lead to more serious ailments so common among dairy cows, such as Abortion, Retained Afterbirth, Barrenness, Scouring, Bunches, etc.

A sick cow should be treated like a sick person—with medicine that will correct the trouble. Kow-Kure is the most valuable and best known remedy for the prevention or treatment of cow ailments because its medicinal properties act on the organs where disease originates.

There will be no trouble about the milk flow of a healthy cow; keep yours healthy by having KOW-KURE on hand always. Druggists and feed dealers sell it, in 60c. and $1.20 packages.

Free book, "THE HOME COW DOCTOR," is yours for the asking.

DAIRY ASSOCIATION CO.
Lyndonville, Vt.



98%

Of the World's Creameries use exclusively DE LAVAL CREAM SEPARATORS

That one fact alone is sufficient reason for your choice of a De Laval.

The creameryman handles millions of pounds of milk and he has found out from experience that no other cream separator will skim so clean or wear so long as the De Laval.

"Claims" don't fool the creameryman. He goes on "performance." Why not you too?

For catalog or any desired information see the local De Laval agent, or write to our nearest office.

De Laval Dairy Supply Co.
61 Beale Street
San Francisco





Economy Stock Powder



fed regularly to sheep will keep them free from worms. It also acts as a tonic, a laxative, a blood purifier and as an aid to digestion cannot be improved upon. Will eliminate BLOAT and ALL AILMENTS COMMON TO SHEEP.

SEND FOR A FREE SAMPLE.

Economy Hog and Cattle Powder Company
Hearst Bldg. San Francisco, Cal.

Some Sidelights on Big Tagus Sale

During the six continuous days of the Tagus Ranch auction sale at Tulare almost $140,000 was the total sales of live stock and implements.

Henry Lynch, one of California's biggest cattlemen, purchased one of the Sandusky tractors, his young son apparently being the real inspiration.

W. Mayo Newhall secured a choice lot of Percheron mares and also bought one lot of 86 steers.

Edward Cebrian was a prominent buyer of Percherons and Belgians, securing some of the best. Mr. Cebrian also secured a high class selection of implements. These will go to his 90,000 acre Cuyama Ranch in Kern County, which is being fitted up as the future home of 700 pure bred Shorthorn cows recently bought from Palcines Ranch.

The Red Cross netted over $500 from the serving of lunches during the sale. All materials were donated by Mr. Hulett C. Merritt, multi-millionaire owner of Tagus Ranch, and the arrangement and serving of the lunch was carried out by the ladies of the Red Cross under the direction of Mrs. R. F. Guerin of Visalia.

Leeman & Kilgore were the lucky buyers of the twin Holstein heifers sired by King Segis Ponitac Jannek and out of 27.98 pound three year old Forest View Wayne Korndyke.

J .A. Knight, Tipton, bought 23 head of registered Holsteins as a foundation herd.

H. H. Morser made one of the keenest buys of the sale when he secured the 26 pound three year old Iris De Kol Aaggie Lass and her son by King Korndyke Sadie Vale 27th.

When Orion's 'Golden Col was knocked down to G. W. Emmons for $650 it registered the second highest priced boar ever sold at public auction in California and the difference is only $25 at that. Mr. Emmons followed up by buying the great boar California Defender for $450.

The high sow, Crimson Beauty, went to Harry Cope for $520 and at the price she looked one of the best buys in the sale. Mr. Cope was the last contending bidder on Orion's Golden Col.

Duroc-Jersey buyers were present from as far north as San Francisco, as far south as Los Angeles, and as far west as Santa Clara County. Some idea of the briskness of the sale may be had from tht fact that Col. Ben A. Rhoades sold the entire 200 head in the sale in exactly four hours.

The Belgian stallion Adonis at $1900, the Belgian stallion Cadet at $2100, and the Percheron stallion Paulus of Palcines at $1450, were the three highest priced draft stallions ever sold at public sale in California.

Frank M .Helm and H. E. Vogel, well known Holstein breeders of Fresno, blossomed out as buyers of draft horses in this sale.

The big sale moved too rapidly for some of the intending buyers and as a result some "post mortem" sales took place netting good profits to the original purchasers.

A deluge of applications for leases flood the offices at Tagus Ranch, ranging from requests for 20 acres up to number of urgent demands for a lease on the entire 6000 acres.

It required over 60 cars to ship out the live stock and implements bought by buyers from a distance. A circumstance unique in farm auction sales was the fact that a large percentage of the implement buyers were from distant points.

The entire advertising, selling and accounting systems which made the big sale an outstanding one for the smoothness and speed with which it progressed, were laid out and put into action by the sale manager, C. L. Hughes.

Nobody really knows how many days, one after the other, Col. Ben A. Rhoades can sell from the block finishing up apparently as fresh on the last day as on the first. The big crowd at California's biggest public sale voted him "the best auctioneer ever."

Northern Live Stock Notes

Written for California Cultivator By W. S. Guilford

There are early lambs in the Woodland district—born the first and second week in December. Many of these are in small farm flocks of splendid high grade blackface and Rambouillet ewes.

When Shropshires that have been in the habit of dropping lambs in March, April and May are first brought to the Pacific Coast the lambing period remains late for some years. They may lamb one or two weeks earlier each year but we have not been able to get December or January lambs from Shropshire ewes imported from the East. With ewes that have been bred up from natives by the use of good rams the lambing period remains early.

Sheep are in splendid condition in the Sacramento Valley now. There is good feed, and rain is coming frequently. This should insure a good lamb crop—and a good spring clip of wool, for continuous good feed is necessary for the proper development of lambs and the growth of an unbroken staple of wool.

There is talk of a considerably reduced price for both lambs and wool in the spring. Time alone will tell—I doubt if anyone can know definitely about it.

We shipped a car of registered Berkshires from the Monroeville herd to the Western Meat Company last week, and while at the South San Francisco plant of the concern I saw about 4000 of the best hogs it has ever been my good fortune to inspect in the West.

In common with the Eastern markets the Coast killers have had to face very heavy shipments. The labor supply has been greatly demoralized because of the influenza epidemic and it has been impossible to run full killing gangs. So there was a "glut" in the yards. There were more hogs on hand than they could kill in a week—and notice had to be sent out to hold up shipments until they could get room to handle them.

The result of the use of good boars was very much in evidence in the hogs I saw. The work of the California Swine Breeders' Association is beginning to show in the quality and finish of the hogs reaching the market. There were lots of fine grade Poland Chinas, Berkshires, Durocs and Chesters, and many others showed various crosses of these breeds. But there was not a real poor hog in the lot, and very few that were not fat. The patriotic appeal to finish hogs and the low price of barley are also factors that have had an effect on the hog

situation.

If President Cunningham and Secretary Thompson could have se all of these well bred, well fed hogs they would surely have been pleased, and felt that the unselfish, untiring work they have been doing for years in the interests of the California hog industry has not been in vain.

General Manager F. L. Washburn of the Western Meat Company told me something about the hog situation that was new to me.

"The Eastern packers of pork products have had a monopoly on the export demand to the armies," he said, "because of the high rate on our product to New York. We pay one cent per pound less for the hogs but that does not make up the difference. That accounts for the price being lower here now than in the East. In previous years the quality of California hogs has been such that we could not compete with Eastern hams and bacon. Now that we are producing as good a product as they are in the East it is hard to get retailers and consumers to believe it.

"I would like to see a stock yards in San Francisco, and buy our hogs on the open market the same as in the East," concluded Mr. Washburn.

Long-sighted breeders and business men on the Pacific Coast have always looked forward to a time when the productive valleys of California and other Coast states would be supplying registered breeding animals to the whole Pacific Ocean country, Hawaii, the Philippines, Japan, China, India, Australia, the South Sea Islands, Central and South America. Already a start has been made along that line, and present indications are that this trade will be very greatly extended during the next few years.

Great Britain has jealously guarded the big export business that has been one of the great incentives for the development and increase of registered live stock in England, Ireland and Scotland.

During the war breeders, breed societies and farm papers in Britain vigorously protested against any restrictions being placed on this export business—it being frankly stated that any interruption in it might result in the losing of at least a part of the business to breeders in North America.

ENGLAND WILL BUY AMERICAN PERCHERONS

British horsemen have organized a Percheron Breeders' Society. The French horse has made a strong impression on Englishmen and it is stated that there is developing a keen demand for them. Owing to the fact that the French government has forbidden the exportation of any mares for an indefinite period the British Percheron society has decided to send a commission to America this coming season to make direct purchases for its members.

Such a commission will purchase better horses, will pay prices commensurate with their values, and will place them in the hands of British breeders to better advantage than if the matter were being handled by private speculators.

The announcement of this action by the British Percheron society will put an end to the activities of numerous dealers who have been attempting to negotiate purchases of Percherons at low prices for exportation to Europe. It will defer such exportations for a few months, but will be ultimately much more advantageous to our breeders of good stock than any other course.

LIVE STOCK QUERIES

Age to Breed Gilt

I have a pure bred gilt that was farrowed the first week in May and weighs about 180 pounds. Would it not be alright to breed her this month? If so is there any way of getting her ready to be put to a boar. As yet I have not noticed her being in heat.—J. Z. S. Sacramento.

No definite rule can be given as to breeding young gilts. Most breeders are guided by circumstances as to the development of the gilt in question. If it is desired to secure the maximum growth breeding should be deferred until the gilt ih a year to a year and half old—not because growth is checked through purgnancy, but because growth is very apt to be checked after farrowing and while suckling a litter.

If your gilt shows plenty of development, there is no particular reason why she should not be bred now. If bred early in January, she would farrow late in April. In your locality it is not advisable to have pigs born in the middle of the summer because of the heat.

If your gilt is put in a pen with a boar, she will probably come in heat in due time.

Feeds for Work Horses

What do you consider the best feed for work horses, and what is the proper ration? — A. D. Co., San Bernardino.

Oats have long been considered the most satisfactory grain for horses, but the cost usually makes it advisable to use some other grain or at least substitute other grain for part of the ration.

In this state, where barley is the principal grain and alfalfa hay the chief roughage, quite satisfactory results can be obtained from these two feeds as they balance each other fairly well, and at present prices will prove most economical. The amount to be fed can only be suggested in a general way, for the reason that horses show more individuality than other classes of live stock. In general, it is safe to figure that horse at moderate work will require a pound of grain and a pound of hay per 100 pounds live weight. If it is noticed that the horse is losing or gaining weight the amount should be increased or decreased accordingly.

Any one-grain ration will be improved by adding other grains and feeds and if the cost is not too great, a variety should be fed.

For practical purposes barley, oats and corn are interchangeable in a ration. If bran is available a ration of equal parts barley, oats and bran makes an excellent ration.

COW TESTING IN RIVERSIDE COUNTY

The Riverside Cow Testing Association is being reformed on a slightly altered basis. As a result of a meeting held December 17, it was decided to enlarge the association to the extent of two or three hundred additional cows.

At the present time one tester is taking and testing samples of milk from about 600 cows. The tester is given board and room by the dairyman over the night required to take the night and morning samples. The association provides herd record books into which the monthly tests of each cow together with the feeds given may be recorded. The charge is $2.00 per cow per year.

One cow losing ten cents a day nets a loss of $36.50 a year; hence the association.—L. B. M.



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Every time a cow drops a calf—whether alive or dead—by premature birth or aborting, whether the afterbirth is retained or not, her reproductive organs should be flushed out once or twice with B-K. The Abortion infection develops in the uterus and vaginal tract. This infection causes Barrenness, Retention of Afterbirth and Calf Scours in addition to Abortion. Unless checked it is likely to run through your entire herd.

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Contagious Abortion is being successfully controlled in many herds by following our simple plan with B-K. A well known breeder of registered stock says:

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For Sale—640 acres of foothill land, $20 per acre, one-third cash, balance long time; 400 acres of this land has been farmed to grain for many years. New set of first class buildings, 4 years old. Excellent stock ranch. Nelson Realty Company, "Pioneer Dealers in Almond Land," Arbuckle, California.

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For Sale—Choice Yucaipa Valley, 6 acres apple orchard, 5-room house, garage. Price $6800, terms. Ten acres apple orchard, 5-room house with garage, price $750 an acre—terms to suit. R. D. 2, Box 4, Yucaipa.

For Sale at a sacrifice, 40 acre ranch in Inyo County, California, near Laws (in potato belt) for only $90 per acre. E. G. Rudolph, Laws, Inyo County, California.

SEEDS AND PLANTS

I Will Have One or Two Tons of Sorghum seed, especially selected for syrup making qualities for sale as long as it lasts. Send for list of different varieties, with description, prices and instructions for planting to get best results. Can send seed by parcel post. MARION GRABER, Hawthorne, California.

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Strawberry Plants: Klondyke, Brandywine and other varieties. Best plants, quick service. Wholesale and retail. Price list free. V. R. Allen, Seaford-Del.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees. Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

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CORRUGATED IRON—LUMBER.
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Ranch Superintendent of practical experience in the culture of citrus and deciduous fruit and nuts, as well as alfalfa and general farming will be open for re-engagement Jan. 15th. C. E. Buck, Route A, Box 122, Modesto, California.

Wanted — Experienced miller, competent to take charge of a modern equipped feeding and grinding mill. Address stating qualifications and references, N., C|o California Cultivator, Los Angeles, California.

Wanted—To hear from owner of good farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minnesota.

Want to Hear From Owner of Farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minnesota.

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Pine Ridge Rabbitry, Monterey, California. A fine line of Flemish Giants, New Zealand Reds and Long Haired Blacks. All stock guaranteed. Write for particulars.

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A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
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White Leghorn Baby Chix from heavy laying (Hoganized) stock; $15.00 per 100. We guarantee safe arrival. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

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Hatching eggs from heaviest laying scientifically line bred (Hoganized) White Leghorns on the coast. Interesting circular free. Waldeck Ranch, Burbank, California.

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Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Schellville, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

We Have the Large heavy laying S. C. White Leghorns. Order now for early chicks. Tupman Poultry Farm, Ceres, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

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SHORTHORN CATTLE, SHROPSHIRE SHEEP. Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., California. W. P. Dwyer and W. S. Guilford, Owners.

Dairy Herd for Sale—70 head of Dairy Cows and bred Heifers, also some younger heifers and heifer calves, nearly all high grade Holsteins. Also one fine Registered Holstein Bull. Address Box 4, California Cultivator.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

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Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

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Registered Guernseys for sale. P. J. Weisel, Santa Fe Springs, California.

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TURKEYS

Bronze Turkeys—Mammoth Bronze Toms and hens for sale. Place orders now before prices advance. Also Collie dogs for herding. John G. Mee, St. Helena.

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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Bruised Shoulder

Have a mare that has a lump on her shoulder about half way up that I think was caused by a bruise. One morning I found the lump on the shoulder about the size of a man's fist. Think it came from a bump against the stall. It was very sore at first but now the swelling has gone down a little and it is not very sore but is hard. I wish to work her soon. Please advise treatment.—Subscriber, Orange Cove.

Probably there is pus deep down in the lump. It will not come to the surface nor absorb in a long time. These swellings are called "cold abscess." Better have a veterinarian open it. Split the lump wide open and find the pus. It will take some time to heal it but it will never be right until the pus is out.

Milk Fever

I have a Jersey cow that came fresh on the 2nd of December. By the end of the week she was giving four gallons of milk per day. On the 9th she had a bad case of milk fever which paralyzed her so she could not stand. We gave her a pound of epsom salts and inflated the udder with a bicycle pump. Next day she was up and now has a very good appetite. She is giving only two quarts of milk now per day and her udder is rather hard and the milk is stringy. That from one teat is slightly bloody. What can I do for her?—Subscriber.

Salts or any medicine in solution should never be given to a cow with milk fever because the throat is partly paralzed also and the medicine is liable to go down into the lungs and strangle them.

Air in the udder is all right providing it is passed through absorbent cotton to take out all the dust. The air pump that veterinarians use to inflate the udder has a chamber through which the air passes and they place some fresh absorbent cotton in the chamber each time before using it. It is well also to put some menthol or eucalyptus oil with the cotton. That cleanses the air and it does no harm. No doubt the air you pumped into the udder was not pure and the particles of dust in it have caused inflammation of the udder.

You may be able to save part or all of the udder but she will never give the milk she did before. Rub the udder well with the hands and milk her out well three times a day. Mix three pounds of epsom salts with two pounds of common salt and give her a handful of it once a day in the feed. This will thin the blood and help to reduce the inflammation in the udder.

Colt With Scours

Am breaking a three year old colt taken from salt grass pasture. Am feeding alfalfa hay. Colt has scours due, I suppose, to change of feed. Colt was not in first class condition when taken from pasture. As alfalfa is all I have except a very small amount of barley hay what would you advise?—Subscriber, Fowler.

Alfalfa does cause scours in some horses. Feed the barley hay at least half the time. Alfalfa intended for feeding horses should be allowed to get pretty ripe before being cut for hay, then it will dry better and be more brittle. Alfalfa cut quite green makes soft, tough hay that is apt to physic a horse and may roll up in wads and clog the bowels. Alfalfa cut green makes good hay for cattle as the wads are just what they like to remasticate.

Lump Jaw

Several months ago a slight enlargement commenced on the under part of the lower jaw of a heifer I have. It seems to be a bony growth gradually enlarging and growing right into the bone of the jaw. It seems to be somewhat tender and if I am not mistaken, pus exudes from it. Please name the disease and the remedy.—Subscriber, Hanford.

Lump jaw (actinomycosis is due to a germ that gets into the jaw bone through the gums about the teeth. It is hard to cure. Iodine is the only remedy that seems to do it any good. Have your druggist prepare these remedies. Four ounces of the iodide of potash dissolved in one quart of water. Give one ounce of the solution on a little feed once a day for two weeks then once every other day while it lasts. Also; two ounces of the tincture of iodine, one dram of iodine crystals and enough lard oil to make four ounces. Use a swab and put some of this on the lump every day.

Cow Pox

This fall cow pox started in my herd of milch cows. All got well but the teats of two of the cows and they have deep sores that I cannot heal. Have used sheep dip solution, wool fat, carbolated vaseline and cuticura salves but with no noticeable effect. Please prescribe for the trouble.—Subscriber, Tulare.

Try an iodine ointment made as follows: Two ounces of the tincture of iodine, half a dram of iodine crystals and enough lard oil to make four ounces. After milking apply the ointment with a small swab.

LIVE STOCK NEWS FROM NEVADA

The Nevada Packing Company of Reno is cooperating with the agricultural division of the University of Nevada in purchasing pure bred hogs for the members of the boys and girls animal husbandry clubs throughout the state.

The Upper Carson Valley near Minden, Nevada, is developing into a real Ayrshire country. This is a very productive valley, surrounded by high and picturesque mountains.

W. C. Short, pioneer Shorthorn breeder of the Truckee Meadows, has lately sold his junior herd bull to the Constantia Ranch, who will use him in their pure bred herd of breeding cows.

The University of Nevada is mourning the loss of the Hereford cow Ramona, that died a short time ago. The cause was probably bloat. She leaves a lusty bull calf, sired by Beau Perfection 34th. Beau Perfection 34th is out of the same dam as Woodford and by Beau Perfection 15th by Perfection.

W. D. Duke of Likely, California, has just turned over a car load of Hereford heifers and bulls to Ed J. Morgan of Northam, Nevada. The animals are to be fitted for the spring Hereford sales. Mr. Morgan was formerly herdsman for the late Governor Sparks.

QUERIES

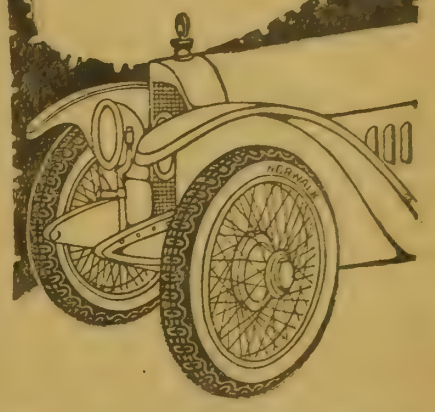
Continued from Page 15

when picked. Lower temperatures will allow the chilis to mold before drying and higher temperature will blacken and make the chilis brittle. A house 20 by 30 feet will cost about $1000 complete, and the cost of fuel is about $1.50 a day for gas and $3.00 a day for stove distillate.—J. B. N.

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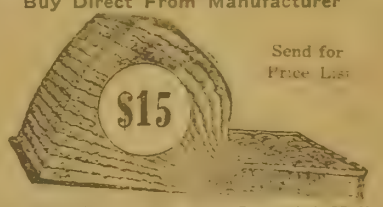
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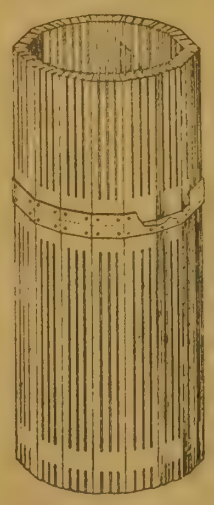
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G. M. HAWLEY, La Mesa, Calif.

Why Hens Don't Lay

Written for California Cultivator By Jean A. Koethen

THE hens in our back yards may be roughly divided into three classes: Pullets, yearling hens and hens over a year old. The first ought to lay in the fall, the second may or may not, according as they are possessed of the "bred to lay" instinct, the third rarely will. But it is to the pullets chiefly that we must look for fall eggs.

The first factor in determining just when a pullet should begin to lay is breed. White Leghorns begin to lay at from four and a half to six months old, some even earlier. A Leghorn hatched in April has therefore abundant time for maturing before October and ought to be a dependable producer of October eggs. Plymouth Rocks and Rhode Island Reds require from seven to eight months to attain full maturity. They must be hatched in March to make sure of November eggs, and even then the pullet molt sometimes comes in and delays production. Orpingtons reach maturity earlier than Rocks and Reds. In my experience pullets hatched in March rarely fail to lay by November, and most of them lay considerably earlier. An Orpington of good strain should begin to lay at from five to seven months. Light Brahmas and others of the meat breeds can hardly be expected to lay before eight months and one need not be surprised if they postpone the first egg till ten months of age.

Knowing how many months are required for maturity of a given breed, we can plan our hatching accordingly. But there is still the fall molt of January and February and sometimes of March pullets to be reckoned with. I find, however, that most Leghorn breeders hatch in February and take their chances on the fall molt. Some claim that abundant feeding keeps the pullets laying even if they do molt; others that early hatched pullets are not as susceptible to chicken pox as the later ones. However, that may be, the fact is, we must keep fall molting in mind as one of the things that may keep a pullet from laying when she is old enough and large enough and apparently entirely mature.

But suppose a pullet is old enough to lay and still does not begin to shell out the eggs in time? We must look now to the feed. The secret of getting pullets into laying shape at the earliest possible moment seems to lie in abundant feeding. One successful poultryman whom I have quoted before makes his pullets lay whether they are molting or not, by the simple expedient of giving them after their crops are full of grain at night another meal of moist mash which stuffs them to the limit. It takes a good deal of feed to bring a pullet to laying maturity and a good deal more to give her ample material for manufacturing eggs.

Not only must the crop be full when the pullet goes to roost, but it must be full of the right kind of feed. Hard grain alone will not answer. A balanced ration composed of hard grain, ground grain, animal food in the shape of beef scrap, fish scrap, blood meal or buttermilk, and green feed is absolutely essential to egg production. No commercial poultryman thinks for a moment of producing eggs without a hopper full of dry mash always before his hens. He probably gives a wet mash in addition to this some time during the day and the wet mash contains some greens or cooked vegetables or perhaps buttermilk in addition to the ground grain.

Sometimes pullets can be coaxed into laying by the addition of vegetable protein to the mash. At the Maine station it was customary for some years to add linseed meal to the mash in September, omitting it in October and adding it again in November. Soy bean, peanut and cocoanut meal are all useful additions to a mash for pullets but they do not take the place of animal meals or buttermilk.

Feeding formulas have been given so often in this column that I hardly need mention them, but it may be of interest to some readers to learn that in the fifth egg laying contest at Storrs, which closed in November, 1917, the scratch feed consisted of equal parts by weight of cracked corn and wheat, and the mash of equal parts by weight of wheat bran, corn meal, ground oats, flour middlings and meat (beef scrap, fish scrap or both). I have not the data for the past year's feeding, but it is doubtless still more simple. Barley has been generally substituted for wheat everywhere the past year, and has been found entirely satisfactory. Here in California we have had to substitute milo for Indian corn, but it by no means takes its place.

Comfortable quarters, an abundant supply of fresh water, freedom from insect pests, and oyster shell for the shells of the eggs are all important if a hen is to do efficient work. Leghorns especially are quite sensitive to cold. A cold or rainy spell nearly always checks laying. This fall the weather has been so uniformly good that it can hardly be made an excuse for the failure of a single biddy, but from now on it may be different. Whatever the weather, we owe it to our hens to see that they are comfortable, protected from wind and rain and sun.

Sometimes—how often it would be hard to say—failure to lay is the fault solely of the hen. She has not been bred to lay, and so she is slow in beginning and lazy after she has begun. There have heretofore been a good many such hens in our flocks, but stern necessity has forced us to learn how to pick them out and get rid of them. When a pullet that is well fed and comfortably housed still delays laying a month or more later than she should, it is safe to conclude that she will never be a profitable producer. The profitable hen begins on time and keeps right at it.

What about stimulants, egg makers, tonics, etc.? A hen that will not lay on a good laying mash when she is comfortably housed and well cared for may perhaps be coaxed to lay a few eggs by means of such things, but sooner or later the piper has to be paid. If stimulants are responsible for a few extra eggs in November or December, they will also be responsible for an early let up in the spring or summer. It is like driving an automobile beyond its normal speed. You may get the speed but the engine suffers. The hen is an egg machine, and, like other machines, manufactures the finished product out of adequate materials and nothing else. Stimulants may make her work a little faster, but she gets through quicker to pay for the haste. Lucky for her if she is not incapacitated for further endeavor.

Awards at the Los Angeles Show

AMERICAN CLASS

Barred Plymouth Rocks—Cks.—1, Mrs. Ben Davis, Jr.; 2, C. W. Angier; 3, Gill & Warrick; 4, David Mitchell; 5, Rosecroft Plymouth Rock Yards.
Pullet bred cks.—1, David Mitchell; 2, C. Geo. Schmitt; 3, Joseph Unterjeiter; 4, Mt. Angel College Poultry Ranch; 5, Gill & Warrick.
Hens—1, Mrs. Ben Davis, Jr.; 2, Rosecroft Plymouth Rock Yards; 3, Rosecroft Plymouth Rock Yards; 4, Gill & Warrick; 5, Geo. H. Otterman.
Ckrl. bred hens—1, Gill & Warrick; 2, Geo. H. Otterman; 3, Gill & Warrick; 4, Geo. H. Otterman; 5, Gill & Warrick.
Ckrls.—1, Mrs. Ben Davis, Jr.; 2, 3, 4, Gill & Warrick; 5, H. Furnas.
Pullet bred ckrls.—1, Goodacre Bros.; 2, Joseph Unterleiter; 3, 4, Gill & Warrick.
Pullets—1, Mrs. Ben Davis, Jr.; 2, Rosecroft Plymouth Rock Yards; 3, Joseph Unterleiter; 4, C. Geo. Schmitt; 5, Gill & Warrick.
Ckrl. bred pullets—1, 2, 3, 4, Gill & Warrick; 5, C. Geo. Schmitt.
Old pens—1, C. Geo. Schmitt; 2, Gill & Warrick; 3, 4, Mrs. Ben Davis, Jr.
Young pens—1, Mrs. Ben Davis, Jr.; 2, 3, Gill & Warrick; 4, Mrs. Ben Davis, Jr.
Ckrl. bred old pens—1, C. Geo. Schmitt; 2, Gill & Warrick.
Ckrl. bred young pens—1, Gill & Warrick; 2, C. W. Angier; 3, Gill & Warrick.
Pullet bred young pen—1, Gill & Warrick; 2, C. Geo. Schmitt.
White Plymouth Rocks—Cks.—1, Jay H. Bickford.
Hens—1, 2, Jno. J. Smith; 3, F. H. Hollway.
Ckrls.—1, Mrs. A. Byron Davis; 2, Jno. J. Smith; 3, 4, Jay H. Bickford; 5, F. H. Hollway.
Pullets—1, 2, Jay H. Bickford; 3, F. H. Hollway; 4, R. T. Lyons.
Young pens—1, 2, 3, J. H. Bickford.
Buff Plymouth Rocks — Young pens, also old pens, Fred Sperling.
White Wyandottes—Cks.—1, J. A. Griffin; 2, Jas. Whyte.
Hens—1, J. A. Griffin; 2, 3, D. T. Murphy; 4, J. A. Griffin; 5, Jas. Whyte.
Ckrls.—1, D. T. Murphy; 2, 3, 4, 5, J. A. Griffin.
Pullets—1, 2, J. A. Griffin; 3, C. S. Hamilton; 4, D. T. Murphy; 5, C. S. Hamilton.
Young pens—1, J. A. Griffin.
Old pens—1, J. A. Griffin.
S. C. R. I. Reds—Cks.—1, F. X. Price; 2, Geo. W. Masterson; 3, Brookdale Ranch; 5, F. X. Price.
Hens—1, F. X. Price; 2, Wilford Bramwell; 3, W. F Fetterly; 4, J. Fowler; 5, Arthur Preston.
Ckrls.—1, E. A. Weaver; 2, Brookdale Ranch; 3, Greenleaf Bros & Cushman; 4, 5, Wm. Larm.
Pullets—1, E. A. Weaver; 2, Goodacre Bros.; 3, 4, J. Fowler; 5, Mrs. Harry G. Henley.
Old pens—J. Fowler; 2, Rosedale Poultry Farm.
Young pens—1, Brookdale Ranch; 2, E. A. Weaver; 4, J. C. Pike; 5, J. Fowler.
R. C. R. I. Whites—Cks.—1, Phil Lehrbach.
S. C. R. I. Whites—Ckrls.—1, 2, Phil Lehrbach.
R. C. R. I. Reds—Hens—1, 2, Granville Hall Yards.
Ckrls.—1, 2, Granville Hall Yards; 3, Wm. Larm.
Pullets—1, 2, Granville Hall Yards.
Young pens—1, Granville Hall Yards; 2, Frank Mills.

ASIATICS

Light Brahmas—Cks.—1, Geo. O. Relf; 2, Mrs. Walter A. Babb.
Hens—1, Geo. O. Relf; 2, John A. MacDonald; 3, 4, Mrs. Walter A. Babb.
Ckrls.—1, Geo. O. Relf; 2, 3, 4, Mrs. Walter A. Babb.
Pullets—1, 2, Geo. O. Relf; 3, Mrs. Wayter H. Babb.
Old pens—1, 2, Mrs. Walter H. Babb.
Young pens—1, Mrs. Walter H. Babb.
Black Langshans—Hens—1, James M. Crabtree.
Ckrls.—1, James M. Crabtree; 2, James R. Crabtree.
Pullets—1, James M. Crabtree.
Old Pens—1, James R. Crabtree.
Young pens—2, Mrs. W. Pringle.

MEDITERRANEANS

S. C. Brown Leghorns—Hens—1, 2, C. M. Rose.
Ckrls.—1, 2, C. M. Rose.
S. C. W. Leghorns—Cks.—1, E. E. Emerson; 2, Rancho Del Martino; 3, Percy Ward; 4, Rancho Del Martino; 5, T. M. Joyce.
Hens—1, Geo. W. Masterson; 2, Valley Grove Farm; 3, Walter N. Farr; 4, Rancho Del Martino; 5, E. E. Emerson.
Ckrls.—1, 2, E. E. Emerson; 3, Walter N. Farr; 4, A. Kullman; 5, Rancho Del Martino
Pullets—1, Rancho Del Martino; 2, E. E. Emerson; 3, Rancho Del Martino; 4, E. E. Emerson; 5, Rancho Del Martino.
Old pens—1, Rancho Del Martino; 2, Alex M. Wilson; 3, Valley Grove Farm.
Young pens—1, Emerson & Mumford; 2, Rancho Del Martino.
S. C. Black Minorcas—Cks.—1, McCartney Farms; 2, 3, A. Albright, Jr.; 4. Geo. W. Masterson; 5, A. Albright, Jr.
Hens—1, A. Albright, Jr.; 2, McCartney Farms; 3, A. Albright, Jr.; 4, McCartney Farms; 5, R. T. Lyons,
S. C. Black Minorcas—Ckrls.—1, McCartney Farms; 2, 3, 4, 5, A. Albright, Jr.
Pullets—1, McCartney Farms; 2, A. Albright, Jr.; 3, Black Minorca Gardens; 4, A. Albright, Jr.; 5, Black Minorca Gardens.
Old pens—1, Geo. W. Masterson; 2, A. Albright, Jr.
Young pens—1, 2, A. Albright, Jr.
S. C. Buff Minorcas—Cks.—1, William P. Williams.
Hens—1, William P. Williams; 2, W. R. Mortimer.
Ckrls.—1, William P. Williams; 2, Buff Minorca Ranch; 3, W. R. Mortimer.
Pullets—1, Buff Minorca Ranch; 2, William P. Williams; 3, W. R. Mortimer.
Blue Andalusians—Hens—1, Black and Blue Hatchery.
Pullets—1, 2, Black and Blue Hatchery.
Old pens—1, 2, 3, Black and Blue Hatchery.
Anconas—Cks.—1, A. C. Taggart; 2, 3, 4, Hocking Poultry Farm; 5, Mrs. M. Williams.
Hens—1, Hocking Poultry Farm; 2, Goodacre Bros.; 3, 5, Hocking Poultry Farm; 4, A. C. Taggart.
Ckrls.—1, 2, 5, Hocking Poultry Farm; 3, Quality Ancona Yards; 4, Mrs. M. Williams.
Pullets—1, Hocking Poultry Farm; 2, A. C. Taggart; 3, Quality Ancona Yards; 4, 5, Hocking Poultry Farm.
Old pens—1, 2, Hocking Poultry Farm; 3, M. Kendall.
Young pens—1, 2, Hocking Poultry Farm; 3, Quality Ancona Yards; 4, Mrs. M. Williams; 5, Frank Mills.
W. C. Black Polish—Cks.—1, Mrs. M. Williams.
Hens—1, Mrs. M. Willitms.

ENGLISH CLASS

Buff Orpingtons—Cks.—1, W. W. Whitney; 2, Mesa Sarita Ranch.
Hens—1, W. W. Whitney, 2, 3, Mesa Sarita Ranch.
Ckrls.—1, 2, 3, 4, Mesa Sarita Ranch; 5, W. W. Whitney.
Pullets—1, Mesa Sarita Ranch; 2, W. W. Whitney; 3, W. W. Whitney; 4, Mesa Sarita Ranch; 5, W. W. Whitney.
Old pens—1, Mesa Sarita Ranch.
Young pens—1, 2, 3, Mesa Sarita Ranch; 4, J. J. Dean; 5, W. W. Whitney.
Black Orpingtons — Cks.—1, Hocking Poultry Farm.
Hens—1, 2, Hocking Poultry Farm.
White Orpingtons—Cks.—1, R. DuBois.
Hens—1, 2, R. DuBois.
Ckrls.—1, R. DuBois; 2, Geo. O. Relf.
Pullets—1, R. DuBois; 2, 3, 4, 5, Geo. O. Relf.
Old pens—1, R. DuBois.
Young pens—1, R. DuBois.
Partridge Orpingtons — Cks.—1, Goodacre Bros.
Hens—1, Goodacre Bros.
Ckrls.—1, Goodacre Bros.; 2, J. J. Dean.
Pullets—1, Goodacre Bros.; 2, J. J. Dean.

DUCKS

Fawn Indian Runner Ducks—Drakes—1, August Belfrage.
Young ducks—1, 2, August Belfrage.
Pencilled Indian Runner Ducks—Drakes—1, August Belfrage.
Old drakes—1, 2, 3, Goodacre Bros.
Old ducks—1, 2, 3, Goodacre Bros.
Young drakes—1, 2, 3, Goodacre Bros.
Young ducks—1, 2, 3, Goodacre Bros.
Rouen Ducks—Old drakes—1, Goodacre Bros.; 2, Mrs. Emma V. Miller.
Old ducks—1, Goodacre Bros.; 2, 3, Mrs. Emma V. Miller.
Young drakes—1, 2, Mrs. Emma V. Miller.
Young ducks—1, 2, Mrs. Emma V. Miller.
White Muscovy Ducks—Young drakes—1, Mrs. Myron Sherman.
Young ducks—1, 2, Mrs. Myron Sherman.

GEESE

Toulouse—Adult ganders—1, Goodacre Bros.
Adult geese—1, Goodacre Bros.
Young ganders—1, Goodacre Bros.
Young geese—1, Goodacre Bros.; 2, 3, 4, Lynn Johnson.

TURKEYS

Bronze Turkeys—Old toms—1, 2, J. Will Blackman; 3, T. A. Drake; 4, J. Will Blackman.
Hens—1, 2, 3, 4, 5, J. Will Blackman.
Yearling toms—1, 2, 3, 4, J. Will Blackman.
Pullets—1, 2, 3, 4, 5, J. Will Blackman.
Young toms—1, 2, 3, 4, 5, J. Will Blackman.

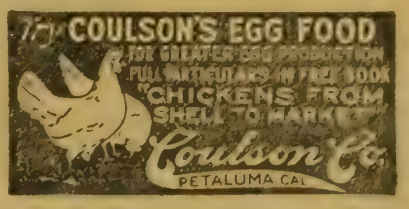
HENNERY HINTS

Water the hens early these frosty mornings. They can't make eggs without water and won't drink ice water, to say nothing of breaking the ice on the water vessels.

January is a splendid time for cleaning up preparation for the spring visitation of mites. Dig and scrape and sweep and paint and spray till every bit of wood is clean and sweet. Mites don't like a clean house.

Now is the time to spade up every empty pen and plant barley or oats. It will do no harm to spade the occupied pens as well. Dig your grain into the ground and the hens will enjoy digging it out again. What they do not find will sprout and give them green picking.

The birds that have been to the shows deserve a little coddling when they get home. Put them by themselves, where they can have room to run and stretch themselves, and a little green to nibble. Fertility will be stronger and vigor greater for this humane treatment.



Chickens Sick or Not Doing Well?
An Extraordinary Offer: Germozone is a standard remedy everywhere for chicken troubles, roup, colds, cholera, swelled head, bowel complaint chicken pox, canker, not doing well, non-laying, etc Now our proposition If no dealer there handling Germozone and you will agree to use it and pay if satisfied, we will send you a 75c package without a cent in advance No pay if not satisfied Can we do more? And we will send free 5 poultry booklets Write today
Local dealers handling Germozone will do the same.
GEO. H. LEE CO., Dept. 418 OMAHA, NE.

$1 FOR EGGS My Valuable Poultry Literature FREE. Tells how to double egg production. Results of years of Successful Experience with Hens. I tell you how to market eggs at highest prices. Send quick while egg price is up, and get benefit of long experience in Egg Production and Marketing.
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GMC TRACTORS

SAMSON SIEVE-GRIP TRACTOR

GMC TRACTORS



MODEL S-25

The durable tractor is not achieved in a day. Many features, time and experience dictate, enter into its construction.

After nearly two decades of manufacturing and field experience, the GMC SAMSON SIEVE-GRIP TRACTOR is submitted as ideal durability. Many in successful operation for years, and in as effective use today, testify to its ruggedness.

The quality of the GMC SAMSON SIEVE-GRIP TRACTOR is guaranteed before built by careful selection of high-grade materials, made to specifications and over-sized to secure liberal reserve strength. Final severe tests further assure a durable product. It is built SAMSON in name and SAMSON in strength.

The GMC SAMSON SIEVE-GRIP TRACTOR performs the work of ten horses on the farm. It will do your plowing, discing and harrowing economically and efficiently, without packing the ground. It is adapted to countless other uses on the farm for many of which horses are unsuited. It will CUT YOUR COSTS. IT WILL INCREASE YOUR INCOME.

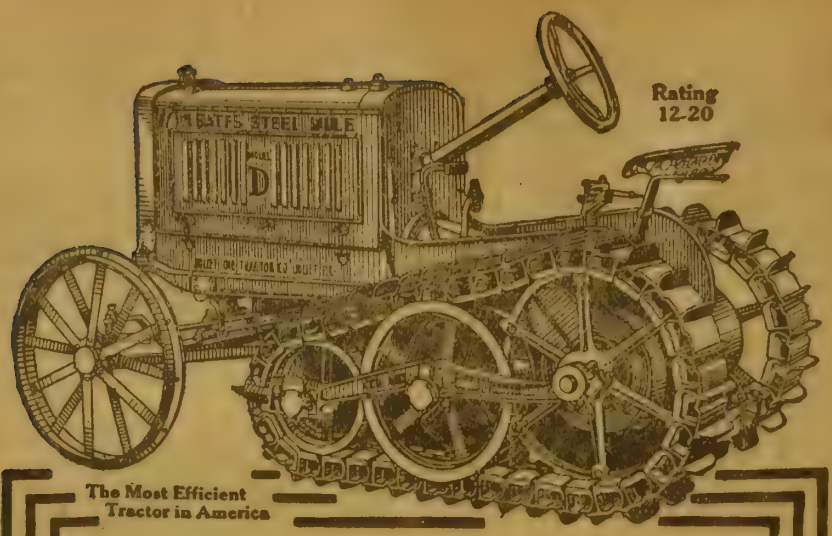
The durable is the efficient, economical tractor.

Our booklet, Better Farming, is yours for the asking.

Samson Sieve-Grip Tractor Co.

Division of General Motors Corporation

Stockton, California



The Most Efficient Tractor in America

Flexible Construction

Three-point suspension and oscillating crawlers give the Bates Steel Mule unusual flexibility. This prevents internal strains, keeps bearings in perfect alignment and gives a comfort and satisfaction to the operator.

Crawlers that double the tractor's usefulness, Timken roller bearings, hardened cut steel gears, unit construction of power plant and heavy duty valve-in-head kerosene motor contribute to the year-after-year serviceability.

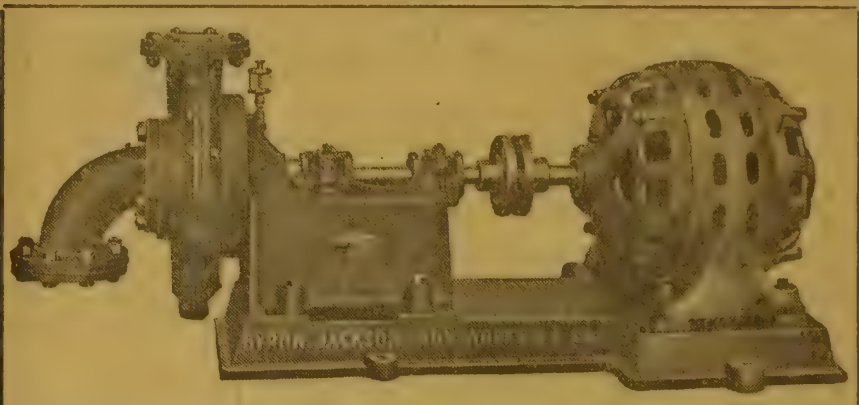
The model "D" BATES STEEL MULE has created more favorable comment than any tractor ever brought into this part of the country. Don't fail to see the one we have here.

THE ONLY CRAWLER TRACTOR ADAPTED TO BEET CULTIVATION WITHOUT MAKING CHANGES.

Excellent Proposition offered Live Agents.

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So. California Distributor
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Have You a Producing Ranch?

If not, Why not?

The difference between a "live" and a "dead" Ranch is "Water" and "No Water."

"Byron Jackson" Pumps meet every water condition

Write us giving your water conditions and requirements.
Our New Catalog No. 60-B for the asking.

Byron Jackson Iron Works, Inc.

Los Angeles *San Francisco* *Visalia*
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Built in both Hand and Power types.
SEND FOR CATALOG

SMITH-BOOTH-USHER CO.

Machinery, Supplies
Pipe and Fittings

LOS ANGELES

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Guidance for Land Settlement

DISCUSSING the capacity of the United States to provide for a very much larger population, the secretary of agriculture, in his annual report, says that the responsibility rests upon each individual, and especially upon the farming population and state and federal agencies responsible for leadership.

"We have, up to the present, succeeded in this enterprise," the secretary says. "In the years from 1900 to 1915 the nation gained a population of approximately 22,000,000, and they have been fed and clothed in large measure from domestic sources. It is estimated that in the years from 1915 to 1918 the population increased by 3,200,000, of which a very small part was from immigration. We shall, perhaps, gain as many more in the next 15 or 20 years, even if the rate of immigration should not be maintained, for the natural growth in recent years, averaging about three-fourths of a million a year, shows an upward tendency.

"It would be desirable to facilitate land settlement in more orderly fashion. This can be effected in a measure by systematic effort on the part of the federal government, the states, and the several communities through appropriate agencies to furnish more reliable information, intelligent guidance, and well considered settlement plans. The nation has suffered not a little from irresponsible and haphazard private direction of settlement. In many sections, especially in the newer and more rapidly developing ones, the situation has been complicated by the activities of promoters whose main concern was to dispose of their properties. They too frequently succeeded in attracting farmers to localities remote from markets where they either failed to produce crops or met with disaster through lack of market outlets or adequate marketing arrangements.

"It is particularly vital that, by every feasible means, the processes of acquiring ownership of farms be encouraged and hastened. This process is real in spite of appearances to the contrary. It has been too generally assumed and represented that tenancy has increased at the expense of ownership and that we are witnessing agricultural deterioration in this district. Tenancy does present aspects which should cause great concern, but its bright sides have not been sufficiently considered. The situation does not warrant a pessimistic conclusion. In the 30 years from 1880 to 1910 the number of farms in the United States increased from 4,009,000 to 6,362,000, the number of those owned from 2,984,000 to 4,007,000, a gain of 1,023,000, or 34.3 per cent, and the number operated by tenants from 1,025,000 to 2,355,000 a gain of 1,330,000, or 129.9 per cent. But in 1910 five-eighths of the farms and 68 per cent of the acreage of all land in farms were operated by owners and 65 per cent of the improved land. The number of farms increased faster than the agricultural population. The only class not operating farms who could take them up were the younger men, and it is largely from them that the class of tenants has been recruited.

"In a recent study of the cases of 9000 farmers, mainly in the Middle Western states lying in the Mississippi Valley, it was found that more than 90 per cent were brought up on farms; that 31½ per cent remained on their fathers' farms until they became owners and 27 per cent until they became tenants, then owners; that 13½ per cent passed from wage earners to ownership, skipping the tenant stage; and that 18 per cent were first farm boys, then wage earners, later tenants, and finally owners. It is stated, on the basis of census statistics, that 76 per cent of the farmers under 25 years of age are tenants, while the percentage falls with age, so that among those 55 years old and above only 20 per cent are tenants. In the older sections of the country (except in the South, which has a large negro population), that is, in the New England and Middle Atlantic states, the tenant farmers formed a smaller proportion in 1910 than in 1900. This is also the case with the Rocky Mountain and Pacific divisions, where there has been a relative abundance of lands. The conditions on the whole, therefore, are not in the direction of deterioration but of improvement. The process has been one of emergence of wage laborers and sons of farmers first to tenancy and then to ownership.

"The legislative steps that have been taken to promote better credit terms for farmers will have a tendency to hasten this process. The operation of the farm loan system, through arrangements by which those who have sold lands take a second mortgage subordinate to the first mortgage of the farm land banks carrying a relatively low rate of interest, will have a beneficial influence. If further developments can be made through the application of the principle of cooperation, especially in the formation of personal credit unions, the conditions will be more favorable. In the meantime special attention and study should be given to the terms of tenancy, including the lease contract, with a view to increase the interest both of the landlord and of the tenant in soil improvement and to make sure that there is an equitable division of the income."

Kern County Cotton

Kern County is proud of her first year's cotton production. We give on this page photograph of the first bale ginned in Kern County. This was grown on the ranch of C. B. Reas near Arvin. Regarding Kern County's production the Bakersfield Californian says:

The distinction of being the producer of Kern County's first bale belongs



Kern County's First Bale

This cotton was grown on the place of C. B. Reas. The staple is 1⅛ inches in length and the cotton of exceptionally high quality.

to C. B. Reas, a cotton planter living near Arvin. Mr. Reas' crop this year consists of 45 acres of the Egyptian long staple variety. The bale weighs 500 pounds and with the present market value of 62 cents for this grade of cotton, is worth $310. In addition to this amount the seed, amounting to approximately 800 pounds, has a value of $24.

Mr. Reas has stored in the warehouse at the gin 15,695 pounds of seed cotton, 4000 pounds of picked in the field, with much more remaining to be gathered. The staple was found to average approximately one and a half inches.

According to estimates recently made by department of agriculture agents, Kern County will harvest approximately 1000 acres of cotton this year.

A School for Farm Boys

By M. E. Bemis

WE ARE often prone to wonder why it is that more farm boys don't take an agricultural college course, and the most common answer is that they can't afford it, that is the majority cannot afford either the time or the cost of four years in college. Years ago Senator Vilas of Wisconsin suggested to Dean W. A. Henry of the Wisconsin college of agriculture that they popularize the college by forming short courses, and after some experimenting the agricultural short course was started and has resulted in doing an immense amount of good throughout the country.

In one of the New England states they have a school for farm boys that is unique, because it is different. To be exact there are two agricultural schools in the state of Vermont. One of these is known as the Vail agricultural school. The purpose of this school is to give the kind of instruction that will be most helpful to boys that expect to become farmers. The time required is one full year. Most of the work of the farms is done by the boys. One week out of each four each boy works as a farm hand, for wages. This school does not pretend to be a school for specialists.

There is only one course, general farming. This course is claimed by the founders of the school — and it seems to be borne out by actual experience—to be the practical instruction needed by the majority of boys who go back to the farms. Incidentally the purpose of the school is to induce the farm boys to become farmers, and better farmers, rather than to leave the farms for some other occupation.

As a farmer is expected to become an influential citizen, the boys at this school are trained in civic and social activities in order that they may become better citizens and of more value to the community in which they live.

Business farming is also a part of the course. Most of the work of this school is in actual practice, and considerably more time is spent in the field, shop, dairy and orchard or garden than in the class room, though textbooks are used to an extent that seems advisable. There is a well equipped library, reading rooms and recreation room. Comfortable dormitories are also a part of the school building group. There are also laboratories, a creamery, well equipped poultry yards, green houses, etc.

The cost of such a school to the students is small. It is said that the actual expenses of the school, including board, are not more than $200 a year and that one-half of this may be earned by the student during the one week of the months that he works as a farm hand.

The other school, which is located in the same state, is run on a very similar plan, although a two years course is provided and the student does a certain amount of prescribed work upon the school farm in the dairy, orchard, etc., but does not work one week in each month as a farm hand.

These schools have proved very popular and are accomplishing just what the founders expected them to, namely, making better farmers of the boys who will become farmers and to make farming and farm life more popular. There is nothing to prevent a boy who takes a course at one of these schools from taking a full four year course at the state agricultural college if he chooses, and he has laid the ground work for such a course. If he is to become a specialist in any one of the many branches of agriculture he needs the full agricultural course, but if, like the majority of farmer boys, he will become a farmer, he gets the help that he needs in one year at this school instead of spending four years for practically the same thing. The only essential difference is the diploma, and is that worth three year's of a young man's life?

Just why a boy or young man should spend four years in learning a lot of things that he is never going to have any use for and will forget within five years after he leaves college, is one of the questions that we don't attempt to answer, but just go on in the same old way, because that has always been the way.

If a young man starts out to learn the carpenter's trade he is not required to learn Latin, or astronomy, or chemistry. He starts right in to acquire a knowledge of things that are to be useful to him. A doctor has as little use for astronomy as the carpenter, but he has to learn it just the same, because that is a part of his regular course of study, and if he didn't take a lot of studies that he would have no use for he wouldn't need to stay in college for four years to get his degree. Of course it is the fashion, and although he is virtually wasting half of his four years, he has to keep right on the beaten path because that is the prescribed method. It has to be so because it has been so ever since the days of Socrates, who had all kinds of time and never considered his pupil's education complete until he had delivered the last lecture to his students while they were waiting for the hemlock to get in its work. We are living in a different age now and we do things in a hurry—except in the matter of education.

Business is sometimes the goad that drives one to a faster speed. Good hard headed business men refused to see the sense in spending four years to acquire a business education when by eliminating the non-essentials the requisite studies and practice could be had in a year or less, so we have business colleges.

We haven't yet applied the same principle to other callings, but why not more real agricultural schools?

TRACTOR DEMONSTRATION AT FRESNO

Writing as to Fresno's offering of opportunity for a great tractor demonstration next spring, O. C. Adams, secretary of San Joaquin Valley Implement Dealers' Association, says:

"As you are undoubtedly aware, Fresno is the center of the largest and most populous district in California. As the big majority of these farmers have small or medium sized ranches, there is a much better market for small tractors than in other sections where the ranches are larger.

"While a demonstration held near a large city may draw a large crowd, we believe that the annual demonstration if held at Fresno will have a larger attendance of actual tractor buyers than any in the history of the association.

"We believe that a demonstration held near Fresno will result in greater benefits to both the manufacturers and dealers than if held in any other section of the state."

Guaranteed to do a Season's Work Without Expense for Repair Parts

Get Our "After the War" Tractor Proposition

Before You Buy Any Tractor

Old methods are past methods. Our method of selling the 1919 MODEL BEAN TrackPULL TRACTOR on an absolute three months season's guarantee basis is simply a reflection of our confidence in the BEAN to do your work.

It means that when you buy a 1919 BEAN TRACTOR you get a bond from this Company with a most liberal guarantee. And in addition we are able now, on account of after the war conditions, to make a

Reduction in Price

And give you the option of cash or time payments. The new price of the BEAN TRACTOR is guaranteed to June 30, 1919. While there is no probability of any further reduction this guarantee means that if the price should be reduced between now and June 30, 1919, the difference in price will be refunded.

This entire "After the War" tractor proposition, backed by a tractor of high efficiency with splendid service plan in operation, is something you can't afford to overlook if you are going to buy a tractor this year.

Needless to say we couldn't make this new sweeping proposition unless we knew positively from experience that the BEAN TRACTOR would uphold it.

Special Tractor for Orchard and Vineyard

Don't buy a tractor built for general use—it isn't price but results that count. Buy a tractor designed to do your kind of work.

The BEAN is built low to go under lowest branches. Great traction combined with light weight — low fuel expense — best work in soft soil. Turns in 10-foot circle with full power—tools deep in soil. You can turn right back in the same row.

Bean TrackPULL Tractor

The BEAN TrackPULL TRACTOR will be as famous as BEAN POWER SPRAYERS when as many are in use.

Send right now—before you put your money into any tractor —and get this new "After the War" tractor proposition. Then decide which tractor you need. Send the coupon now.

Bean Spray Pump Co.
San Jose, Calif.



COUPON

Bean Spray Pump Co., 226 W. Julian St., San Jose, Calif.

Send me your Tractor Catalog and full information about your "After the War" tractor proposition without obligation on my part.

Name .....
Street .....
City .....
County ..... State .....
No. of Acres.....Kind of crop grown.....

See the Bean Tractor at either of our branch houses: 131 N. Los Angeles St., Dept. D-1, Los Angeles; 132 J St., Fresno.

The Cultivator Patterns



9046—**Boys' Suit.** Cut in sizes 2, 4 and 6 years. The blouse hangs straight from the shoulders but is held in place at the waistline by a belt of the material.

9028—**Ladies' Waist.** Cut in sizes 36, 38, 40, 42, 44 and 46 inches bust measure. A soft vest is shirred over a cord to form the graceful round neck.

9009—**Ladies' Shirtwaist.** Cut in sizes 36, 38, 40 and 42 inches bust measure. The collar is quite broad at the front, but is slashed in points to give a novel effect.

9041—**Ladies' and Misses' Coat.** Cut in sizes 16, 18 years, and 36, 38, 40 and 42 inches bust measure. The two piece sleeve is set into a very deep armhole.

9029—**Ladies' Dress.** Cut in sizes 36, 38, 40, 42, 44 and 46 inches bust measure. A narrow shawl collar of organdie with a dainty filet edge follows the line of closing.

9026—**Children's Dress.** Cut in sizes 4, 6, 8 and 10 years. The lower edge of the long waist is curved downward at each side.

9030—**Ladies' and Misses' Two Piece Skirt.** Cut in sizes 16, 18 years, and 26, 28, 30 and 32 inches waist measure. The front gore is fitted and the back gore is gathered all across the slightly raised waistline.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

HOW TO ORDER PATTERNS

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks. We guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
CALIFORNIA CULTIVATOR
Los Angeles.

Household Department

LOOK PLEASANT

Nobody cares about your woes;
A gloomy face is ungenteel.
Each has his sorrows, goodness knows,
Why should you your grief disclose?
Look pleasant!
"Though you are blue as indigo—
You're prettier when you smile, you know.
The world abhors a gloomy face,
And tales of woe are commonplace—
So let your face no sorrow trace—
Look pleasant.
—Attainment.

THE PRODIGAL FATHER'S NEW YEAR VOW

(Continued from last week.)

NEW YEAR'S eve was one of those clear, moonlit evenings, when one could see, almost could read, any object or newspaper which came within line of vision. So, no wonder that the seedy traveler who had plodded a weary six miles from Canada station halted, wonderingly, as he sighted the huge stone that almost seemed beckoning to him from, he noted with a deathly sinking of his heart, the very center of the Stetson lot in the old familiar hill burying ground. Jake had not meant to be mean or cruel. Charlotte Ann had told him so many times that she wished she "might never set eyes on his ornery face again" that, when his hold on Walt had loosened and he had slipped down the creek and had been cast ashore on a handy knoll, it had occurred to him that now was the chance to make true his wife's wish, and no longer to be a drag upon her. In the two years' loneliness and freedom, however, there had come to him a glimmer of new light. Home took on a broader, sweeter value. After all, in the whole, wide world, there at home were the only people who cared at all for him; the only folks in the universe who would join him sincerely and lovingly with the word "we" when love held sway.

"The onliest pards I ever had, since dad and maw died," he used to think, "and me not sensing it."

And at last, a little success coming to him, he decided to return, to go back, a prodigal father, but with enough of the world's goods to bring joy to the hearts of his people. He had tried to get home by Christmas, but California is a far cry from this little New England village among the hills and he had only just made it.

Now—well, it served him right, he supposed. For there could be no other explanation than that Charlotte Ann was gone. The monument must be to her memory. He should never hear her sharp tongue again, her bitter sneers at his shiftlessness, all so well deserved, as he admitted now. He went over to see the monument. In the moonlight the word "Hero" shone forth resplendently and, as his gaze traveled slowly downward, he was as a man stricken dumb, for awhile. Then he swept his coat sleeve across his eyes. Somehow, he found it hard to see clearly.

"Me, a hero," he ejaculated with self scorn, "me a hero! Why, I'm a deserter; ought to be shot for one, too! Hero! well, not much—but one thing I know is, Charlotte Ann's a heroine and no mistake about it."

Then his heart being full and the surroundings solemn, he dropped on his knees, and with his head on the garland of roses, registered a firm vow, which was always kept, that, if Charlotte Ann would but take him back, he would overcome his besetting sin and be all that she had hoped when she accepted him, for better or for worse, so many years before.

"It's all been worse, Lord," he said, humly, "but the time's ripe for better and it's sure going to be with your help, Lord," he added, suppliantly.

As he finished the old bell on the old church in the valley began to chime the Old Year out and the New Year in, and Jake realized that he had made the biggest, busiest and best New Year's resolution of his life, and he accepted the bell's notes as a token that he should fulfill it, "make good," and redeem his past irresponsibility.

Lottie Ann Junior saw him first. The little family had been watching the birth of the New Year and she had seen him enter the gate. She was not excited. Lottie Ann was both phlegmatic and philosophical.

"Ma," she remarked placidly, "that there monument of ourn ain't no good after all. Here's pa a-coming up the path."

When it was proposed to remove the monument Jake vetoed the idea.

"No," he said, "if it's just the same to you, Charlotte Ann, I'd like it left there. Whenever I feel like dropping back into the old ruts, I'll go up and look at it. It will give me fresh courage and pluck, for, I tell you now, Charlotte Ann, it was that stone that clinched my resolution, nailed it down, so to speak, and I feel real sort of friendly toward that monument. I shan't ever be perfect and—I'm no hero, but whenever I see that stone and read what you believed I might be, I can take a fresh hold and make a bluff at it, anyway."

It is refreshing to be able to add that Lottie Ann appeared out in public the following June in a spick, span pink dress, stockings, sash and kid slippers, all procured for her by the repentant prodigal, who, it is hinted, may be on a political slate for the honorable office of selectman of Hartsville.

Jake smiles at the horoscope. "Guess," he commented, "that it didn't make much difference when a man is born. According to my lights, it's up to us all, whenever our birthday is, to be square and straight. We can all do the right thing, whether we were born in winter or summer," but while these are his opinions, he holds an affectionate liking for the old horoscopic prediction paper, for he realizes that it helped redeem him in the eyes of his energetic wife.—Farmer's Wife.

NEW KIND

The good bishop was dictating his sermon. It was on the evils of indifference, of letting things run along in the easiest way. Rounded sentence after rounded sentence came from the episcopal lips, till he reached the grand climax: "And the days pass into the weeks; the weeks into the months; the months glide into the years—and you are lost—lost in a maelstrom of apathy."

And this reminds us of a delightful bit in a widely published decision of a supreme court justice: "The preponderance of evidence," wrote he, "the preponderance of evidence is one-sided."

LITTLE JACK HORNER, 1919 MODEL

Little Jack Horner don't sit in the corner
Eating a Christmas pie;
The reason is plain, he will explain,
The cost of living's too high.

MUSSELS AND HOW TO COOK THEM

A circular of interest to Californians who live near the coast has been issued by our bureau of fisheries. Mussels are certainly abundant on our coast and to be had for the picking, so we give some of the recipes from this circular.

When Not to Use Sea Mussels

Sea mussels are wholesome, but, as in the case of all animal foods, there are conditions under which they should not be gathered or eaten. Dead or stale mussels are apt to contain the same dangerous decomposition products, ptomaines, as are found in other stale or putrefying animal foods. They should be alive, and this can be determined by observing if the shells be closed. If the shells gap and do not stay closed when squeezed shut the mussels are either dead or weak and should not be used.

Mussels, like oysters, should not be used from sewage polluted waters and, therefore, should not be taken from the vicinity of towns or on densely inhabited shores. They should not be taken from pilings, rocks or shores exposed at low water, as they may become polluted or the liquor may become slightly decomposed by exposure to the warm air and sun. If these simple precautions be observed, mussels will be found to be a safe and healthful sea food. Keep them covered with a wet cloth in cool, dark place.

How to Prepare and Cook Sea Mussels

Wash well before cooking. The only inedible part, except the shell, is the little tuft of black hairs known as the byssus, or beard, which is readily detached after cooking.

Canned mussels of good quality, preserved either in their own juice or pickled in vinegar and spices, are now prepared by a few firms on both Atlantic and Pacific Coasts. Thus prepared they retain their tenderness and most of their natural flavor.

Mussels may be cooked in the same ways as oysters and clams, and in other ways distinctly their own.

Steamed Mussels

Wash and clean thoroughly; place in closely covered saucepan or kettle after adding about a cup of water to one-half peck of mussels. Boil 10 to 12 minutes, until they are all well opened. Strain the broth and serve the mussels on a large platter. Serve them with some melted butter, and a cup of broth to each person. Remove the beard and eat same as steamed clams. One-half peck of mussels will serve five people.

Fried Mussels a la Colbert

Wash and clean as usual. Steam until shell opens. Remove the meats from the shells, and take out the beard; then roll in flour, dip in two eggs beaten with one-half cup of milk, and roll in bread crumbs. Fry in hot fat or oil. Drain and dry well on a napkin. Serve hot with a Colbert sauce made as follows: Boil down a gill of brown sauce and meat extract the size of a nut; while whipping the sauce put in two ounces of butter, the juice of a lemon and some chopped parsley.

Mussel Broth

Wash and clean as usual. Place in closely covered kettle, adding a pint of water to one-half peck of mussels, a sliced onion, and a piece of celery, if at hand. Boil until the mussels are all opened. Strain the broth and serve in cups. A little whipped cream may be served on the side. The mussels

used for that purpose can be saved for creamed, patties, etc.

Mussel Chowder, New England Style

Clean and cook the mussels as usual. Remove the meat; take out the beard, preserving the broth or liquor in another dish. To a half peck of mussels take three ounces of salt pork, cut in small dice, and fry in a kettle; add two onions, sliced, and cook well, but do not let brown; add a teaspoon of flour; stir well. Then add the liquor with the same amount of water. Let it come to a boil, and add three potatoes sliced thin. Boil slowly until they are done, then add the mussels and a pint of boiling milk. Season well, and serve with pilot or soft crackers.

Mussel Croquettes

Clean and scald the mussels as usual. After removing the meats from the shell, take out the "beard," and cut the mussels in very small dice. Make a cream sauce, using two ounces of butter, one and a half ounces of flour, one-half pint of hot milk, one-half pint of hot mussel liquor; boil it down until thick enough; add the mussel meats and the yolks of two eggs; mix well, and put in a pan to cool. When thoroughly cold, shape into croquettes, bread in the usual way, and fry in very hot fat. Drain and serve on a folded napkin garnished with parsely.

Mussel Fritters

Clean the mussels as usual and steam until all are opened. Remove the meats, chop them up not too fine. Make a batter with four ounces of flour, teaspoonful of olive oil, three eggs, salt and pepper, and one-half teaspoon of baking powder. Mix well and add some of the mussel liquor to thin out. Mix in the mussel meats and fry in hot fat a golden brown.

Mussel Chowder, New York Style

Take one-half peck mussels, clean, wash, and steam. Strain the liquor and keep hot in a separate dish. Take the meats out of the shell, remove the byssus, and cut mussels in two if large; if not, leave whole. In another kettle fry three ounces of salt pork cut in very small dice. When well fried, add two onions and one green pepper, cut in small dice also; fry a few minutes; add the liquor with the same quantity of water and two large potatoes diced; boil until the potatoes are cooked; add two tomatoes, peeled and chopped up; boil a few minutes more. Put in the mussels and sprinkle a little thyme leaves and serve.

Creamed Mussels

Prepare the mussels as usual. Make a cream sauce thus: Take three ounces of butter, place in saucepan, when melted add two ounces of sifted flour. Stir well while cooking and do not let the mixture brown. Add a pint of hot milk and one-half pint of mussel liquor and cook thirty minutes. Season to taste with salt, pepper and nutmeg. Strain and add mussel meats. Serve on toast, or in patties, shells, croustades, etc.

Charity is a cloak that covers a multitude of amateur theatrical performances.

Shall we give our best in men and not in food?—U. S. Food Administration.

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You can't eat your sugar and give it to the soldiers too.

The sugar S. O. S. is a do-it-now call.

WASHING SECRETS

The theory that "everything comes out in the wash" will not hold good in the case of certain stains. All stains should be removed before washing The material of which most soaps are made is of such a nature that it produces a chemical action that sets the stain—making it impossible, or very difficult, to remove later.

Stains come from a great variety of sources, like ink stains, rust, grease and grass stains. The most common of all, however, are fruit stains.

Fruit Stains

The first step in successfully removing fruit stains is to hold stained part of the fabric tightly over a basin. Then pour boiling water, either direct from tea kettle or from a pitcher, through the stain. In many cases this will be all that is necessary before the regular washing.

It sometimes happens that a fruit stained article gets into the wash unnoticed. In this event a brown spot will usually be seen after the laundering. It should be immediately dampened and placed on ice. This operation may have to be repeated several times, but it is usually successful.

An efficient aid in removing fruit stains from napkins and table cloths is spirits of camphor. Wet the spot with a little camphor. When the articles are laundered the spot will disappear. The camphor must be applied, however, before any water touches the spot.

Peach stains can be removed from table linen and clothing by applying pure glycerine to the stain. Let it remain for a short time, and then wash in clear water. Peach stains in white fabrics can be removed by bleaching with Javelle water. After applying a few drops to the stain, use boiling water immediately. Rinse thoroughly.

Ink Stains

Next to fruit, ink is probably the most prolific source of spots. Ink stains have always been regarded as fatal to clothing. As a matter of fact, ink is one of the easiest stains to remove—especially if immediate action is taken.

The ink spot should be washed at once, while the ink is still wet. Use cold water and wash until spot disappears.

If the spot is old, or does not yield to the washing process, wet with milk and then cover with salt. Obstinate ink spots made by certain kinds of ink can be removed with turpentine. Soak the spot, let it stand for several hours, and then rub well. This usually removes the ink, and does not injure colored fabrics.

Another method is to wet the spot with cold water. Then drop oxalic acid solution on the stain. After allowing to stand for a few seconds, rinse in water containing ammonia.

Or, apply one or two drops of oxalic acid to the stain with a dropper. Then one or two drops of Javelle water. Rinse in hot water.

When everything else fails, try peroxide of hydrogen. As this chemical is a strong bleaching agent, however, it should not be used on poor quality colored material. Fine quality silks and other fabrics in which high grade dyes have been employed will withstand the bleaching action. It is also safe to use on fine white lawn waists.

The method of applying peroxide of hydrogen to ink stains is to wet the spot thoroughly, and then put in the sun to dry. Remove as soon as the ink spot disappears.

Peroxide of hydrogen will also be found valuable in removing other stains if the fabrics are of good quality.

Rust Stains

To remove rust stains, use a mixture of salt and lemon juice. Put the spot in the sun while still wet.

Oxalic acid is excellent for removing stains caused by iron rust. The following method can also be used for iron rust with success:

Put one quart of water and a teaspoonful of borax into a bowl. Over this lay the stained goods. Then apply diluted hydrochloric acid drop by drop until the stain brightens. Then dip immediately into water. Repeat if stain does not disappear at once. Rinse in water containing ammonia, or borax.

Coffee Stains

Coffee stains are removed by the boiling water method described under fruit stains.

Chocolate or Cocoa Stains

To remove these stains from table cloths, napkins, etc., sprinkle borax on the stains, and then wash in cold water.

Or, they can be washed in cold water containing borax, or a little soap. Never use hot water, which sets the stain.

Paraffine Spots

As a rule paraffine can be removed with chloroform. Another very simple way is to lay a piece of blotting paper over the spot and apply a hot iron. The heat melts the paraffine and the blotting paper absorbs it.

Iodine Stains

Iodine that has been applied to bruises frequently stains the clothes. The spots can be removed by washing in ammonia water.

Grass Stains

These can be easily removed by soaking with kerosene, allowing article to stand awhile and then placing in the wash.

Grease Stains

A hot iron and blotting paper, used the same as for paraffine, will remove grease stains. As a rule, however, it is only necessary to wash the spots in cold, soft water and soap. Ice water or cold rain water is best.

This method is also serviceable in cleaning grease that has come from automobiles. In cleaning automobile grease spots, however, it is best to rub a little lard into the spot before washing.

The treatment of wagon grease is slightly different, owing to the presence of graphite in the grease. Rub lard into the spot, and then wash in warm water and soap suds.

Grease spots in silk or woolen goods can be taken out with kerosene. Gasoline is frequently used, but kerosene has proved the best. While taking a little longer to evaporate, it does not leave the circle while gasoline usually does. Care must be used in not allowing dust to settle on the spot until dry.

Vaseline Stains

Washing with turpentine removes vaseline stains from cloth. Do not boil, or put very hot water on a vaseline stain, as this will set the spot.

Blood Stains

After fabric has been allowed to soak in lukewarm water, wash with soap and warm water.

Oil Stains

These come most often from the sewing machine. A cloth dipped in turpentine and rubbed gently on the spot will remove the oil.

Mustard Stains

Washing in hot water containing a little ammonia will remove the stain caused by mustard.

Egg Stains

Soaking in cold water, and slowly heating will usually remove such stains as egg, meat juice, cream, oil, etc.

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Los Angeles Market

Los Angeles, Dec. 31, 1918.

BUTTER

Produce Exc. Quotations.
Prices to trade 1½ to 2½c higher.
Cal. Extra Creamery 64

CHEESE

Brokers' prices:
California fresh, lb. 31

EGGS

Exchange quotations. Price to retailers 2 to 3 cents higher.
Fresh extras 67
Case Count 60
Pullets 62

POULTRY

Hens; heavy, 31; light, 28; colored, 32; broilers, 37@41; fryers, 33; roasters, 30; old cocks, 20.

Ducks, 25; ducklings, 28-30; geese, 28; turkeys, 30-34; squabs, 40-43; Belgian hares, 20.

LIVESTOCK

The market continues strong for steers of good quality, and buyers are expecting that the market will continue high until the grass stuff begins to arrive.

The market for good cows is also strong. Retail buyers preferring good cows to the plainer steers.

The prices for top hogs of the desired weights and quality show an advance, and there is reason to expect higher levels. Good hogs are scarce. The commoner stuff is in no greater demand than in the past.

Good quality lambs are higher, but the common and medium lambs are weaker.

Wethers are strong and scarce.

The market for good ewes is improving. Heavy and shelly ewes are finding no demand.

Report of live stock conditions on the Los Angeles market as compiled by the United States Department of Agriculture, Bureau of Markets, through the local office:

Good Steers .....12.50@14.00
Common .....9.00@10.00
Good Cows 11.00
Medium Cows .....7.00@8.50
Common and canners .....5.00@6.00

Prices quoted below are for carload shipments. Driven-in, or truck hogs sell for ½ cent less:

Hogs—
No. 1 hogs, 150-200 lbs. .....16.50@17.75
No. 2 hogs, 250-350 lbs. .....16.00@16.50
Sheep
Lambs, 65-80 lbs. .....15.50@16.00
Wethers .....11.00@12.00
Ewes .....9.00@10.50

POTATOES

Wholesale selling prices:
Burbanks .....2.25@2.50
Sweet, lug .....65@75
Idaho Russets .....2.25@2.35

ONIONS

Wholesale selling price, cwt.
Australian Brown, lug .....1.50@1.75
White Globe, cwt. .....4.25@4.75
Lompoc 2.15

VEGETABLES

Wholesale prices:
Beans—String 15
Limas, lb. .....9@10
Cabbage, cr. 1.00
Carrots, doz. 35
Cauliflower, cabbage cr. .....2.50@2.75
Celery, cr. .....4.00@7.00
Lettuce, cabbage cr. .....1.40@1.50
Parsley, doz. 15
Peas, Tel. 14
Peppers, Chili, lb., 13@14; Bell, lb..12@13
Pumpkins, lb., best 1¼
Radishes .....15@20
Rhubarb, bx., Crimson .....65@75
Strawberry .....1.10@1.25
Spinach, doz. 30
Squash—Hubbard, best, lb. 1¼
Tomatoes, unwrapped, ripe lug..1.25@1.40
Turnips, doz. 30

FRUITS

Apples—Bellfleurs, bx. .....1.50@2.00
Yucaipa Delicious .....2.75@3.25
Pearmains .....1.60@1.75
Newtons .....1.75@1.85
Pears: Winter Nellis, lb. .....6@7
Persimmons, lb. .....5@12

CITRUS

Lemons: Fy. packed 4.00@4.50 bx.; loose, 2.00@3.00; poorer, 1.25@2.00.

Oranges: Tulare County Navels, large size, 3.75@4.25; Southern Navels, medium to small size, 5.00@5.75; loose, 3.25@4.00 bx.; tangerines, lb., 6; Mandarins, 1.90 lug bx.

Grapefruit: Tulare County Seedless, medium, large fy., 2.75@3.25; Arizona Seedless, 3.00@3.50 packed bx. Arizona, Seedless, 3.50@4.00 packed bx.; 2.25@2.35 half bx.

HONEY

Cash to producer on farm:
Supplies very light, very few sales. Extracted, lb.: White, supplies practically exhausted, too few sales to establish a market; Light Amber, Sage and Alfalfa 21½@22 lb.: Beeswax, 36@37 lb.

BEANS

Warehouse cash to growers. Choice recleaned sacked.

Limas .....10.00.
Small White 8.25
Large White 8.00
Henderson Bush .....9.25@9.50
Pink .....6.75@7.00
Rain damaged 6.25
Blackeyes .....4.50@5.00
Teparies .....4.50@5.00
Old crop 4.00

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....21.00@26.00
Barley .....19.00@24.00
Alfalfa .....17.00@21.00

Quotations furnished by California Alfalfa Growers' Association, Riverside, California.

No. 1 dairy alfalfa hay carload lots f. o. b. Los Angeles, $27.20; f. o. b. common shipping points, taking a $3.10 carload rate to destination, $24.00.

GRAIN AND FEED STUFFS

Prices offered on exchange. For federal price see San Francisco market:
No. 1 Bright Feed Barley.....2.25@2.30
No. 3 Yellow Corn, bulk.....3.25@3.35
Milo Maize, local .....2.45@2.47½
Northern Bran, ton 41.00
Northern Shorts, ton 47.00

San Francisco Markets

San Francisco, Dec. 30, 1918.

BUTTER

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cube basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½c to 2½c; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:
Extras 56

CHEESE

Dairy Exchange quotations:
Cal. Flats 33½
Ore. Triplets 40
Jack, full cream 30

EGGS

Dairy Exchange quotations:
Extras 73½
Extra Pullets 69½

POULTRY

We quote to producers, lb.:
Hens, 33; broilers, 43@45; fryers, 37@43; old roosters, 21@25; young roosters, 33@34.
Ducks, 30; geese, 30.
Belgian hares, live, 20@22.
Jack Rabbits, doz. 3.25@3.75.
Squabs, doz., 3.00@4.00.
Turkeys, dr., 40@42; live, 36@38.

LIVESTOCK

Prices gross weight:
Cattle: The following prices are for grass fed stock. Hay fed brings ½ to ¾c more.
Steers, lb., 11@13; thin, 9½@10; cows and heifers, 8@9½; thin, 6@6½; calves, 10½@11½.
Sheep — Lb. gross weight: Wethers, 11½@12; ewes, 9@9¼; lambs, yearlings, 12@12½; milk, 14@14½.
Hogs—Hard grain fed, weighing 100 to 150 lbs., 16; 150 to 250 lbs., 16½; 250 to 300 lbs., 16; 300 to 400, 15¾.

POTATOES

Wholesale selling prices at wharf, cwt.:
Choice deltas, 1.50@1.75; fy., 1.75@2.00; Red Shima, 2.30; Oregon Burbanks, 1.85@2.25; Gems, 1.85@2.35; British Queens, 1.75@1.90; sweet, lb., 2½@4.

ONIONS

Wholesale selling price on wharf, cwt.:
Australian, Brown and Yellow..1.00@1.25

VEGETABLES

Wholesale selling price:
Artichokes, doz. .....35@1.50
Beans, String, lb. .....20@35
Wax .....7@12
Beets .....1.00@1.50
Brussels Sprouts, lb. .....5@6
Cabbage, lb .....
Carrots, sk. .....1.00@1.25
Cauliflower, doz. .....1.00@1.15
Celery, doz. .....30@50
Cucumbers, hothose, bx. of 30...2.50@3.00
L. A., lug .....2.50@3.25
Egg Plant, lb. .....10@12½
Lettuce, doz. .....30@40
Southern Iced, cr. .....1.75@2.25
Egg Plant, lb. .....5@10
Peppers, Chili, lb. .....7@10
Southern .....10@12½
Mushroom, wild .....10@25
Peas .....14@15
Pumpkins, sk. .....1.00@1.25
Rhubarb, bx. .....1.25@2.00
Squash—Cream .....85@1.15
Hubbard, sk. .....1.25@1.75
Marrowfat .....1.25@1.50
Tomatoes, cr. .....1.50@2.50
Turnips, sk. .....75@1.25

FRESH FRUITS

Apples—Newton Pippins .....1.35@1.75
Pearmain .....1.25@1.50
Spitzenburg .....2.00@3.00
Avocados, doz. .....6.00@7.00
Bananas .....
Cranberries, bbl. .....17.00@20.00
Grapes, cr. .....1.35@2.25
Olives, lb. .....10@12½
Pears—Beurre Hardy 1.50
Kieffer, ½ bx. .....1.50@1.75
Winter Nellis .....2.25@2.75
Persimmons, bx. .....1.00@1.50

CITRUS

Box: Lemons, 2.50@4.50; lemonettes, 2.50@3.00; grapefruit, 2.00@3.00; limes, 1.25@1.50; Mandarins, 1.30@1.75; cr., 1.75@2.00; tangerines, bx., 1.25@1.50; half orange bx., 2.50@3.00; new Navel, 2.75@4.50.

DRIED FRUITS AND RAISINS

Prunes — Bulb basis: 30-40s, 10; 40-50s, 9½; 70-80s, 8½; 80-90s, 8; 90-100s, 8; in 25-lb. boxes, 20-30s, 18½; in 50-lb. boxes, 100-120s, 5¾; 120s up, 5¾.

Peaches — Bulk basis: Standard yellows, 11¼; ch., 11¾; fy., 12½; extra fy., 13¾; slabs, 10¼; standard Muirs, 11¾; ch., 11⅞; fy., 12⅞; extra fy., 14; slabs, 10¼.

Raisins—Muscats, pkge. seeded; fy., 36 16s, 9⅝; fy., 54 12s, 7¾; ch., 36 10s, 9¼; ch., 45 12s, 7¾. Bulk seeded, in 25-lb. boxes: Bakers, 8; loose, in 25-lb boxes, recleaned and floated, 1-cr., 8⅛; 2-cr., 7½; 3-cr., 8; 4-cr., 8¾; layers, ordinary pack, 20-lb. boxes, 3-cr., 1.85; 4-cr., 2.10; 6-cr., 2.95; 10-lb. boxes, 3-cr., 1.05; 4-cr., 1.20; 6-cr., 1.65; 5-lb. boxes, 3-cr., 65; 4-cr., 70; 6-cr., 90; vineyard run layer raisins, 50 lbs., 3.00; 100 lbs., 7.50.

Figs—Bulk basis: White Adriatic, extra fy., 17½; fy., 15¾; ch., 14; Calimyrna, extra fy., 25; fy., 23½; packages, ch. to fy., 12 10s, 1.75@1.80; 24 8s., 2.90@2.95; 50 6s, 4.30@4.40; 70 4s, 4.40@4.50.

Pears—Bulk basis: Fy., 19½; extra ch.

17; ch., 15½; standard, 12@14.

Apples—Lb.: Extra ch. to the evaporater, 13½; jobbing price, 14½.

Apricots—Standards, 9½; ch., 13; extra ch., 14½; fy., 16; extra, 17½; Moorparks, 19; slabs, 11.

RICE

Prices which rice millers of this state have voluntarily agreed with the food administration for California to pay to growers for paddy rice are as follows:

No. 1 and No. 2 Japan, in sacks, $4.32 per 100 pounds.

No. 3 and No. 4 Japan, in sacks, $4.16 per 100 pounds.

Prices for other grades will be paid for on a basic value proportionate, and no higher prices than those quoted above for any grades whatever will be paid.

The millers agree further to sell cleaned rice and by-products for prices not to exceed the following:

Fancy Japan, 1½c per pound.
Choice Japan, 7⅝c per pound.
Fancy second heads, 6⅞c per pound.
Screenings, 5⅝c per pound.
Brewers', 5¼c per pound.
Rice polish, $50 per ton, carlots.
Rice bran, $36 per ton, carlots.

NUTS

The Almond Growers' Association has established opening prices as follows per pound:

Nonp.	27¼
I.X.L.	25½
Ne Plus	24½
Drake	20

Outside dealers have named prices above these quotations and it is understood association stock is practically closed out and prices withdrawn.

Walnuts: Net prices have been named by the California Walnut Growers Association:

No. 1 Softshell	28
No. 2 Softshell	25
Jumbo	30
Fancy Budded	31½
Golden Gate Budded	29

Franquettes, Eurekas and other fancy varieties sold on sample. No. 1 Softshell guaranteed 88 per cent good; Fancy Budded, 90 per cent. In case of worms or damage by ants not more than five per cent.

BEANS

Per cental:

Limas	11.00
Large White	8.00@8.25
Small White	9.40@9.50
Blackeye	5.40@5.60
Pink	6.75@6.90
Bayou	7.25@7.40
Red	7.00@7.25
Cranberry	8.25@8.50

HONEY

Cash to producers, country loading points:

Extracted, Water White, supplies very light, 22@23½; White Sage, supplies very light, 20@23; Light Amber, supplies very light, 18@20½; Dark Amber, 18@19 lb.; Beeswax, supplies moderate, 35@40 lb.

GRAIN

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Cental
No. 1	$2.20	$3.62 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$3.63 1-3
No. 2	2.15	3.58½
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 ½

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Barley — Feed, 2.17½@2.22½ per cental for choice spot; shipping, 2.25-2.27½; milling, nominal.

Oats—Red feed, 2.35@2.55 per cental; seed, do, 2.85@3.00, with recleaned at 3.15@3.20.

Corn — Egyptian, 2.75@3.00 per cental for choice white; Milo, 2.65@2.70. Rye nominal.

HAY

Under date of December 28, Scott, Magner & Miller says:

Receipts past week 573 tons. All quotations are practically nominal and probably will be so until after the holiday season. Damaged alfalfa still arrives from the river districts as well as at times from interior sections. This hay is arriving in worse condition right along as each succeeding rain has its effect upon it. It is difficult at times to even obtain freight and baling charges from this hay and if it continues to be sent to this market no doubt consignors will be receiving bills back for charges. The present is no time to consign hay to this market. It is generally believed in the trade that after the first of the year business conditions will improve like all preceding seasons.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market. For prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.

Fancy Wheat Hay (light 5 wire bales)	24.00@26.00
No. 1 Wheat or Wheat and Oat Hay	22.00@24.00
No. 2 Wheat or Wheat and Oat Hay	16.00@20.00
Choice Tame Oat Hay	21.00@23.50
Other Tame Oat Hay	16.00@19.00
Wild Oat Hay	16.00@18.00
Barley Hay	16.00@18.00
Alfalfa	14.00@18.00
Stock Hay (in order)	14.00@17.00
No. 1 Barley Straw, bale	50@80

Damaged hay, all kinds, according to condition.

SEEDS

Flax	8@8¼
Millet	5@5¼
Rape	2½@5

Citrus Fruit Market

Los Angeles, Dec. 31, 1918.

Citrus interests have never been given a better holiday market. There was, however, an enormous quantity of fruit which would stand up under the 8 to 1 test but which refused to color on the tree. This caused a vast quantity of sweating or artificial coloring. This put much of the fruit to the bad and three and even five per cent of decay has been reported on some cars. Some of this stuff was thrown into the New York auction after Christmas and sold for disastrous prices. In the main however, the situation has been exceptionally good. F. o. b. quotations are now running around $3.75 to 4.25.

The lemon market is fairly satisfactory. Fruit condition is fine and the auction markets are taking all offerings, usually above $2.00 and sometimes as high as $4.60. The cold of the past few days has caused little concern and where orchard heating has not been followed young fruit has been destroyed.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 1533 cars, lemons 1149, total 2685. To same date last season, oranges 2104, lemons 526, total 2630. Central California this season; oranges 2704, lemons 238, total 2942. Last season to same date; oranges 1647, lemons 60, total 1707. Northern California; oranges 205, last year same date 181.

AT THE AUCTIONS

December 30

New York: 22 cars Navels, 1 mixed, 1 Arizona, 9 lemons. Lower. Nav. 1.00-6.30, lem. 240-3.95. Ariz. Navels 4.35-4.95.

Philadelphia: 3 Nav., 2 lem. Lower. Nav. 1.80-3.90, lem. 2.55-4.35.

Cleveland: 7 cars. Higher. Nav. 3.90-6.00, lem. 2.90-3.85.

Boston: 9 cars. Nav. 4.25-6.25, lem. 2.95-3.75.

Cincinnati: 3 cars, easier. Nav. 3.15-3.60, lem. 2.55-3.85.

Pittsburg: 4 Nav. 2 lem. Nav. 3.20-6.70. Philadelphia: 5 Nav. 2 lem. Nav. 1.80-4.85, lem. 2.05-3.45.

PARTIAL LIST CALIFORNIA FRUIT AND VEGETABLE SHIPMENTS

From post card reports to the Los Angeles branch of the bureau of markets, report is made of the following shipment of cars of products from California for the week ending December 30: Apples, 65; cabbage, 3; carrots, 3; cauliflower, 26; celery, 73; dried apples, 1; dried apricots, 3; dried beans, 65; dried figs, 4; dried peaches, 7; dried pears, 1; dried peas, 1; dried peppers, 3; dried prunes, 33; lettuce, 39; mixed vegetables, 44; mixed fruit and vegetables, 4; mixed dried fruit, 28; olives, 3; onions, 9; potatoes, 83; raisins, 208; sweet potatoes, 10; tomatoes, 2; Arizona potatoes, 2; Nevada potatoes, 2.

QUICK RELIEF

Tobias Knowal peeped through the window of his office, then tiptoeing to his desk put a flannel bandage around his neck, put his arm in a sling, ran his hands through his hair and limped to the door.

"Mr. Knowal?" inquired the caller.

"Yes," groaned Knowal. "What can I do for you?"

"You appear to be far from well," said the caller.

"Appear to be!" echoed Knowal. "Do you think I'm doing this for fun? But what can I do for you?"

"Oh—er—I won't trouble you now," said the caller hurriedly. "Any time will do." And he departed.

"It's some trouble," murmured Knowal, pulling off his bandage. "But it's really the quickest way to get rid of these life insurance agents. That one won't trouble me again, anyhow!"

WEATHER CONDITIONS

Stations	Rainfall—Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.04	11.64	16.12	56	34
Red Bluff	.00	14.15	9.64	62	28
Sacramento	.00	7.59	6.81	51	32
San Francisco	.00	11.02	7.89	57	41
San Jose	.00	9.91	5.93	58	28
Fresno	.00	8.84	3.34	54	30
San Luis Obispo	.00	7.37	5.47	68	30
Los Angeles	.00	3.98	4.88	76	42
San Diego	.00	4.14	2.96	71	38

For Sale

My ranch on Putah Creek. Location three miles from Dixon 1½ miles off state highway and 8 miles from Vacaville, Solano County. Consisting of 320 acres richest sandy loam of which 100 acres are in bearing almonds where smudging never has been necessary.

One hundred sixty acres of five year old alfalfa, balance in grain.

Two good pumping plants furnishes plenty of water.

All buildings in excellent order. Will sell orchard separate or together with the alfalfa and grain land.

Easy terms. For further particulars write or see owner.

S. H. Fountain
Dixon, Calif.

"The BEAN is the Best"

Clean Trees Bring in the Money

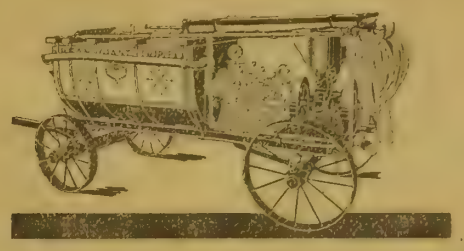
Messy, scaley trees have no vitality. The mess and scale sap the very life from the trees—the crops are small—and the fruit inferior.

But trees that are clean—and healthy—produce BIG! It costs less to spray—than to suffer the loss that results from not spraying.

Do the Work Right!

You must have a sprayer that will drive the material onto the trees under heavy pressure, so that the job is thoroughly done.

You must have a sprayer, too, that will work right along day in and day out without trouble. That's why you should get a Bean.



BEAN POWER SPRAYERS

Check the coupon. Write your name and address clearly, and send for our new catalog of Hand and Power Sprayers.

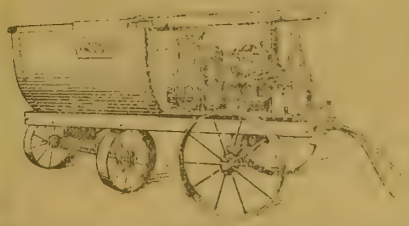
Bean Spray Pump Co.
222 W. Julian St.,
SAN JOSE, CAL.

Address office nearest you.
BEAN SPRAY PUMP CO.,
222 W. Julian St., San Jose, Cal.
Los Angeles St., Dept. D-11, Los Angeles, Cal.

Please send me your spray book with full information about Bean Sprayers.
I have ..... acres of ..... and am interested in ..... Power Sprayers ..... Hand Pumps ..... Accessories.

Name .....
Address .....

The Famous Hardie Junior is a Real Power Sprayer.



It has sufficient capacity, for two lines of hose. It has plenty of power for high pressure effective spraying. It is little in first cost, engine power, pump capacity and ability to do successful spraying. WE believe this is the greatest small power sprayer ever manufactured, and placed on the market with phenomenal success in every fruit section in United States and vouched by thousands who own the Famous Hardie Junior. Equipped with 1½ h.p. engine, battery ignition, 150-gallon tank with mechanical agitator, capacity of four gallons per minute with a steady working pressure of 200 pounds, and two 25-foot of the best spray hose, fitted with spray rods and nozzles; 4-inch tire truck with pole or shaft.

ALL FOR $300. DELIVERED ANYWHERE IN THIS STATE.

If truck is not needed, deduct $55.00.

These prices are subject to change without notice. The wise buyer will place his order now.

This low price is made possible by big production.

If you are interested in other types and sizes of the HARDIE POWER SPRAYER write us for the big spray catalog, and learn why we can offer more spray pump value than any other spray pump manufactured.

The Hardie Orchard Gun Is Now $12.00

none better, all guns are guaranteed to satisfy the user or their money refunded. The Hardie spray hose is the safest hose to buy.

The Hardie Manufacturing Company

Office 1023 Leighton Ave. Los Angeles

Hardie Agent, A. F. George Co., Los Angeles
Hardie Agent, H. V. Carter Motor Co., San Francisco

At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.



The FARMER says=

"for stumping genuine GIANT has no equal"

From recent letters of ten farmers who have used Giant Powders for Stumping we make these extracts:

"1. Your Giant Farm Powders shoot the roots. 2. They have wide breaking power and less bad gases than others. 3. I get the same excellent results from them every time. 4. They are always uniform. 5. I used eleven tons and wouldn't have any other make. 6. I want to sell a lot of other powder that I have because Giant does the work much better. 7. Genuine Giant can't be equalled. 8. I don't have to use so much powder when I blast with Giant. 9. You know what we need for stumping. 10. I save money by using Giant Powders."

Write today for our free book, "Better Farming With Giant Farm Powders." It tells how to save money and get better results in stumping, ditching, tree-planting, etc.

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"Everything for Blasting"
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Branch Offices: Denver, Portland, Salt Lake City, Seattle, Spokane

GIANT
STUMPING FARM POWDERS EUREKA

Dependable, Economical Power Under All Conditions

WATERLOO BOY

ORIGINAL KEROSENE TRACTOR

Whether your soil is hardpan, black-wax, timothy sod, gumbo or just loam, the Waterloo Boy Kerosene Burning Tractor has the necessary power to farm it. Our thousands of satisfied users all over the United States have given this tractor rigid tryouts in every possible soil condition, and the Waterloo Boy has always pulled through with a record.

Perfect Lubrication Necessary to Efficient Work and Long Life

The teeth of friction get busy quicker on a tractor than on other machines, because of the trying circumstances under which it must work. No matter how well your machine is built, it can not do good work unless the lubricating system is right.

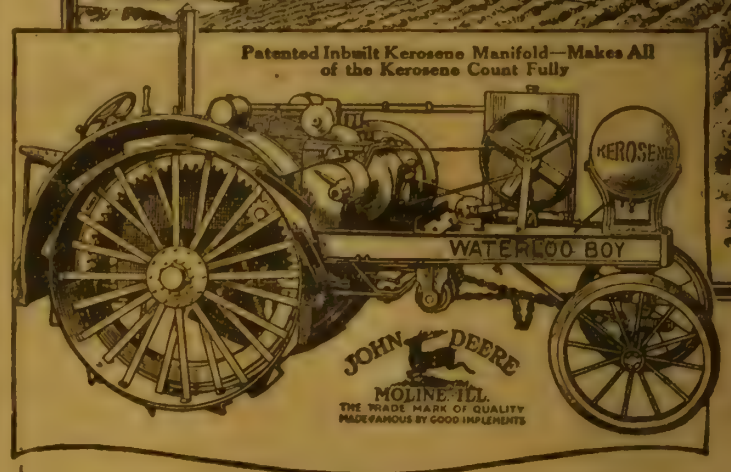
The Waterloo Boy is equipped with the well known circulating splash and pump system of lubrication, which is employed on high class automobiles generally. This constantly maintains a substantial oil flow between all friction points. With dust-proof gears and bearings, it prevents wear, increases power, keeps down repair expense, insures smooth, steady work.

High quality material and workmanship throughout guaranteed.

Write us for illustrated catalog showing many photographic views with letters from users, also details of construction.

JOHN DEERE PLOW CO.
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Patented Inbuilt Kerosene Manifold—Makes All of the Kerosene Count Fully



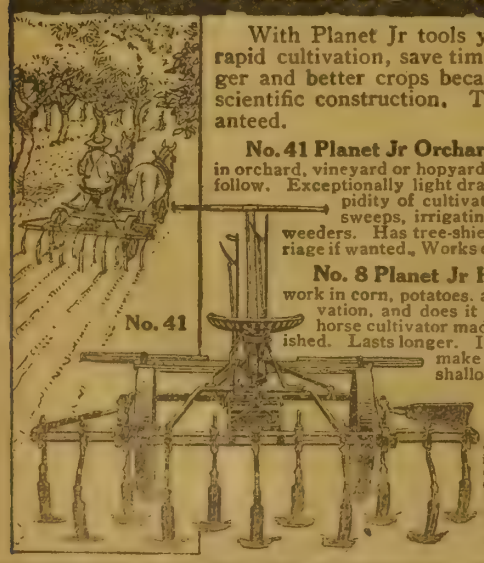
Adaptable to every Power Job on the Farm

12-25 H. P. Guaranteed.

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For Full Information

Southern California People
Send for Prices and Terms on the
Waterloo Boy Tractor
The Best and the Cheapest
W. L. Cleveland Company
211 No. Los Angeles St., Los Angeles, Cal.

Bigger fruit crops are needed Use Planet Jr. tools



With Planet Jr tools you can do more thorough, more rapid cultivation, save time, labor and money, and get bigger and better crops because of their superior design and scientific construction. They last a lifetime. Fully guaranteed.

No. 41 Planet Jr Orchard Cultivator does such thorough work in orchard, vineyard or hopyard that bigger and better crops invariably follow. Exceptionally light draft adds to the ease of operation and rapidity of cultivation. The strong frame carries teeth, sweeps, irrigating steels, plows, alfalfa teeth and special weeders. Has tree-shield, side-hitch for low trees, and fore-carriage if wanted. Works deep or shallow, and cuts 4 to 6½ ft. wide.

No. 8 Planet Jr Horse-Hoe does a greater variety of work in corn, potatoes, and other crops requiring similar cultivation, and does it more thoroughly, than any other one-horse cultivator made. It is stronger, better made and finished. Lasts longer. Its depth regulator and extra long frame make it steady-running. Cultivates deep or shallow and different widths of rows.

72-page Catalog, free!

Illustrates Planet Jrs doing actual farm and garden work, and describes over 55 different tools, including Seeders, Wheel-Hoes, Horse-Hoes, Harrows, Orchard-, Beet and Pivot-Wheel Riding Cultivators. Write postal for it today!

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Krogh Pumps are Absolutely Water Balanced
No End Thrust Possible *No Set Collars Used*

THE NO TROUBLE PUMP



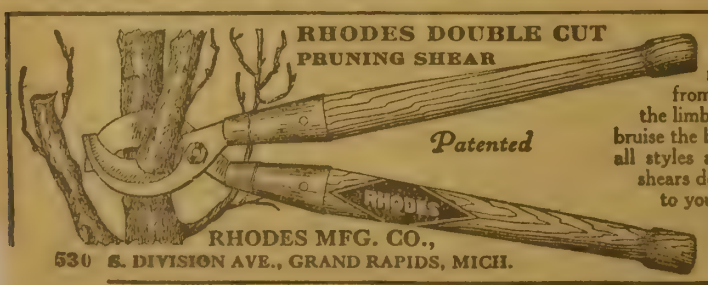
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We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.



THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

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Alfalfa Seed

Common Variety 21c. per lb. Smooth Peruvian 30c. per lb.
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Delivery to You by Prepaid Freight

Delay Buying Until You Have Compared My Samples With Seed Others Offer

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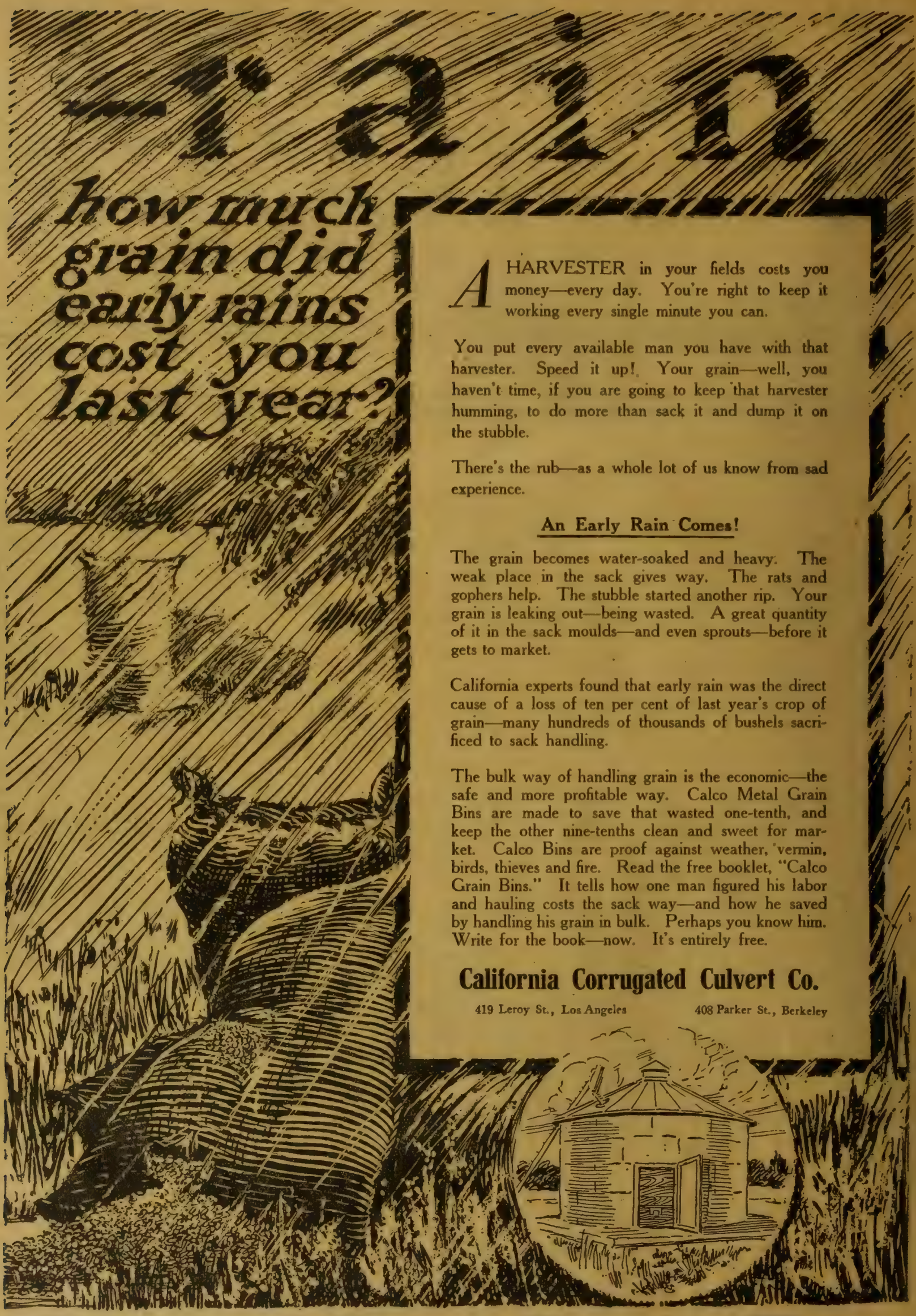
CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — January 11, 1919 — No. 2





A HARVESTER in your fields costs you money—every day. You're right to keep it working every single minute you can.

You put every available man you have with that harvester. Speed it up! Your grain—well, you haven't time, if you are going to keep that harvester humming, to do more than sack it and dump it on the stubble.

There's the rub—as a whole lot of us know from sad experience.

An Early Rain Comes!

The grain becomes water-soaked and heavy. The weak place in the sack gives way. The rats and gophers help. The stubble started another rip. Your grain is leaking out—being wasted. A great quantity of it in the sack moulds—and even sprouts—before it gets to market.

California experts found that early rain was the direct cause of a loss of ten per cent of last year's crop of grain—many hundreds of thousands of bushels sacrificed to sack handling.

The bulk way of handling grain is the economic—the safe and more profitable way. Calco Metal Grain Bins are made to save that wasted one-tenth, and keep the other nine-tenths clean and sweet for market. Calco Bins are proof against weather, vermin, birds, thieves and fire. Read the free booklet, "Calco Grain Bins." It tells how one man figured his labor and hauling costs the sack way—and how he saved by handling his grain in bulk. Perhaps you know him. Write for the book—now. It's entirely free.

California Corrugated Culvert Co.

419 Leroy St., Los Angeles 408 Parker St., Berkeley

CALCO Metal Grain Bin

Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877. Combined with California Cultivator 1914. Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916.

Vol. LII No. 2

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Member

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Saturday, January 11, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

California's $10,000,000 walnut crop has place of honor on the cover page of this issue. A young California walnut grove is there shown.

This has been the walnut grower's most profitable year, most profitable in that a great acreage has this year produced its first crop and all groves have produced well up toward the maximum. The total this year is 16,800 tons, almost entirely sent to Eastern markets.

DAVID LUBIN

David Lubin founder of the International Institute of Agriculture, and regular American representative at the institute, died in Rome, Italy, January 1. While a native of Poland, Lubin spent much of his life in California, coming here in '67. For a short time he was in Arizona, later returning to San Francisco and Sacramento where the greater part of his business life was spent in connection with the firm of Weinstock & Lubin.

Many years ago he began the agitation which led to the formation of the International Institute of Agriculture. He failed to get the support he desired in this country and took the matter to Europe, where finally King Victor Emmanuel of Italy took up the plan with him and endowed the institute with $60,000 per year. At first America was backward in making Mr. Lubin regular representative of this government. Ultimately, in 1910, he was appointed. By 1912, 50 nations had become contributors to the plan, Russia being the last. Statistics of crops, especially wheat, are gathered the world over and made available to the subscribing nations.

THEODORE ROOSEVELT

The most characteristic American, and the most interesting one, is dead. Impetuous in words, yet almost invariably conservative in action, he had made more friends, possibly more enemies, than any president this country has had. Speaking of his virtues and faults the Los Angeles Times says:

"Roosevelt loved America and everything about her. He loved her political fights; he loved her fierce young recklessness; he loved her crude faults and her innate sturdy virtues.

"Roosevelt was amazing; he was young America. He was the spirit of a young giant. He had the exuberance of youth; his was the tenderness and the cruelty of youth; his was the wild love of life and the eager thirst for knowledge that goes with young blood.

"His faults we do not deny; but he was a force for good that rang through the world like a bugle call to arms."

TWO CHAMPIONS

This week we chronicle the achievements of two dairy cows—our own famous Tilly Alcartra and Sophie's Agnes of Hood Farm—both have established new world's records for their respective breeds.

New dairy production records are established with such regularity that the reporting of them begins to approach the routine. One no longer asks the question: When will the limit be reached? Apparently there is no limit!

There are several facts in connection with sensational records that should be carefully considered by the average dairyman as they can be applied to their own operation with profit. First, world record cows are not accidents. They are invariably well bred. They are from proven sires and dams, grand sires and grand dams. They are usually proof of "individual excellence through inheritance." Second, high production is largely the result of supplying proper feeds and proper care.

Good breeding, rational feeding and efficient management are the three cardinal principles of successful dairying. There is scarcely a dairy herd in this state that will not respond to such a combination.

The advocates of long distance tests are now furnished added argument to use in their sensible campaign against the seven and thirty day test.

It is one thing to register high production for seven days, but it requires a real cow to last a year out and a super-cow to come back, year after year.

FORM D 1

On page 5 of the last issue of the Cultivator under the title, "Income Tax," we quoted from a circular issued by Internal Revenue Collector Carter of the Los Angeles district. In that Mr. Carter suggested that a special form of income tax return, designated as Form D 1, has been provided for the use of individuals whose incomes are derived from farming or ranching operations, and the suggestion followed to write his office for such blanks. The revenue office has found, however, that while these blanks are available and are valuable to farmers in giving an idea of the general form of return to the government, it will be necessary to make the return to the office on blanks which will not be issued until the new bill now before congress has passed. Under the old law it was specified that the return should be made prior to March 1, but it was found necessary last year to make extension of the time. The collector says that without question the bill now before congress will prescribe either a later date or give for the first year an extension of time, for it will be impossible to prepare these blanks and get them in the hands of farmers so as to make report by March 1. Meantime anyone wishing general information which may be had from these old forms probably can secure them by writing Collector of Internal Revenue, Federal Building, San Francisco or Los Angeles.

COLD WEATHER

The weather surely was cold on Thursday, January 2. It was likewise reasonably, or unreasonably, cold on several other nights thereabouts. The frost fighters had opportunity to use their equipment anywhere from seven to eleven nights, according to the locality, with the result that thousands of dollars worth of citrus fruits have been saved and hundreds of tourists and trades people disgruntled because of the soot. It is unfortunate that the orchard heater has not been perfected so as to give complete combustion to the grade of oil which economy demands. It is possible that such a heater may be secured, but present prices of steel prevent very enthusiastic investigation. The best grade of heater now developed, under present steel prices, costs between three and four dollars. One hundred per acre, which is the usual requirement, makes the overhead cost, by the time oil, tanks, and everything are considered, almost prohibitive. It is to be hoped, however, that the smudgless heater will yet be developed, for it will be welcomed both by the orchardist who wishes to secure more perfect combustion of his fuel and by the trades people who wish to preserve their goods. Meantime the cold weather has passed and the orchardists generally believe the danger for the season is passed also.

The percentage of fruit injured can not be even approximated this soon. The hopeful say five per cent. The hopeless say 50 per cent. Neither are right.

PLANT PEACHES

The advice given in the head above is perhaps entirely superfluous at this time for it is within the memory of the youngest inhabitant that dried peaches are selling around 12 cents per pound and $70 per ton for good canners with perhaps considerably longer price for fresh shippers. Hence the planter is planting without waiting for our advice.

But we are writing this editorial for the purpose of saying "We told you so." Way back in 1916 when dried peaches were selling around three or four cents, or at most with another fraction added, we said on editorial page of the issue of January 13, 1916:

"Last season was one of general financial depression, and peaches seemed to get more than their share of that depression, but those who properly grew their fruit are realizing that peaches are still a staple. At the present time a satisfactory condition obtains in the market and the fruit is selling well. In any case we would advise the owner of a profitable peach orchard to give it the very best of care. Only a few weeks since in driving through one of the best peach producing sections of the San Joaquin Valley we saw many orchards being made into firewood. We did not stop to learn the reason, and some of these orchards may have been diseased or there may have been a good reason why they should be uprooted, but as in every case the uprooted trees were peaches we could not help but feel a serious mistake was being made. So we pass along the word to the far-sighted orchardist: Is it not wise to plant peaches of a good canning, drying or shipping variety?"

Or going back into 1914 we note in an appeal made by Geo. C. Roeding for a higher grade of fruit he made the prediction that if the grower would produce highest quality of fruit, dry it without the "fuzz" and put it on the market in attractive shape the growers "will have no difficulty in selling their product at from 10 to 12½ cents per pound." Mr. Roeding's prediction has been made good.

California peaches have a wonderful reputation in the East. "Your California dried peaches are so rich and meaty and without "that fuzz" that we buy quantities of them," recently remarked a Northern Ohio housewife to the Cultivator editor.

LEAGUE TO ENFORCE PEACE

The friends of the movement to form a league of free nations, which shall have legislative, judicial, administrative and executive powers and whose weapons shall be moral, diplomatic, economic and military, are increasing every day. Every day it becomes plainer that the soul of the German people isn't licked but remains as militant and determined as ever to dominate in the world.

This league to enforce peace shall have as its harter members the nations associated in winning the war against Germany, and when the peace conference has perfected its plans presumably other nations will be admitted. And unless this league is formed during the peace congress the opportunity may be lost forever. The victory program as outlined by ex-President William H. Taft and his coworkers, which was adopted by the executive committee at a recent meeting in New York, is as follows:

The war now happily brought to a close has been above all a war to end war, but in order to ensure the fruits of victory and to prevent the recurrence of such a catastrophe there should be formed a League of Free Nations, as universal as possible, based upon treaty and pledged that the security of each state shall rest upon the strength of the whole. The initiating nucleus of the membership of the league should be the nations associated as belligerents in winning the war.

The league should aim at promoting the liberty, progress and fair economic opportunity of all nations, and the orderly development of the world.

It should ensure peace by eliminating the causes of dissension, and by deciding controversies by peaceable means, and by uniting the potential force of all the members as a standing menace against any nation that seeks to upset the peace of the world.

The advantages of membership in the league, both economically and from the point of view of security, should be so clear that all nations will desire to be members of it.

For this purpose it is necessary to create—

For the decision of justiciable questions, an impartial tribunal whose jurisdiction shall not depend upon the assent of the parties to the controversy; provision to be made for enforcing its decisions.

For questions that are not justiciable in their character, a council of conciliation, as mediator, which shall hear, consider, and make recommendations; and failing acquiescence by the parties concerned, the league shall determine what action, if any, shall be taken.

An administrative organization for the conduct of affairs of common interest, the protection and care of backward regions and internationalized places, and such matters as have been jointly administered before and during the war. We hold that this object must be attained by methods and through machinery that will ensure both stability and progress; preventing, on the one hand, any crystallization of the status quo that will defeat the forces of healthy growth and changes, and providing, on the other hand, a way by which progress can be secured and necessary change effected without recourse to war.

A representative congress to formulate and codify rules of international law, to inspect the work of administrative bodies and to consider any matter affecting the tranquillity of the world or the progress or betterment of human relations. Its deliberations should be public.

An executive body, able to speak with authority in the name of the nations represented, and to act in case the peace of the world is endangered.

The representation of the different nations in the organs of the league should be in proportion to the responsibilities and obligations they assume. The rules of international law should not be defeated for lack of unanimity.

A resort to force by any nation should be prevented by a solemn agreement that any aggression will be met immediately by such an overwhelming economic and military force that it will not be attempted.

No member of the league should make any other offensive or defensive treaty or alliance, and all treaties of whatever nature made by any member of the league should at once be made public.

Agricultural News Notes of the Pacific Coast

Northern California

Locke, Sacramento County, is shipping about eight cars of celery daily.

Nevada County red apples have commanded long prices the past season.

The Sutter Community Club contemplates uniting with the farm bureau.

More than 27,000 carloads of fresh deciduous fruits were sent from California in 1918.

An order has been placed for 55,000 pear trees to be planted in one Yuba County orchard.

The planting of prune trees in 1919 in the Sacramento Valley will be the largest in many years.

Placerville's shipments of cream are steadily increasing. The weekly total is now in excess of $500.

Gridley, Butte County, contemplates the establishment of a factory for the handling of dried milk products.

The next regular fat hog sale of the Shasta County farm bureau will be held at Cottonwood, January 14.

The Yolo Orchard Company finds success in raising alfalfa between orchard trees and pasturing to hogs.

Deputy State Horticultural Commissioner Weldon says there is plenty of room for more pear orchards in California.

The Iron Canyon irrigation project is expected to be given support by state legislation during the coming season.

One fruit grower near Placerville spends his spare time in running a tunnel under his farm, tapping a rich bed of gold bearing gravel.

The rice growers have made investigation as to best varieties of rice, and while they find there are many varieties, the one known as Wateribune is generally preferred.

Eldorado County's farm bureau members are discussing pear blight, the eradication of which will be taken up under direction of County Horticultural Commissioner Hassler.

County Adviser Baade of Napa is recommending the grafting of unprofitable fig trees to more desirable varieties. Some trees grafted in June last bore fruit the same season.

The rice growers anticipate the passage of a bill by the present legislature, the principal feature of which will permit control of noxious weeds infesting rice growing sections.

Grass Valley, Nevada County, reports many pear orchards coming into bearing this season, which will greatly increase the output. Loma Rica Ranch alone will have over 200 acres. These new fruits are principally Bartletts.

Placer County's farm bureau meetings: Penryn, Monday, January 14; Bowman, 15; Long Valley, 17; Gold Hill, 20; Colfax, 22; Mt. Vernon, 24; Roseville, 27; Loomis, 29; Butcher Ranch, 31. Annual directors meeting today, January 11, Auburn.

Pea growers of Alameda County have formed the California Pea Grower Sales Organization. The members retain a certain amount of independence and receive checks direct from purchaser, but the association receives a commission because of its work in holding for uniform prices and securing generally better marketing results.

Central California

Stanislaus County turkey shippers received around 35 cents.

Tulare County farmers will raise their greatest acreage of wheat this season.

Pear growers of California will hold an institute at Sacramento some time this month.

Turlock fruit growers are investigating a new process for drying fruits and vegetables.

State Horticultural Commissioner Hecke has been insistent on standardized orange pack.

Tulare County proposes to have a home demonstrator connected with the farm bureau work.

Oakdale people anticipate early improvement of state highway between Oakdale and Knight's Ferry.

There is a proposition on foot to enact a law doing away with the sweating of oranges until after December 1,

Miller & Lux Corporation is cancelling leases with tenants in Kern County, and it is anticipated that a large acreage will be sold.

The sealer of weights and measures is urging new legislation which will give him jurisdiction over quality as well as quantity of food products.

County Horticultural Commissioner Rutherford of Stanislaus County is planning a campaign of weed extermination along irrigation ditch banks.

Citrus people are preparing to protest freight charges which, with the three per cent war tax, is placing a heavy burden on the citrus industry.

L. A. Nares of Fresno has been elected president of the California Cattlemen's Association. David J. Stollery of San Francisco is secretary.

Aptos, Santa Cruz County, farm center is discussing winter killing of ground squirrels and gophers. A demonstration has been held, showing best methods.

Supervisors of Tulare County are considering a plan of flood control of the waters of Tule River. In time of flood these waters endanger lands about Porterville.

The annual convention of fig growers which was to have been held at Fresno, January 3 to 4 has been indefinitely postponed owing to the general prevalence of influenza.

The cattlemen of the fourth zone of the California Cattlemen's Association, in annual session at Hotel Fresno, elected J. W. Guiberson, president, and A. C. Cranor, zone manager.

Pomegranate growers near Porterville, Tulare Coounty, report exceedingly poor returns from pomegranates sent to the East. They say they give out these reports of returns because of many stories of long profits in pomegranate growing.

Report issued by the state horticultural commissioner is to the effect that Fred K. Howard, horticultural commissioner of Kings County, reports the only entirely squirrel free district in the extreme northeastern portion of Kings County.

Three hog sales conducted by the Stanislaus and Merced County farm bureaus at Tegner resulted in sale of 870 hogs of a total value of $28,430. Another sale was held on Monday of this week, and others scheduled are February 16 and March 16.

Southern California

San Dimas Lemon Association returned $740,000 to its members.

The tractor training school at El Centro has had a good attendance.

Imperial County's crop production in 1918 totaled $50,000,000 in value.

San Bernardino is preparing for its orange show to be held February 14-23.

Castor bean threshing will start in Imperial Valley in the middle of January.

Grazing fees within the national forests will be increased beginning March 1.

The cotton production of Palo Verde Valley reaches 7329 bales valued at $1,308,000.

Imperial County shipped out eight carloads of grapefruit the middle of December.

A tractor training school will open at Hemet, January 18, lasting through the month.

Riverside fair directors are already planning for next fall's Southern California fair.

Ventura County has secured a reduction in rates of electricity from ten to eight cents.

California is now producing 2000 tons of figs. The United States imports 8000 tons.

The shipment of navels from Southern California last year was only about 20 per cent of normal.

An irrigation district has been formed comprising 25,000 acres along the coast from Del Mar to Oceanside.

It is proposed to form a second drainage district near Oxnard, east of the new Patterson Ranch district.

J. C. Forkner, a large fig grower of Fresno County, is investigating fig prospects in the Coachella Valley.

The Arabia cotton gin at Indio is to be much enlarged for next season's work. Electric power will also be installed.

At the recent annual meeting of the Los Angeles farm bureau Volney H. Craig of San Fernando was elected president.

Orange County has a $1000 appropriation for its exhibit at the National Orange Show to be held at San Bernardino in February.

Six thousand acres have been signed up in the Brawley section for melon raising next year. This is all in the Japanese Farmers' Association.

Thirty thousand sacks of beans were destroyed by fire in the Southern Pacific Milling Company's ware house at Santa Susana. Most of the beans were Blackeyes.

Dairymen of Orange County are taking steps to form a cow testing association. It is possible that a two-county association may be formed with Los Angeles County.

The Placentia Orange Growers Association shipped during the past year 637 cars of oranges, of which only 15 per cent were navels and over 74 per cent were Valencias.

Owners of citrus groves have been sitting up nights with their orchard heaters. The extent of damage from the cold weather cannot be accurately estimated for some days.

Secretary Dudley of the Los Angeles chamber of commerce says there are more people here from the East this year than ever before who have come with the intention of settling.

The Coast and General

In all Japan there are less than 3000 sheep.

Colorado dairymen have determined that the silo doubles the dairying capacity of the land.

Wisconsin reports its holdings of potatoes as about the same quantity as last year same date.

Coconino County, Arizona, claims to be the first in Arizona counties in the production of seed potatoes.

The Florida strawberry crop is beginning to move. This year's crop is about two weeks earlier than normal.

A state conference of extension workers of the University of Arizona will be held at Tucson, January 20-23.

Yakima Valley, Washington, fruit shipments totaled last year $8,353,000. About $5,000,000 of this was for apples.

Southern Arizona farmers anticipate early construction of improved roads from Casa Grande toward Benson.

Farmers of Clatsop County, Washington, have saved four dollars per ton through cooperative purchasing of mill feeds.

Home grown lettuce supplying the New Orleans market is sold by the sugar barrel, usually commanding around five dollars.

Farm crops of America this year will exceed in value 12 billions of dollars; the value of wheat alone will be not far from $1,800,000,000.

The 22nd annual convention of the American National Live Stock Association will meet in Denver, January 21, for a three-day session.

Pacific Coast apples are receiving fine treatment in English markets. They have been selling around 19 shillings nine pence per box.

Coquille Valley, Oregon, is the banner sorghum molasses producing section of the Northwest. Some sorghum planters have realized as high as $200 per acre.

Arizona has most rigid quarantine forbidding importation of hay, straw, grain, alfalfa seed, nursery stock or vegetables from sections infested with alfalfa weevil.

California's state forester reports disastrous fires during the past year totaling 1546, which burned an area of 330,000 acres and destroyed timber, feeds, etc., to the extent of $1,593,000.

At the last annual meeting of the Tieton Water Users Association at Yakima it was recommended that the management of the affairs of the association be taken over by the members.

Marion County, Oregon, claims 7000 acres planted to prunes, 4500 acres of which are in full bearing. The largest prune orchard in the county is 212 acres; the average runs around 12 acres.

Colorado stock growers have lost many cattle from corn stalk disease. It seems to come from pasturing stock in corn fields where there is insufficient water for the stock, and impaction results.

California produces more peaches than any other state in the Union though Georgia exports a greater number of fresh peaches. Other peach producing states in order of importance are Washington, Ohio, Michigan, Colorado, West Virginia, New Jersey.

The Tractor's Place in Food Production

By Arthur L. Dahl

WHETHER we have peace or war in 1919 the demand for food will be the same. Long after our munition factories close and our big steel industries revert to their usual peaceful pursuits, he farmers will be called upon to ex- rt their greatest effort to grow maxi- num crops. So the growing season f 1919 promises to be a strenuous one or all sons of the soil.

Undoubtedly the tractor will be re- ied upon to a greater extent than ver before to supply power for doing he heavy work on the farm. In a neasure this reliance upon machinery will be forced upon farmers because of he increasing shortage of labor. It will be a long time after peace is de- clared before there will be a return of sufficient labor to take care of the farm demand, and in the meanwhile the tractor is the only substitute for man power. With a power machine a farmer can multiply many fold his own work or that of a hired man, and for this reason the tractor is a splen- did substitute for the missing men. Again, the prices received for all kinds of agricultural products raised during the past few years have been very good and the average farmer has prospered and has the means for buy- ing many of the labor saving imple- ments and machines he has needed for years. All tractor manufacturers re- port that the demand for their ma- chines is greater than production.

The day of the experimental trac- tor has gone, and it is now a recog- nized fact that where a farm is of suf- ficient extent to justify the purchase of a power machine the tractor is an absolute necessity. The testimony of the thousands of tractor owners throughout the country is so unani- mous in their favor that it must be recognized that today the tractor is a standard part of a large farm's equip- ment. In California the tractor is coming to occupy a prominent place in the equipment of the orchard or vineyard, and practically all of the California type of tractors are espe- cially adapted to orchard conditions. The tracklaying tread, the low height of the machine and the ability of the operator to turn sharp corners and plow close to trees or fences, all tend to increase the usefulness of these power machines for fruit culture, and some of the most ardent boosters of the tractor are fruit growers.

As in all young industries, those connected with the manufacture of tractors are alert to adjust their ma- chines to meet peculiar conditions in different localities, and accordingly we now find machines, and accom- panying equipment, built especially for plowing or cultivating between rows of vines, or between rows in an orchard. The same is true of special crops like beans or sugar beets or rice. Wherever a particular need oc- curs for a special kind of tread or new designs of plows or harrows or other implements, the tractor people have met those needs by special designs.

It is not often that we find a trac- tor actually supplanting horses, al- though it is a universal rule that the machine supplements the work of ani- mals. Occasionally, however, we hear of some one who relies entirely upon the tractor. R. E. Haslam of Gardena is such a man, and when he bought his 45 horsepower tractor he disposed of his 30 head of work stock. His faith in the power machine was justi- fied, for his tractor performed all of the work formerly done by horses, and at the end of the first season of its use Mr. Haslam's barley crop aver- aged 21 sacks to the acre as against 12 in former years. While some of this increase may have been due to climatic conditions, the owner believ- ed that the deeper plowing accom- plished with the tractor was largely responsible for the increased yield.

The presence of a tractor on a farm insures a strict compliance with the season's program of work. In Califor- nia, where sunshine is an assured fact during all of the ordinary growing sea- son, the elements are not such a gov- erning factor as in other parts of the country where the wet and dry sea- sons do not prevail. At the same time there are often periods when even the California farmer finds it impossible to get his work done on schedule time on account of adverse weather condi- tions. This is particularly true of heat, for animals are incapable of working for long, or with much en- ergy, when a broiling sun is beating down upon them. The mechanical, in- sensible machine is not affected by this heat, and it will go on working hour after hour under the most try- ing weather conditions. Furthermore it is more comfortable for the operator to sit on the tractor seat under an umbrella than to follow a team of sweating horses, kicking up a chok- ing dust to add to the effect of the heat.

Even where horses are numerous on a farm, a farmer who has not ade- quate help will find it difficult to get certain work done unless he has a tractor. It takes just as much time to drive a pair of horses, pulling a sin- gle plow or other implement, as it does to operate a machine possessing the power of many horses and capa- ble of pulling a battery of implements. The farmer who owns a tractor can accomplish as much work in a day as his neighbor who uses only horses and who has a half dozen men to help drive his animals. Where men are difficult to obtain a farmer is thus in- dependent of this labor, and he can do the work himself, aided by the members of his family. While it is true that the better the man put to operate a tractor the better the work accomplished, at the same time there are hundreds of instances where the young sons of farmers, and even their daughters, are successfully operating tractors, thus doing the work of able bodied men. At the tractor show at Davis last year one of the most suc- cessful demonstrators was a young University girl who handled her trac- tor as skillfully as any man and per- formed the most difficult kinds of work with her outfit. The same thing has been repeated in many other locali- ties, and many young women have learned to operate farm machines as successfully as they run their fathers' automobiles.

Besides being able to do practically all of the work done by horses, there are many ways in which tractors can be utilized around a farm which are beyond the scope of the horse. The tractor motor furnishes an ideal source of power for operating the thresher or the hay bailer or feed mill. The silos can be filled with silage cut by the tractor, or water can be pumped into the house tank or to the feed lot or for irrigation purposes.

There are many instances where the purchase of a tractor has resulted in increasing the quantity and quality of the crops raised by the owner. Often this increase has been so marked as to have more than paid for the outfit in a season. Many reasons are as- signed for this result. Sometimes it is a question of being able to do the plowing at the right season. In Washington state a wheat grower had always found it necessary to summer fallow his land each alternate season. When he bought a tractor he tried plowing up the ground to a maximum depth just as soon as the crop was off. The stubble was plowed under and the field left to the action of the winter's rains and the sun. In the spring the field was again plowed and sown to wheat, and a splendid crop produced. In this case the early plow- ing, coupled with the sweetening and revitalizing influence of the winter rains, prepared the soil for the next season's crops, without the loss of a whole year, as under former practice. With horses it would have been im- possible to do this early plowing be- cause the ground had been baked too hard by the constant summer sun. In previous years plowing always had to wait until the fall rains began.

Tractor plowing is more even, and usually deeper than that accomplished by horses. In many fields the tractor has enabled the farmer to plow sev- eral inches deeper than usual, thus turning up the subsoil and preparing the way for deeper root penetration of the plants. The moisture in the soil is further conserved by this deep plow- ing, and the growing plants are made more vigorous and fruitful.

Not long ago a representative of a tractor company, who traveled about a great deal, asked a number of trac- tor owners what they considered the most valuable thing about a tractor. Nearly all of them gave the same an- swer, and that was their ability to "push through" a certain kind of work when occasion demanded. They said that when only horses were available, they could work only so fast, and night work was impossible. With a tractor they could continue on indefi- nitely, through night or day, and the machine would supply just as much power at the end of the day's run as at the start. Horses tired out, re- quired frequent rests, and at the end of the day their pulling power dimin- ished. With tractor owners it is a common thing to operate their ma- chines continuously from early morn- ing until far into the night, often us- ing lights to continue the work. This ability to do overtime work is equiva- lent to a factory putting on night shifts to increase its production, and to the farmer the need is often as great and the returns as valuable as to the manufacturer.

The American farmer will undoubt- edly go "over the top" in 1919 as he did in 1918, unless nature decrees oth- erwise, and if, when he does, the sturdy, dependable American tractor will be found in the forefront of the fray, doing its bit to produce food for democracy.



Orchard Type of Tractor on Plow

The comparatively small tractor handles three disks in the open, also works close to trees.

"Cost Plus"

THE most consistent effort on the part of producers to ar- rive at production costs has been made by the citrus grower. His figures varied so much from those of his neighbor—or at least from those of his neighbor's neighbor—that he has felt hopeless in the effort to arrive at averages. The department of agriculture has found similar difficulties and its secretary recently expressed himself as almost hopeless as to ever arriving at definite conclusions.

We now note that in the National Stockman and Farmer its editor, E. S. Bayard, discusses the subject under the above title as follows:

At a recent state convention of farmers they favored the idea of fix- ing prices of farm products at cost plus a reasonable profit, the govern- ment to do the fixing. A little reflec- tion will show any one that such a plan is impossible of execution over an extended period. In the first place the cost of production of any staple product varies so widely in different parts of our country, and even on dif- ferent farms in the same region, that finding a price which will represent "cost plus" is practically impossible. But even if such a basis could be found it could not be maintained in the face of a surplus or made the market price in the presence of a shortage. Let us remember that prices cannot be fixed and maintained by governments—not even the prices of

Continued on Page 45

Will Ship No Frozen Oranges

"HONEST oranges is the best policy" is the slogan of the California orange growers, at least the slogan of the great majority of them, though it is now reported that some growers will continue to ship notwithstanding the mass meetings of orange growers in Riverside, San Bernardino and Los Angeles Counties have resolved to hold back shipping for at least two weeks after the colder nights of the recent cold spell.

As indicating the temper of the orange growers here are the resolutions passed at the Los Angeles meeting which was called by County Horticultural Commissioner Ryan:

"Whereas, the shipment of oranges damaged by frost cannot but seriously affect the reputation of the California citrus industry, and

"Whereas, it is the interest to protect both the industry and the consumer, and

"Whereas, it is at the present time impossible to segregate the damaged fruit, and

"Whereas, it will be possible to make some such segregation in the small period of ten days, and

"Whereas, joint meetings of packers, shippers and growers with the horticultural commissioners of Riverside and San Bernardino Counties have passed resolutions recommending the discontinuance of packing until the damage can be ascertained, now, therefore,

"Be it resolved, that all picking of oranges be stopped at 5 o'clock, January 4, and not resumed before January 14, and

"Be it further resolved, that the horticultural commission be asked to put in force all its powers to enforce the stopping of shipments of citrus fruits damaged by frost."

These resolutions express practically the attitude of the other counties which have acted. The county horticultural commissioners have it in their power to control the shipping of injured fruit. The act which gives them this power is as follows:

"It shall be unlawful for any one to sell, offer for sale, ship or deliver for shipment any citrus fruits, which are immature or frozen to the extent of injuring the reputation of the citrus industry of the state of California if shipped, and for any one to receive any such citrus fruits under a contract of sale, or for the purpose of sale, or for shipment, or for delivery for shipment; provided, however, that nothing in this section shall be construed to prevent the sale or shipment for sale of frozen or otherwise defective fruit to a by-product factory, or the manufacture thereof into citrus by-products; nor shall this section apply to the sale, or contract for sale, of citrus fruits on the trees, nor shall it apply to common carriers or their agents who are not interested in such fruits and are merely receiving the same for transportation."

The weather has been colder than for several years and, coming almost on the anniversary of the coldest of all cold spells, January 6, 1913, it has caused much uneasiness and, unfortunately, intervening warmer years and higher prices of steel used in construction of the orchard heaters have prevented the orchardist from increasing his frost fighting efficiency. However, there was sufficient frost fighting carried on to require a total of 50 cars of oil per day to continue the campaign. During the coldest weather special oil trains were run by all railways from distributing centers to citrus sections, and this united effort has prevented much damage, even for those who have not joined in the campaign.

What the loss is it is impossible to tell, and that is exactly the reason why the growers are deferring until the middle of next week the shipping. The ground has been taken that where one knows that his fruit is uninjured he certainly will not ship because oranges will be under suspicion and presumably sell for a lower price during the next 30 to 60 days. Hence, fruit known to be uninjured will be held, and the shipping of frost damaged fruit which may give little indication of its quality this soon after the cold injury will result in a partially dried or at least a bitter fruit being thrown on the market. The invariable result of this has been to lessen the demand for oranges in all markets of the East.

If the injured fruit does not show the extent of injury by the 14th or 15th it is very possible that the citrus growers will make further extension of the time before shipping, for the orange grower is so determined to protect the market for his fruit that he will make strong appeal to the county horticultural commissioners to enforce the state fruit standardization law. The power of the commissioner is absolute, and the shipper who presumes to force frozen stuff on the market will be in danger of arrest and severe fine.

This effort on the part of the citrus grower will no doubt give a feeling of confidence in the citrus market, and when fruit is offered it will still command good prices. It will perhaps be 30 days before proper separation of frozen fruit from sound may be made in water separator, but by the 15th careful examination of the fruit will determine this matter, and this will be sufficient to enable the horticultural commissioner to act.

Wednesday morning's papers report:

"All oranges shipped from Southern California between January 1 and January 15, with the exception of those known to have been gathered and placed in packing houses before the damaging frosts of last week, will be subjected to the Pure Food and Drug Act tests and confiscation will result in the event that frosted oranges are discovered. This information was given out Tuesday when State Horticultural Commissioner Hecke ordered the county horticultural commissioners of Los Angeles, Riverside, Orange and San Bernardino Counties to keep a close check on all shipments of oranges going East before January 15.

The last sentence of the above is correct, but a phone message to Los Angeles County Commissioner Ryan develops the information that power of confiscation does not rest with the horticultural commission in such a case. But a strict watch will be kept, and where frosted oranges are detected the commissioners will enforce that section of the law given early in this article.

ELECTRICITY SAVES TIME AND MONEY ON THE RANCH

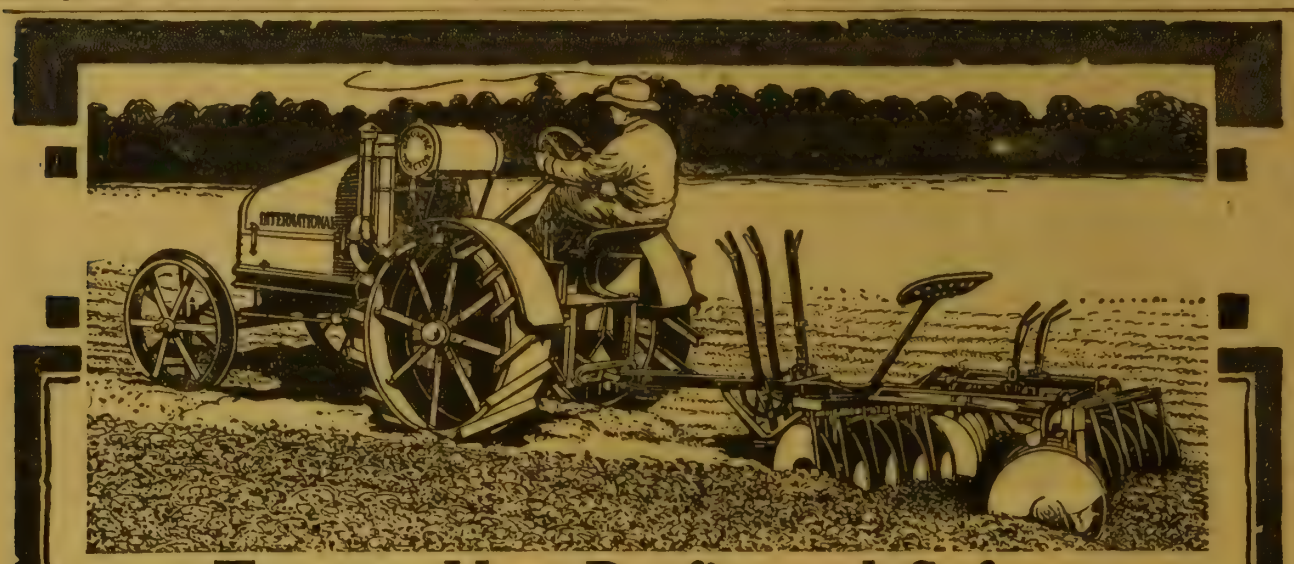
It requires from 7000 to 8000 hours of labor each year to keep the average farm of 140 a res up to its normal production each year.

If it is desired to speed up production on the farm this year, as all want to do, it is necessary to get more hours for labor on that farm or make each hour count for more than it ever did before.

Or if some of the usual help has been lost from the farm this year some way must be found to make the hours count for more than they did last year if the farm is to be kept up to anywhere near its usual state of production.

On many farms where these problems have arisen, electricity has been called to the rescue. Farmers are finding that by installing a small electric plant they can save a great deal of time and considerable labor and add a great many extra hours to their available time each week.

If the farmer uses electricity to run a water system, pumping water for the stock, for household use, sprinkling and the like, there will be a saving of something like two hours a day in the average home. Then calculate that there will be a saving of three hours or more each week where an electric motor is used to run the washing machine; as much more if there is a cream separator to be turned, or a churn; this same power will run the grindstone, fanning mill, horse clippers or sheep shears and it is easy to see where electricity will save from 1500 to 2000 hours a year on a farm where three or more workers are regularly employed. Electric power will run a one-sixth horsepower motor for two cents an hour for work like the above, which is considerably less than it will cost to do it by hand.



Tractor Use, Profit, and Safety

TRUE progress is always slow. The change to mechanical power for farm work has been twelve years in the making, but today there are few American farmers who have not given serious thought to the question of tractorizing their farms.

For the benefit of those who may not yet be convinced that the tractor is a useful, profitable farm power machine, we present again a few of the opinions of farmers who are using the International Kerosene Tractor. Some of these are about essential features, and some mention only conveniences, but taking them altogether, almost any farmer will feel, after reading them, that the International 8-16 is a tractor worth considering.

"My International supplies a power flexible enough to handle the large amount of seedbed, harvest and other work without delay."

"It can be used for continuous work if emergency demands it."

"It produces power at much lower cost than horses, and it can be used for both drawbar and belt work."

"I like the steady way it works. Without seeming to hurry, it gets through a surprising amount of hard work."

"It does a lot of good work at a cost so low I could hardly believe it. You did a wonderful thing for Eastern farmers when you made this tractor to run on kerosene."

"It is not bothered by flies, nor by bumble bees. It works steadily on the hottest days."

"Requires very little care. When the day's work is done, I run the tractor tail first into an inexpensive shed. In the morning, I fill the fuel tank and the oiler, look into the radiator, and am ready for another day's work."

These opinions are typical. They prove at least that the International 8-16 is a useful, profitable tractor. Now consider just one other thought for a minute.

This tractor is the outgrowth of twelve years of active tractor experience by a company that has sold all kinds of farm machines for many years. The beginning of this business goes back to 1831—almost 88 years ago. Does it not seem reasonable that with this experience we should offer you a tractor that you could use with profit, especially when we expect to come back some day and sell you more of the machines listed in this advertisement?

If you are now convinced that the International 8-16 is a useful, profitable tractor on some farms, and that you don't have to be an expert to buy one safely, write us to find out what this tractor will do for you, on your farm. A post card will bring you full information.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines
Binders Push Binders
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Harvester-Threshers
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Corn Planters Corn Drills
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Alfalfa & Grass Seed Drills
Fertilizer & Lime Sowers

Haying Machines
Mowers Tedders
Side Delivery Rakes
Loaders (All Types)
Rakes
Combination Side Rakes and Tedders
Sweep Rakes Stackers
Combination Sweep Rakes and Stackers
Baling Presses
Bunchers

Belt Machines
Ensilage Cutters
Huskers and Shredders
Corn Shellers Threshers
Hay Presses
Stone Burr Mills

Belt Machines—Cont.
Cream Separators
Feed Grinders

Power Machines
Kerosene Engines
Gasoline Engines
Kerosene Tractors
Motor Trucks
Motor Cultivators

Corn Machines
Planters Drills
Cultivators
Motor Cultivators
Binders Pickers
Ensilage Cutters
Shellers
Huskers and Shredders

Dairy Equipment
Cream Separators (Hand)
Cream Separators (Belted)
Kerosene Engines
Gasoline Engines
Motor Trucks

Other Farm Equipment
Manure Spreaders
Straw Spreading Attach.
Farm Wagons
Farm Trucks
Stalk Cutters
Knife Grinders
Tractor Hitches
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ANNOUNCEMENT

WE are resuming quantity production on Goodyear Passenger Car Tires for private use.

The shortage of these tires that existed during the period of war was inevitable.

Promptly upon America's entry into the war, Goodyear devoted great effort to the production of gas masks, airplane, automobile and truck tires, balloons and dirigibles, urgently needed by our army and navy.

This, of course, necessitated a cut in our passenger car tire output, for general distribution.

Later, there came the Government order limiting all tire makers to 50 per cent of their normal output.

This restriction has since been lifted.

So, as normal conditions are being restored, we are increasing our production steadily in an effort to meet the greatly increased demand for Goodyear Tires.

However, to insure prompt delivery, we suggest that you estimate your near-future requirements, placing your order now with your Goodyear Service Station Dealer.

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

GOODYEAR
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Reg. U.S. Pat. Off.

DISC PLOWS

The same accurate knowledge of Pacific Coast farming conditions, the same careful and simple designing, the same high quality of material and workmanship, the same high standards of strength and sturdy construction that have made the "Caterpillar" Tractor supreme in the farm-power field, have gone into the building of "Caterpillar" Disc Plows.

"Caterpillar" Plows are not a new product—we have been building them for years. They were produced primarily for use with the "Caterpillar" Tractor, so they had to BE good and MAKE good—we couldn't afford to endanger the enviable "Caterpillar" reputation by offering a plow that wouldn't prove equal to the severest tests of strength and service.

With any make of tractor, we know that they will help the farmer do a better job of plowing and enable him to get more out of his tractor by increasing the tractor's capacity for work and eliminating delays due to plow troubles.

Get the "Caterpillar" Disc Plow catalog and learn of the many exclusive features not found on any other plow!

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CROP PRODUCTION

Is controlled by the kind and quantity of plant food furnished the tree or plant.

It is not enough to merely fertilize. It is important that the tree be fed material giving maximum results under California conditions.

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Some Modern Methods of Pruning

Written for California Cultivator By J. W. Mills

THERE is a tendency in parts of California to prune deciduous trees more lightly than has been the general custom, especially in young orchards. This is the case in Placer County, and demonstrations at the University Farm at Davis tend to show that light pruning during the early life of peaches, plums and apricots makes a larger tree at the end of four years, and a paying crop is produced one year earlier than when the trees are pruned heavily up to four years of age. It remains to be seen how these trees behave when they reach mature age. In my own experience apricot trees that have been pruned but once since they were three years old are the heaviest producers I have, and the fruit is as large as that on trees pruned every year. They, however, have alternately a heavy and a light crop, and some seasons no crop at all. The trees were planted in 1891 and were never irrigated. They are on a sandy loam 16 feet deep.

On the same land peach trees treated in the same way were a total failure. They made a wonderful growth and had an abundance of worthless fruit.

Substitute for Cultivation

Many of the mature prune orchards of the lower Sacramento Valley have during the last few years, and perhaps longer, fallen off in bearing to an alarming extent. Theoretically nature has been abused to such an extent that the trees rebel.

It is our opinion that could the land be allowed to lie undisturbed and at the same time retain sufficient moisture for the needs of the trees a wonderful increase in the crop would be the result.

The roots of trees begin to grow long before there is evidence of sap movement in the tops. The feeders are reaching into the warm, rich surface soil and taking in the elements that go to make twigs, leaves, blossoms and fruit. About that time we all got busy with our plows, cultivators and weed cutters and keep the feeding roots diligently shorn off until most of the fruit is on the ground or it has lost its grip on the trees.

Granting all this is true, how are we going to carry our trees through without cultivation where an abundance of water is not to be had? It can not be done. On the other hand, where is the orchardist who has plentwo of water and does not cultivate? We know of one fruit grower in Tehama County who never plows or cultivates, but grows alfalfa over the entire area of his orchard, fertilizes and irrigates. Though the stubble interferes somewhat with picking up prunes, the fruit is so large and abundant that the prune pickers prefer to work there rather than in other orchards.

We have an old plum orchard on our own ranch that is plowed about once in four or five years. The seasons following plowing always bring light crops of fruit in this orchard while heavy crops follow heavy crops every year during the periods in which the orchard is not plowed. Some of the growers in Placer County have adopted the plan of allowing the weeds to grow throughout the year and irrigating when necessary. As a result the soil takes in the irrigation water better; the trees are more thrifty and heavier crops are harvested.

A number of years ago we were carrying on experiments in the original Washington Navel orchard in Riverside. The soil in this orchard was so compact from plowing, cultivation and irrigation that it was impossible to make the water penetrate to a depth below where the plow ran. During one winter and spring the rains were so constant that water stood on the surface for weeks at a time, and the earthworms propagated so that there were millions of them in the orchard. The ground looked like a pepper box after the rainy season was over and the worms had followed the moisture down. When the irrigation was resumed the following summer it took the water two days to reach the lower ends of the furrows where formerly it took no more than two hours. The worms had perforated the soil so that the water sank deeply into the soil. The trees took new life, while formerly large quantities of fertilizers had no effect.

Now why not cultivate worms in the orchard wherever it is practical? One of the largest orange growers in Riverside is reported to be making permanent basins and filling them with straw and is obtaining good results. It costs this man hay prices to obtain the straw. Here in the big valleys of California thousands of tons of straw are being burned, almost adjoining orchards that have been and are getting in bad condition. It is our opinion that if some of these orchards were basined, filled with straw and flooded when necessary, that more and better fruit would be grown and the lives of the trees prolonged. It might be advisable to alternately plow and basin every other space each year as protection against fire.

Loganberries

THE department of agriculture has made investigations as to the Pacific Coast loganberry or, as it prefers to call it, the Logan blackberry. This berry, it says, was formerly thought to be a hybrid between the blackberry and the red raspberry but is now considered a variety of the Pacific Coast species of the trailing blackberry.

The department anticipates a great future for this berry in California, Oregon and Washington in the production of fruit juice beverages and in the making of jams and jellies.

The Logan blackberry is adapted to the milder parts of California, Oregon and Washington, where the temperature does not reach zero. While the plant may survive in some sections of the South, it does not fruit well, and it is not hardy in the Northern states. The fruit resembles a large blackberry in shape but has the color of the red raspberry. Logan blackberries and related varieties thrive on any deep, fertile, well drained soil, but the crops will be largest on the richest soils. As with other berries and garden crops, it will pay well to have the soil in good condition before the plants are set. In Oregon and Washington plants should be set in early spring not later than the middle of April while farther south in Califor-

nia they should be set as soon as the young plants have grown enough to transplant, usually in January. Plants which have formed during the autumn and winter at the end of the year-old canes are generally used to start a new plantation.

Owing to the trailing habits of the Logan blackberry, it is necessary that trellises be made to support the canes. Posts are usually set about 30 feet apart in the rows along which two or three wires are strung, the top wire being from four and a half to five feet from the ground. The canes usually grow from 15 to 20 feet, although they may reach 30 feet in length in a single season. Trellising should be done in the autum of the first year or in the early spring of the following year. Two systems—the weaving and the rope,—are in common use. In the weaving system each cane is woven separately on the wires and thus the largest possible fruiting surface is exposed to the sunlight. When the rope system is adapted all the canes are wrapped about the trellis wires in bundle fashion. Immediately after the harvesting season, when the plantation is in its second year, the canes that have fruited should be cut out and new canes trained to the trellis. With this exception very little pruning is necessary.

The Logan blackberry begins to ripen a little later than the first raspberries and usually continues for about six weeks. When destined for the fresh fruit market the berries must be picked several days earlier than when they are to be canned, evaporated or used for jellies and preserves, or for extracting the juice. When efficient methods are used the berries may be shipped long distances. If the berries are to be evaporated they should not be picked until very ripe. If they are to be canned they should be picked while still firm, but after they are thoroughly ripe, while, if they are intended for unfermented juice purposes they should be allowed to ripen in the canes more than is ordinarily allowed when intended for the evaporator or the cannery. Between one and two tons of fruit per acre can be expected from one year old plantations, but when plants are well established yields should range from four to five tons per acre. Some plantations in Oregon have been known to remain nearly 20 years and still continue to bear excellent crops, but in California they do not usually continue to be profitable longer than six or seven years.

SMYRNA FIG CULTURE

"Smyrna Fig Culture," Bulletin 732 of the United States department of agriculture, by G. P. Rixford, Physiologist, Crop Physiology and Breeding Investigations, and located in California, is issued under date of November. It gives a bit of history of the Smyrna fig industry, the origin of fig culture, classification of cultivated figs, crops, caprifig, and general discussion of fig flowers and fig seeds, and of course the practical side of harvesting, curing, picking, shipping and general culture. Regarding the opportunities in this industry Mr. Rixford says:

"At the present time the annual production of dried figs in California amounts to about 6000 tons, one-third of which are of the Smyrna type and the remainder chiefly Adriatic and Mission, the Adriatic including by far the largest quantity. The reason for this is that the Adriatic was extensively planted many years before the Smyrna was introduced. In a few instances Adriatic figs are still being planted under the mistaken idea that they are more prolific bearers than the Smyrna variety. One prominent grower in the San Joaquin Valley who has orchards of both Smyrna and Adriatic finds that by a liberal supply of caprifigs he gets a ton to the acre more from the Smyrna than from the Adriatic variety, while the former sells for about double the price of the latter. At the present time he is engaged in grafting his Adriatic trees to the Smyrna variety. The fig plantings at present are confined almost entirely to the Smyrna type and it is only a question of a few years before the markets of this country will be supplied with home-grown Smyrna figs.

"The cutting off of the supplies of figs from Asia Minor and the countries of southern Europe by the war has so raised the prices as greatly to stimulate the planting of figs in this country. It is a reasonable estimate that 10,000 acres of Smyrna fig trees have been planted in the central San Joquin Valley alone during the last two years. When these large plantings come into bearing, this country will be independent of importations from Smyrna, and dried figs by the carload will be as evident in commercial movements as raisins are at the present time."

ANNUAL MARKET REVIEW

The California Fruit News issues its usual end of the year review of California fruit conditions and markets. It is very complete in its tabular statistics of the past year and of other years since 1900. Typographically it is a beauty.

SHORT RATIONS IN ITALY

To Italy, peace brought only increased food difficulties as the newly acquired territory and prisoners added about 5,000,000 people who must be fed. With admirable foresight the government set aside a great store of food for the immediate relief of the redeemed provinces and returning prisoners, and prepared to face the situation.

Rationing is vigorously enforced by the card system and war time allotments of food have been severely cut. The new ration provides a monthly allowance of 17 pounds of bread and 13 pounds of other food for each person. This is only a pound of food a day and seems very little at any time but especially meager in this hour of victory.

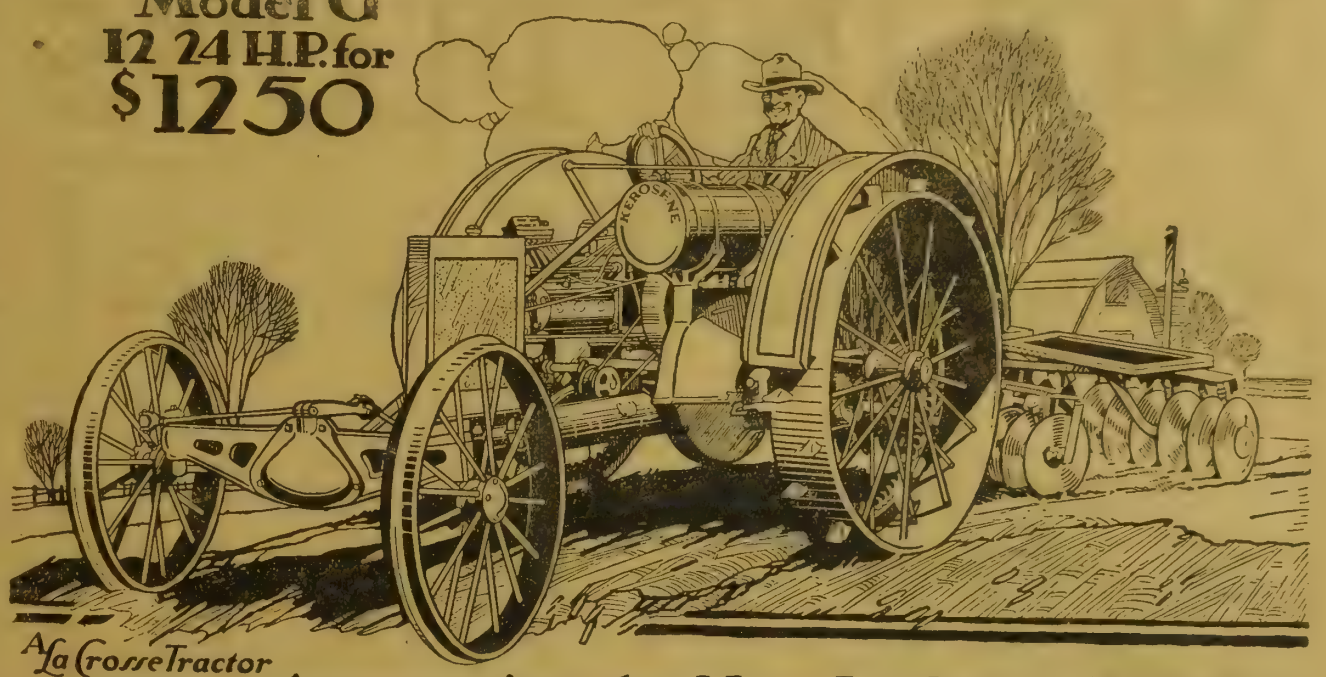
France is now producing about one gallon of milk where two and one-half were produced before the war. Available milk in Paris has lately been selling for 32 cents per quart, but its use is limited principally to young children and the sick.

According to the British board of agriculture the number of hogs in Germany now numbers about 5,000,000 as compared with 27,000,000 before the war.

As a food control measure in Norway to properly distribute the available fat supply, producers are prohibited from selling butter direct to consumers.

Fish sausage is being manufactured in Sweden. Early in September its retail price in Helsingfors ranged from 55 to 63 cents per pound.

Model G
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A La Crosse Tractor means a Happy Farmer

Announcing the New La Crosse Tractor

HERE is the new four-wheeled La Crosse Tractor, the triumph of the master engineers of the great La Crosse organization. Commencing with the first of January, 1919, we are bringing out this new model and are giving it a name of its own "The La Crosse Tractor".

The La Crosse Tractor is based upon the proven engineering principles which have been so successful in the La Crosse Happy Farmer Tractor, combined with standard four wheel construction of the most practical type.

Wherever you see the bright orange of the La Crosse Tractor there you may expect to find a Happy Farmer. The La Crosse Tractor means a Happy Farmer, for it is the tractor which in all soils and climates, on flat or hilly ground, in day time or night time, does the work you want it to do quickly, economically and efficiently.

Three Plows—12-24 Horsepower

The La Crosse is the standard three plow tractor. With its 12-24 horsepower it is the tractor of just the right size. It is large enough to do any power farming job on the average farm, while it is small enough to be economical on fuel and light in weight. You can handle it, together with the La Crosse Tractor Implements, single-handed.

The La Crosse is the simple tractor. It burns kerosene perfectly, and is equally efficient on either belt or drawbar.

It is the policy of the La Crosse Tractor Company never to be satisfied with anything but the best, and to keep perfecting the La Crosse Tractor so that it shall always be the leader of the field. The La Crosse Tractor as it is placed on the market today contains every feature which has made the Happy Farmer famous, with new improvements which make it the up-to-the-minute tractor you are proud to own.

La Crosse Tractor Implements

The new La Crosse Tractor and the special La Crosse Tractor Implements make the perfect team for efficient work. These implements are made according to the same standard as the La Crosse Tractor and offer you maximum convenience and strength. La Crosse Tractor Plows, the Special La Crosse Tractor Disk Harrow and the La Crosse Power-Lift and Power-Pressure Grain Drill can all be handled entirely from the driver's seat on the tractor.

See Your Dealer Now

Write us today for the name of your La Crosse Tractor dealer. Tractor prices are constantly advancing. The demand is much greater than the supply. Compare this price of practically $100 a draw-bar horsepower with the price of any other tractor on the market. The La Crosse Tractor will actually develop more than 12 horsepower at the drawbar. Yet it sells today for $1250, and is rated at 12-24 horsepower. This price is subject to change without notice. Write us today.

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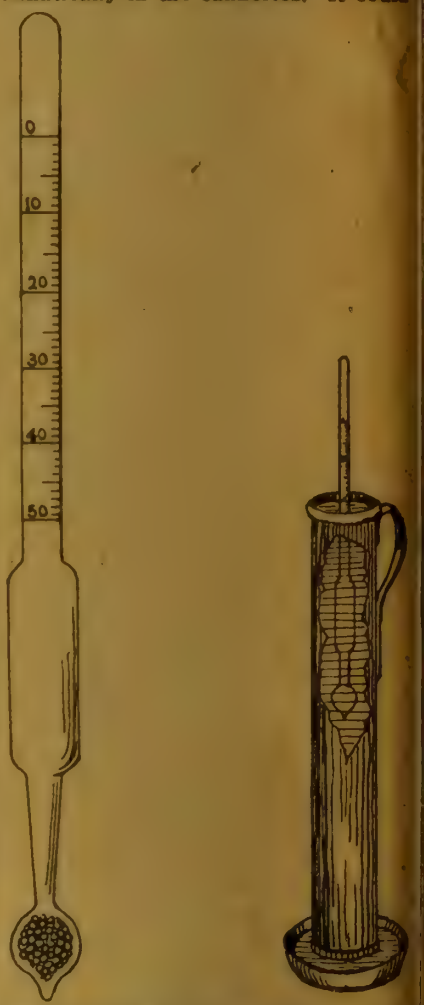
John S. Armstrong, Proprietor

404 Euclid Ave. ONTARIO, CALIFORNIA

Orange Marmalade and Orange Jelly Stock From Frosted Oranges

By W. V. Cruess

THE past few days of freezing weather have added greatly to the quantity of cull oranges for this season. The disposition of these oranges at a profit presents a very serious problem. The University of California has, during the past five years, conducted experiments along many different lines with a view of developing a by-product from oranges which would have a large market and which would not be too expensive to produce and which could be sold at a low enough price to stimulate the buying of the product. Orange juice was discarded because it seemed to be impossible to retain the fresh orange flavor. Citric acid can not be made profitably because oranges are too low in this constituent. Orange oil from cull fruit does not offer a solution of the problem. Orange marmalade and orange jelly can be made from cull fruit, but their manufacture requires very large quantities of sugar and the products must be sold at a high price. Because of this fact the manufacture of orange jelly and orange marmalade requires a large capital and the consumption of the product is restricted because of its high retail value. Our experiments have definitely shown, however, that it is perfectly practicable to put up the orange juice or the orange juice and sliced peel in cans ready for the use of the housewife for jelly making or marmalade making purposes. This product is put up in the unsweetened state. The fruit can be handled automatically in the canneries. It could be produced in enormous quantities. This product could be put up in cans of the ordinary Number 2½ size, that is, quart size, for the use of the housewife, or in gallon or five gallon cans for the use of the marmalade factories or bakers. The housewife, marmalade manufacturers and bakers then buy this canned material, add the required quantity of sugar and make marmalade. This method relieves the manufacturer of the cost of sugar. It permits the production of a marmalade of fresh and pleasing flavor. Marmalade which has been made for several months is not equal in flavor to that made from freshly canned stock.



Balling Saccharometer and Metal Cylinder

For determining the Balling degree of the jelly or marmalade juice. The juice obtained from boiling and straining the pulp should test at least eight degrees Balling when cooled to room temperature.

Processes of Manufacture

The stock for canning is made from a mixture of oranges and lemons. To each box of oranges is added about one-quarter of a box of lemons. The fruit should be sorted and washed. The next operation is that of slicing. Marmalade slicers are sold by practically all dealers in commercial canning machinery. The fruit should be sliced thin, not more than one-sixteenth of an inch in thickness. To each 100 pounds of the sliced material is added about 200 pounds, or about 20 gallons, of water. The pulp and water are boiled until the pulp is soft. From one-half to three-quarters of an hour would usually be sufficient. Ordinary jelly kettles can be used for this purpose, or it is also feasible to use large vats that could be heated with steam. The fruit is then strained

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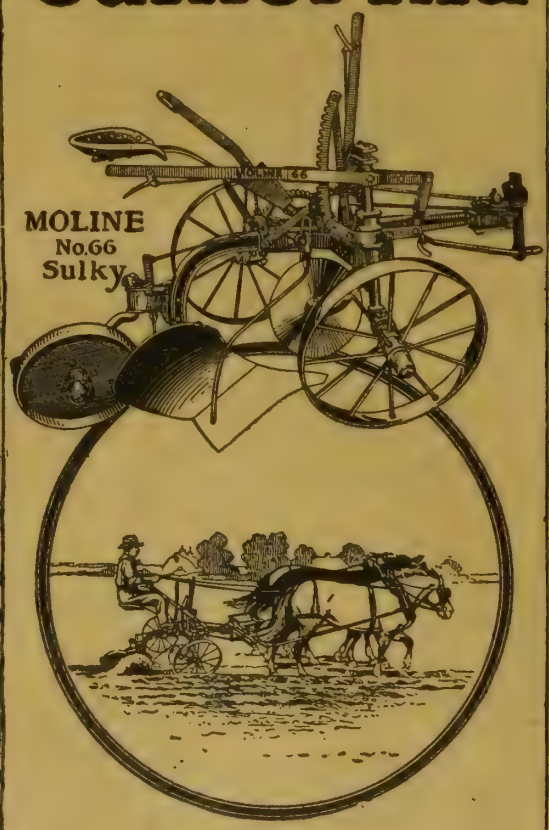
For tractor disc plowing the Moline Power Lift Disc Plow will give the most satisfactory service you ever received. It penetrates easily the hardest soil. It also has the strength to resist the terrific strain to which it is subjected; a positive power lift which eliminates all the hard work of raising or lowering the plow and adjusting for depth; an efficient means for adjusting width of cut; a hitch guide; automatic control of rear furrow wheel to hold the plow to its work; and many other features which add to the quality of the work and convenience of operation.

The Democrat-News of Lewiston, Mont., contains the following account of a demonstration of the Moline Power Lift Disc Plow in the Judith Basin Country, where some of the most difficult plowing in the world is encountered:

"The gentlemen gave a most wonderful and successful demonstration on Tuesday (Dec. 11, 1917) of this new plow, and one which we do not think had ever been equaled before in history. They were plowing in a field south of the city on Mr. Otten's ranch in ground covered with a foot of snow and five inches of frost. The plow turned this ground over with ease seven inches deep and it can handle any depth required."

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through ordinary jelly bags to separate the juice from the pulp. If marmalade stock is to be produced, a quantity of the sliced fruit should be boiled with water as directed above until tender, but not until the fruit is broken up. The juice is then drained off and the pulp is washed under a spray of water to remove the flesh and broken cells from the rinds. The flesh will give a cloudy appearance to the marmalade and should be removed in this way. The washed peels are then combined with the strained juice. This is most conveniently done by adding the washed peels to the cans in which the material is to be placed at the rate of seven ounces of the sliced peels to each one quart can. The juice is then heated to boiling, and filled into the cans, sealed, and sterilized for 25 minutes in boiling water in the same manner in which ordinary fruit is sterilized in cans. The cans are then cooled in water in the usual way. The product is then ready for labeling and marketing.

The juice should be tested in several ways to be sure that it will make a good marmalade. This can be done by taking a small quantity of the juice, mixing it with the required amount of washed sliced peels, and cooking down to a marmalade with an equal quantity of sugar. A simpler test is that of analysis for Balling degree and acidity. This analysis is made in exactly the same way as the determination of the Balling acid ratio of oranges to meet the government test. The strained juice should be cooled to about room temperature, placed in a cylinder, and a Balling saccharometer inserted and read. The Balling test should test at least 8 degrees Balling, if one is to be certain that the juice will make a good marmalade or jelly. This test is made on the juice which is obtained by boiling the strained pulp of the fresh juice. The acidity should be at least six-tenths of a per cent when judged by the usual titration method. This test is well known to all orange packers and need not be repeated here. The test for pectin is also desirable. This is easily made by placing one teaspoonful of the strained juice and one teaspoonful of 95 per cent alcohol in a glass. If the juice contains sufficient pectin to make a good jelly or marmalade the mixture of lemon juice will set to a soft jelly in a few seconds.

The canned material can be marketed as "orange juice and peel for marmalade" with full directions for making the material into marmalade in the household. These directions will be somewhat as follows:

"Orange Marmalade for Use of Canned Juice"

"To each can of this marmalade juice and kin add an equal volume of sugar or three-fourths its volume of corn or other syrup. If a very stiff marmalade is desired use only three-fourths the amount of sugar given above. If a very soft marmalade is desired use more sugar. Bring to the boiling point and boil until the material will hang in sheets from a cooking spoon or, if a thermometer is available, boil until the thermometer will register, when inserted in the boiling liquid, 220 degrees F. Pour into glasses, allow to stand over night, and serve as a breakfast dish. You will find this marmalade very much fresher in flavor than that which you buy in the stores."

Orange Jelly Juice

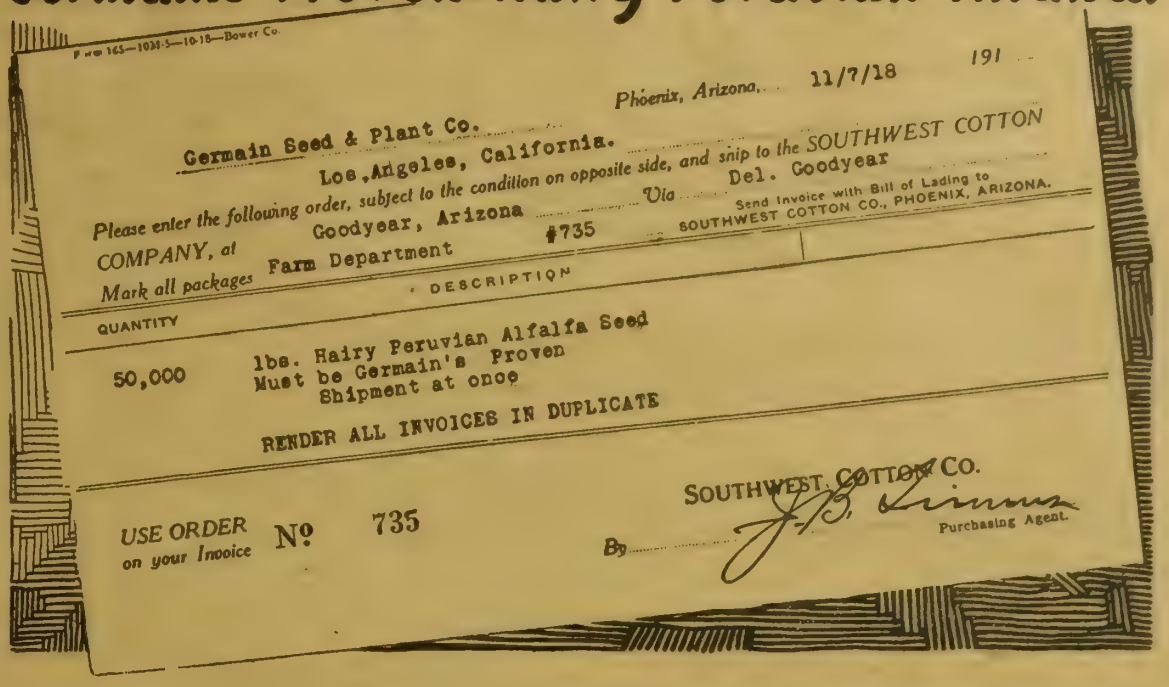
In making the orange jelly juice, proceed exactly as described for the orange marmalade stock, except that the sliced peels are not added to the cans. The juice in this case should be strained two or three times to get it as clear as possible in order that it will make a sparkling clear jelly. It is then filled boiling hot into cans; sealed and sterilized. The directions for making this stock into the jelly in the kitchen will be exactly as described above for marmalade.

Yield and Possible Returns

From tests made in the laboratory it has been found that the yield will vary from 600 quarts of marmalade stock to 1000 quarts of marmalade stock per ton of oranges and lemons, the lemons being mixed in the proportion of 12 pounds of lemons to 50 pounds of oranges. If the material is put up in quart cans, the cans will cost the manufacturer about four cents apiece. If the fruit is obtained

Continued on Page 63

Here is a copy of 50,000 lb. order for Germain's Proven Hairy Peruvian Alfalfa.


Form 165—1031-5—10-18—Bower Co.

Phoenix, Arizona, 11/7/18 191

Germain Seed & Plant Co.
Los Angeles, California.

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J. E. Bergtholdt
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The Popular Persimmon

Written for California Cultivator By Ernest Braunton

TRAVELERS through rural districts at present are greeted nearly everywhere by fruit laden persimmon trees. A majority of these are in the dooryards, for few planters have regarded them as a source of revenue, and therefore orchards of persimmons are scarce. Some time ago I was talking with an orchard owner who possessed ten acres of oranges. On the lower end of the plat, next to a waterway, there was a narrow sandy strip. On this the owner planted about a score of persimmons in three varieties. The trees are now ten years old. The owner stated that if he were to plant today he would put in persimmons over the whole ten acres as he had made more money per tree from the persimmons than he had from the oranges.

One citrus grower to whom I related this statement said: "It is strange persimmons have become profitable, for you can't do anything with them except to eat them as fresh fruit; you can't use them in cooking." He was forced to laugh when I called his attention to the fact that the same is true of oranges. Marmalade, orangeade, candied peelings, etc., do consume a few oranges and but a few compared with the total crop. The most serious drawback to growing persimmons for profit is that they will keep but a short time and do not bear transportation well. But if we waive their serious recognition as an orchard crop, let us plant them in the garden. Persimmons have a decided ornamental value, for what deciduous tree can compare with them when in fruit? The fruit is most delicious when fully ripe and anyone that likes candy will relish a good persimmon in good condition. A half ripe persimmon is less palatable than a green orange. The leading varieties are Hichaya, Hyakume and Tana Nashi, of which the former is the largest and, in my opinion, is equal in flavor to any.

Mixed Highway Planting

Last week, while out in the Puente-Covina section, I passed over a highway aligned with three species of acacia. They were Acacia Baileyana, dealbata, and decurrens. Though well grown and in thrifty condition, the effect was far from pleasing. The blue of the A. Baileyana does not at all harmonize with the yellowish green of A. decurrens. It is a serious mistake to mix trees in street planting. Strong effects are never produced by mixtures of plants of any kind, or for any purpose, or in any place whatsoever.

Roadside Adornment

On a highway twenty miles east of Los Angeles there is a half mile of strong fence (material not in evidence) covered with a heavy growth of climbing roses. It is one of the most pleasing and effective roadside adornments that I have seen. The best effects on the county's roadside hurdles of fugitive farm gates cannot compare with it. We can even forgive the owner for making the fence too high. Such hedges should not be so high but passersby in automobiles may not see the enclosed orchard. But, setting aside the height, the general effect is one of the most attractive I have seen.

For Quick Effect

Last week I saw some street planting adjoining a small city that was not an unmixed blessing, yet good to behold. It was composed of alternate trees of Monterey pine and live oak, planted about 30 feet apart. While I should prefer the oaks alone, the planter evidently wanted quick scenic effect or a windbreak for his orchard. The trees had grown nearly together and in a few years the pines will have to be removed. In the meantime they may be pruned on the sides to allow the oaks to expand without interference. On the whole this plan is to be commended, for it is quite evident, from distances apart, that one-half the trees are to be cut away.

Nursery Junk Scarce

Plant growers, both of ornamental and evergreen fruit trees, are complaining of a decided scarcity of tin cans and sacking. In some cases the digging of plants from the fields has been stopped because such necessary material could not be obtained at prices that would allow removal of stock. Plant dealers cannot pay present prices for gunny sacks or five-gallon oil cans and other material must be substituted. For smaller sizes paper pots may be used, but even the prices of these have soared of late and it would seem that for the nurseryman there is no balm in Gilead.

California Big Trees

There are 31 groves of big trees, or Sequoia gigantea, in California, and the number of real big trees or forest giants is 86,500. The smallest grove is known as North Grove, on the Middle Fork of the American River in Placer County, and contains but six trees. The one known as the Giant Forest contains 20,000 trees and is on the Marble Fork of the Kaweah River in Tulare County, and covers 9000 acres. The elevation of these groves above the sea ranges from 4300 feet in the first small lot of six to 8000 feet at the highest part of the Giant Forest. The most southerly lot is in the Greenhorn Mountains on the South Fork of Deer Creek in Tulare County, but close to the northern boundary of Kern County. It contains 150 trees on 300 acres.

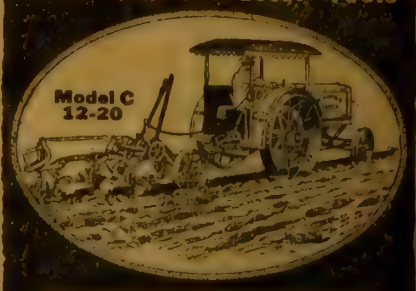
Trees in California

There is hardly a clear distinction between trees and shrubs, but those having a single trunk and more than 20 feet high may be regarded as trees. Of such California has 92 species, of which 57 are found in Southern California, a most remarkable number for a semi-arid climate. There are but two species common to California and the Eastern states. These are the aspen and the black willow, found everywhere, even reaching to the Arctic regions. California forests are formed almost exclusively of conifers or cone-bearing trees. We have the comparatively large number of 50 species that are typically Californian or almost wholly within this state, and here reaching their highest development.

Cliff Dwellers

In New Zealand, on the steep cliffs or sea walls there grows a vine that covers heavily and grows where no soil is in evidence. A resident botanist writes that a little dust from the weathering rock, falling into a slight depression, is sufficient soil for this hardy vine to get a foothold. As this vine is and has been common in California for years it is a wonder it has

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Close-up levers permit one man to operate tractor and disc. Strong and flexible for tractor use. Unusual clearance—no clogging.



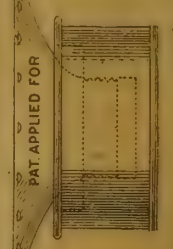
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SURFACE IRRIGATION



not been used for cliff or rock wall cover. It is locally known as the wire vine. Its botanical name is Muehlenbeckia complexa.

Sand Binders

Glorious Golden Gate Park of San Francisco was once a windswept stretch of shifting sand dunes on which nothing grew. The first real work of fastening the drifting sand was by means of Sea Bent Grass, Calamagrostis or Ammophila arenaria. This was introduced from Europe but has now become naturalized at several places along the coast. It has not been used as much as it should be for we have thousands of acres of coast sands which should first be stayed by this grass and then plants, trees and shrubs planted. In this way parks and gardens may be carried right down to high tide levels. This grass was introduced to San Francisco in 1876 by Louis McLane and Prof. Geo. Davidson.

Petrified Forests

We have no thought of advocating the planting of petrified trees in the garden but wish to record a matter of age. Geologists estimate the age of the petrified trees in Arizona at approximately fifty million years. They grew in the mesozoic age and were lowered into the ocean or the ocean rose over the land. After ages of time the land was thrust up or the waters receded and left these forests high and dry. I have some of this "once was" wood but have finer specimens dug from Elysian Park, Los Angeles, of cypress just as it exists in Northern California and Oregon at the present time.

"COST PLUS"

Continued from Page 37

their own bonds. Prices of commodities may be limited for comparatively brief periods under stress of war, but even that is difficult and always brings with it the penalty of withdrawal of commodities from market if the limit is too low. There is no way to maintain a price in the face of a surplus except by taxing somebody to pay the difference between the market value and the fixed price, and this too is impossible except in a great emergency for which the public is willing to be taxed. Our national wheat program may furnish an example of this economic truth before June 1, 1920, if the fall crop promise is maintained. It is probable that the government will have to resort to taxation to pay the wheat grower what it has agreed to pay him for the crop of 1919. But since this agreement was made to avoid famine there will be no serious objection to paying taxes if that becomes necessary. The present hog market is another example of the difficulty of maintaining prices, even with the buying for a whole hungry continent concentrated and controlled as it could not be under other conditions. There is another thing which we are prone to forget, namely, that the interest of consumers in prices is equal to that of producers, and they would not tolerate any measure which gave producers the best of the deal or which they thought had such an effect.

There is another class of advocates of price fixing just now who believe that guaranties to farmers should be extended in order to stimulate production which they think will be needed. These men do not believe in government interference in such matters except under extraordinary conditions, but they fear a food shortage unless something is done to induce still greater production. We cannot agree with these gentlemen either. Overstimulation of food production is a danger less serious than neglect of it, but we see no reason to fear neglect. The world may now safely rely for its food on the normal stimulus of good prices, the interest of all classes in food production and the great awakening to the importance of agriculture which has come from danger of famine. The farther production is forced beyond the bounds fixed by such normal influences the greater the reaction will be when it comes. The longer the list of violations of sound economic law the longer the list of penalties of one kind or another, for such penalties are always exacted. These are some of the reasons why we oppose further price fixing or guaranties, which may look attractive for a season but will prove to be disadvantageous to all concerned in the end.

HIS BEST COMPLIMENT

"Well, Kate," said the parson, according to the Cleveland Plain Dealer, "did you like my sermon this morning?"

"'Twas a grand sermon intirely, sorr," said Kate, dropping a courtesy.

"And what part did you like best?" asked the pastor, who was a bit waggish.

"I don't remimber, yer riverence, but ut war all good."

"Now, Kate, if you can't remember it, how do you know it was good?"

"I'll tell yez. See them clothes on the line?"

"Yes, Kate. And a fine lot of work you have, this morning."

"Isn't ahl that suff betther f'r the washin'?"

"Of course it is."

"Aha! An' yet not a bit av th' soap sticks to it. That's the way it is, sorr. My soul is betther an' cleaner f'r y'r sermon, though not a word o' what ye said stays by me."

And that, the minister told us, was the best compliment he ever got.

To be happy at home is the ultimate result of all ambition; the end to which every enterprise and labor tends, and of which every desire prompts the prosecution.—Johnson.

Nor need we power or splendor,
Wide hall or lordly dome;
The good, the true, the tender,
These form the wealth of home.

30 Years' Experience
Building Disc Harrows



COMMENCING with the light, horse-drawn, single-action disc harrows, following with the double-action, later the heavy engine disc harrow and now both heavy and light tractor disc harrows, the John Deere factory specializing in the manufacture of disc harrows is rounding out thirty years' experience in this line of work—thirty years of unusually successful disc harrow building experience. That means that the buyer of a John Deere Tractor Disc Harrow isn't getting an experiment—he is assured of satisfactory service.

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TRACTOR DISC HARROWS

The JOHN DEERE PONY TRACTOR DISC HARROW is for use with any standard tractor; clevis is adjustable to suit height of tractor drawbar.

Flexible—equipped with a powerful pressure spring. Penetrates and pulverizes as desired because low tractor hitch and low coupling between front and rear gangs hold discs to their work.

Light running; no dragging around corners; rear gangs trail properly and run steady because the reinforced goose-neck connection to rear gangs is attached ahead of the front gangs.

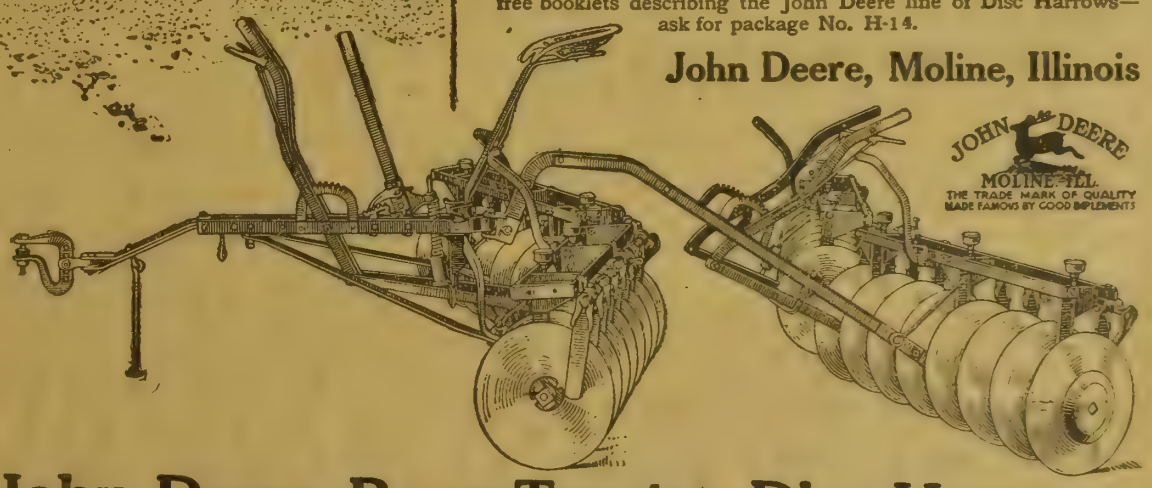
Unusually strong—all steel main frame, double-bar gang frames, riveted throughout.

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Peach, Apricot, Almond
Plum, Prune, Pear
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"More than a million high class fruit trees per year for California Planters."

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The dairy rancher has long since learned that the cow is a sensitive animal and anything that adds to the comfort and the cleanliness of her surroundings invariably shows up in the profits at the end of the season.

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Good Serviceable Bulls

At Dairymen's Prices

They Are Sons of King Mead of Riverside

One of the best proved sires in the dairy world. Two of his daughters have produced over 1200 pounds of butter each in a year, strictly official test, one of which holds the world's butter record for two years 2,426.86 pounds. The average test of all of his daughters is over four per cent for the year.

The dams of these bulls are without exception beautiful individuals, with fine level udders and each with a good creditable official butter record. In each instance these records, without special fitting or care, may be taken as an index to their capacity under ordinary dairy conditions. Consider well these facts and decide to use one in your herd.

No. 1. Fourteen months old. Very nice individual, evenly marked. His dam has official record of 21.25 pounds butter in seven days as a four year old. She gave over 500 pounds milk in seven days and is one of the pleasantest milkers you ever saw. Price $250.00.

No. 2. Fifteen months old. It would be hard to fault his type. Possibly a little more black than white. His dam's official record of 18.59 pounds butter in seven days was made as a three year old. She is a show cow and by a sire that was four times a first prize animal at California State Fair. Her dam has a record of 823 pounds butter in a year. Price $200.00.

No. 3. Thirteen months past. Typey and nicely marked, little more black than white. His dam is the kind that would please any judge of a dairy cow and the kind that never quits. Official record 18.22 pounds in seven days. Price $150.00.

Their pedigrees will be furnished with all information by request. Write us at once if you want one of these sons of King Mead, as there are only a few left.

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As good as the best and better than the rest. A boar or a sow pig sired by my great herd boar Director, and out of one of my choice sows will add prestige to your herd. I am booking orders now for the pigs of March and April farrow. Write now and place your order.

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Boquet Canyon **Saugus, Cal.**

Uneeda Glenn County Herd

The Key Herd of Duroc-Jerseys

This herd produced more champions at the 1918 California and Oregon state fairs than any herd on the coast.

For sale now: Boars; gilts, bred or open; bred sows and a few weanling pigs of either sex.

Glenn County for Durocs

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A large herd of selected stock to choose from.
Everything sold is guaranteed as represented.
Why send East for breeding stock when we can supply your needs?
Save time and money by writing us for particulars.

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Tilly Alcartra—the Wonder Cow of the World

TILLY ALCARTRA—AGAIN

THE date has again arrived for the annual feature story about Tilly Alcartra, the world famous Holstein cow owned by A. W. Morris & Sons Corporation, Woodland, and this time Tilly furnishes the material for the most wonderful story ever written about any cow, for she has again smashed a world's record to smithereens. On the evening of Monday, January 6, 1919, she completed her sixth consecutive year under semi-official test with the world's milk record of 33,424.8 pounds milk, and the splendid record of 1323 pounds butter for the year. With a total of 2513.46 pounds butter, she also breaks the world's record for two years butter production.

Again it is proper to review her lifetime work up to date, and the following table shows her records for every lactation period since she dropped her first calf as a two year old; with the age at which she freshened each time:

At two years six months 17 days: Milk seven days, 490.40 pounds, butter 17.39; milk 285 days 14,837.2; butter 556.20.

At three years five months 26 days: Milk seven days 613.00 pounds, butter 23.15; milk 365 days, 21,421.30, butter 841.22.

At five years, one month, six days: Milk seven days 715.40 pounds butter 29.26; milk 365 days, 30,451.40, butter 1089.03.

At six years five months 20 days: Milk seven days 783.70 pounds, butter 32.22; milk 365 days 29,826.60; butter 1190.46.

At seven years seven months nine days: Milk 365 days 26,814.60 pounds, butter 1042.20.

At nine years two months 25 days: Milk seven days 724.10 pounds, butter 40.78; milk 365 days 33,424.8; butter 1323.

No other cow in the world, of any breed, has closely approached this magnificent total production of milk and butter, and as far as the writer knows no other cow in the world has made even a creditable showing during six consecutive lactation periods, and in the case of Tilly it will be noted that she has been tested every time she has ever freshened so far, leaving not a single loafing year in her life. There is one other fact that is of prime importance in judging her performance, and that is that she has never been rebred but once in her life. Of the seven times she has been bred she became pregnant at the first service six times, but last year made the single exception by accepting the second service. It will also be noted that between her first and sixth calves there elapsed a period of 80 months, and she has thus dropped a calf on an average of every 13 months and ten days while she has been making her many world's records. During her present record she has been carrying a calf for six and one-half months, being due to calve again in April.

Tilly Alcartra stands among the very top cows of all breeds as an economical producer. Her ration may look big to the ordinary feeder of ordinary cows, but careful analysis shows that Tilly consumes much less feed than an ordinary cow in proportion to what she produces. During the past year a very accurate account has been keep of the feed she consumed, and the following are the totals of her ration for the 365 days:

Ground barley 1325 pounds, ground oats 1325, bran 1325, soybean meal

THE BEST LINIMENT
OR PAIN KILLER FOR THE HUMAN BODY
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Caustic Balsam
IT HAS NO EQUAL

For the Human Body — It is penetrating, soothing and healing, and for all Old Sores. Bruises, or Wounds, Felons, Boils, Corns and Bunions CAUSTIC BALSAM has no equal as a Liniment.

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A Perfectly Safe and Reliable Remedy for Sore Throat Chest Cold Backache Neuralgia Sprains Strains Lumbago Sore Lungs Rheumatism and all Stiff Joints

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $130.00 paid in doctor's bills." OTTO A. DEYER.

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Calf Scours

Save every Calf. High meat and milk prices make control of Calf Scours more necessary than ever before.

Scouring calves indicate a germ infection that is likely to run through your entire herd with serious losses. The loss of one calf is bad enough, but nothing compared to your loss when the infection spreads, as it will unless checked. Then your year's work in building up your herd is wasted and your profits lost.

B-K, the powerful germicide and disinfectant will promptly stop scours and finally banish it from the premises. B-K contains no poison, acid nor oil. When used internally it destroys germs, heals inflamed membranes, relieves irritation, restores healthy action. B-K may be given freely in milk and drinking water.

The B-K plan is simple and practical. It is giving wonderful results. Send for "evidence"

FREE BULLETINS: Send for our valuable bulletin No. 136, "Calf Scours," also information on other farm uses and our "Trial Offer." If your dealer does not have B-K, send us his name.

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1165, cottonseed meal 532,, linseed meal 200, dried beet pulp 2550, silage 3000, alfalfa hay 5000, beets 21,000, pasture for four hours daily during nine months.

This ration was supplied to her as follows: At freshening she was fed ten pounds of the mixed grain ration daily. In about three weeks this was increased to 20 pounds daily, composed of 14 pounds barley, oats, and bran equal parts, four pounds soy bean meal, and two pounds cottonseed meal. After two and one-half months on this grain ration the allowance was cut to 16 pounds per day, and then to 14 pounds per day, the latter figure being maintained for five and one-half months, when the grain ration was increased to 15 pounds per day and was maintained at that figure for the balance of the year. During the time of her heaviest production she consumed as high as 80 pounds of beets per day, and her allowance of dried beet pulp varied from eight to fourteen pounds per day, while she was getting it.

Tilly finished her last world's record performance in beautiful condition, having taken on considerable weight as usual, and looks fit to start off again in April in as good shape as she has ever been.

Just to gain some comparative idea of what Tilly is worth simply as a dairy cow, her milk last year if sold at $2.75 per hundred, a very conservative figure, would have fetched the tidy sum of $920. As a matter of fact her milk was actually sold throughout the year at a higher average price than that, yielding well over $1000.

Tilly has two sons in service in pure bred herds in California. Her oldest son is Prince Alcartra Korndyke, heading the J. S. Gibson Company herd at Williams. His first daughters have made yearly records as two year olds that place their sire well up among the yearly record sires of the breed. Tilly's other son is the well known King Morco Alcartra, in service in the Morris herd, where he has a large number of beautiful young daughters, none of which are yet in milk.

Tilly is the "only" cow in many respects. For instance: She is the only 40 pound cow that has made over 1100 pounds butter in one year; she is the only cow that has ever produced over 33,000 pounds milk in one year; she is the only cow that has ever made over 1000 pounds butter four separate times, and she did this during four consecutive lactation periods; she is the only cow that averages over 30,000 pounds milk per year for four years; she is the only cow that averages over 1000 pounds butter per year for six straight years, and that takes in every year since she first freshened; she is the only cow that has an average of 1000 pounds butter fat for two years; think of that butter average for six years!

Much more will no doubt be written about this wonderful cow in future years, for her physical condition and the condition of her udder are marvelous, promising many years of useful breeding and dairy production.

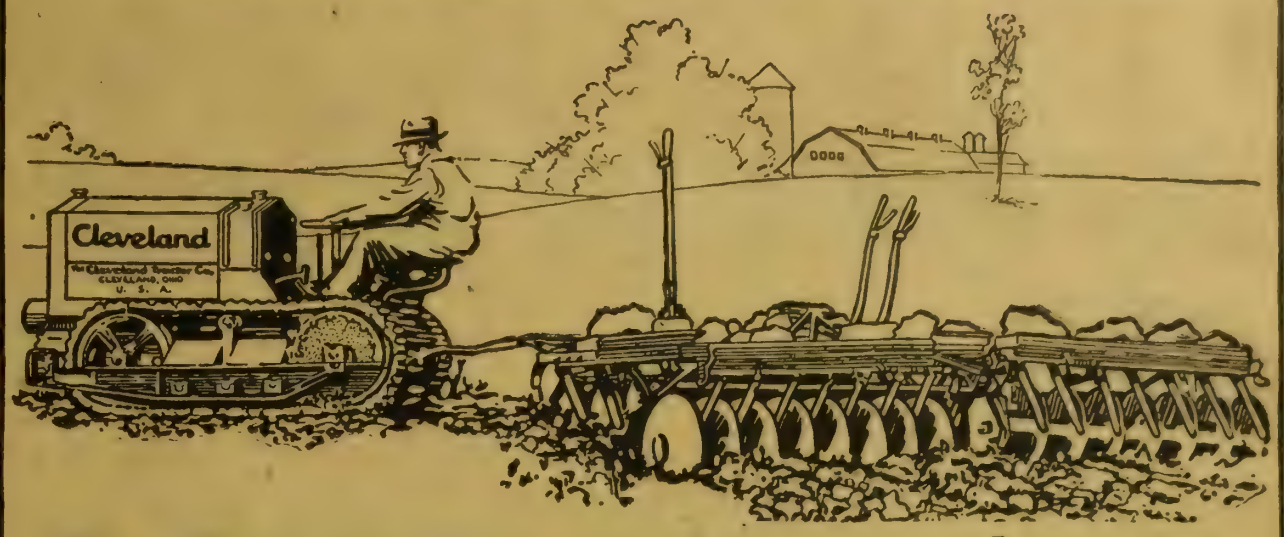
NEVADA LIVE STOCK NEWS

Jno. Matley of Reno is a horseman who does not fear the popularity of the farm tractor. He has lately purchased the stallion Londrecitos from the Whitehall Estates, Tracy, California, to head his Percheron stud.

J. H. Cazier & Sons of Wells, Nevada, have just shipped a Hereford bull and two heifers to E. S. Harriman of Northam, Nevada. Mr. Harriman is gradually embarking into the pure bred live stock business, having purchased a flock of pure bred Hampshire ewes last year. Mr. Harriman believes that high class stock will win out, even with hay at high prices. He modestly states that his check for hay this year was $14,000 from his 400 acres, after providing winter feed for some 200 cattle and 300 sheep.

The University of Nevada has secured a junior Hereford herd bull from J. H. Cazier of Wells, Nevada. The youngster is out of Lily Alamo by Lelax, a son of Dale. Her dam is Lily Alamo by Precursor by Beau Brummel. The calf is by Harris Standard 2nd by Standard. This calf has a combination of Bonnie Brae and Disturber topped on a combination of Perfection and Beau Brummel blood lines. Unfortunately he was calved in August so can hardly be successfully shown until he reaches maturity.

Cleveland Tractor



The Cleveland Tractor *does more than plow*

Your tractor, to be of real service and value to you, must do more than simply draw a plow. Plowing is *only the beginning* of what a tractor should be able to do.

It should also be able to do everything else in the preparation of the seed bed—the discing and harrowing, the planting. And it should do these things in a way that will not injure the coming crop.

The tractor should not only be able to draw the implement easily, but it should not spoil the good work the implement has done.

After the ground is broken, The Cleveland Tractor *goes over it* with the disc and the harrow, then *goes over it* with the seeder.

The Cleveland *rides on top* of the seed bed; *it does not sink into it and it does not pack the soil.*

The Cleveland *goes over soft ground* because it travels on its own endless tracks which it picks up and lays down as it goes along.

These tracks have about 600 square inches of traction surface, so the pressure on the ground is only about five pounds to the square inch—therefore there is not enough weight on the ground at any one point to inflict damage.

We repeat, The Cleveland Tractor *rides on top* of the seed bed. It *does not sink into it;* therefore *it does not have to wade or wallow through it.*

And because it *does not sink in,* it does not have to push the dirt in front of it and pack it down in order to navigate.

And because it is not obliged to push the earth in front of it and pack it down, the greatest possible amount of The Cleveland's power is available for accomplishing the work it has to do.

This is one of the reasons why *The Cleveland performs so much work on such a small amount of kerosene.*

These are but a few of The Cleveland Tractor's many advantages. It is capable of performing almost endless tasks in both tractive and stationary engine work.

The Cleveland does its work. It does it well. It keeps on doing it. It is the tractor that does the work you want a tractor to do, in the way you want it done.






The Cleveland Tractor Co. 19077 Euclid Ave., Cleveland, Ohio

The largest producer of crawler type tractors in the world

The Following Agents Distribute the

Cleveland Tractor

in Southern California Territory and also have well equipped Service Stations as well as large supplies of extra parts:

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J. W. Cox, Whittier.
John L. Wheeler, 321 E. 4th St., Santa Ana, also Orange.
A. H. Sitton, Fullerton and Anaheim.
Fletcher & Smith, 401 Orange St., Redlands.
Stewart & Ruble, Santa Maria.
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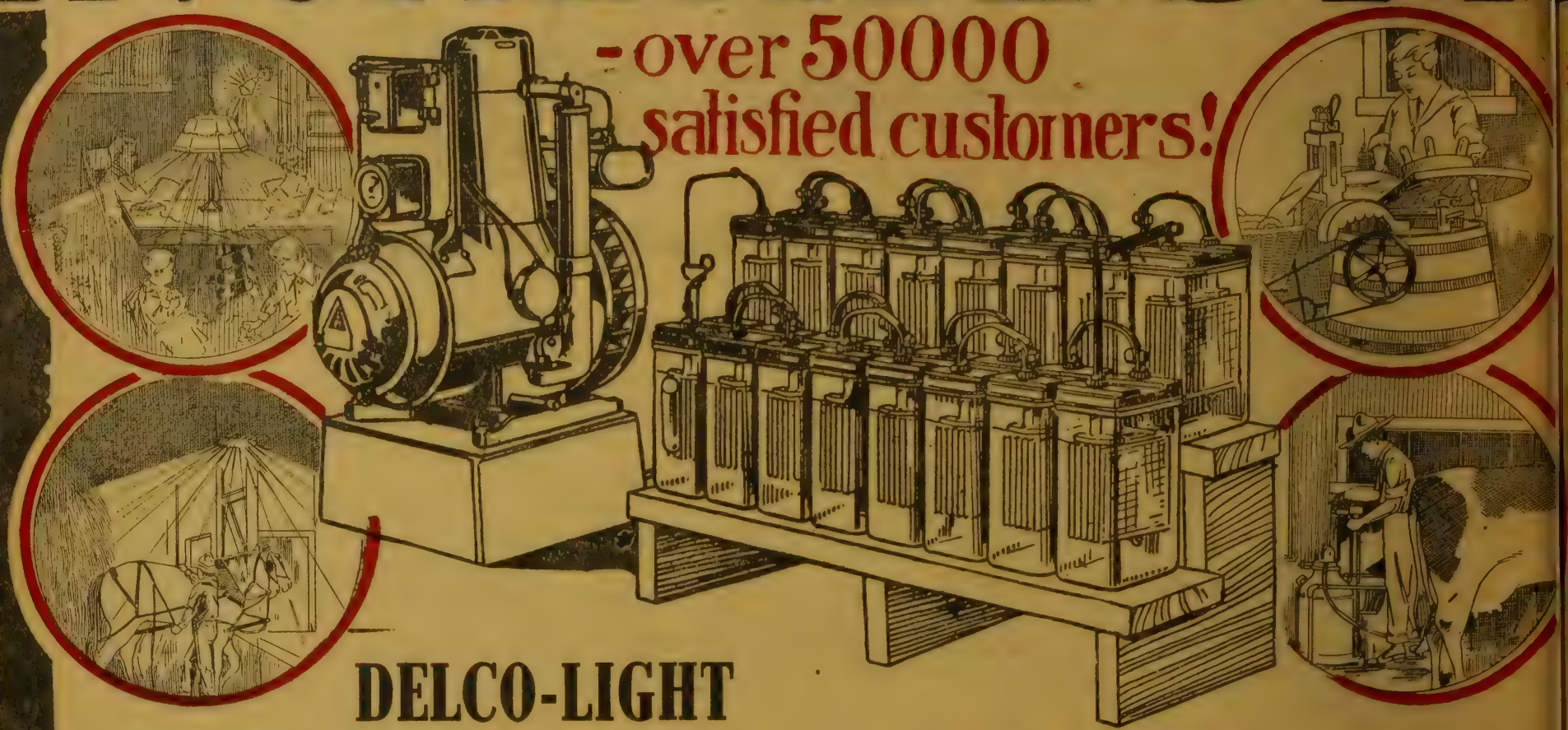
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How many thousand rubs has your wife given the washboard in the last year for the lack of modern equipment?

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How many times did you have to use the lantern last winter? Do you realize that every time you used the lantern you were endangering your property from fire?

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Absolutely automatic: Simply turn on the water at any faucet and the pump starts to work.

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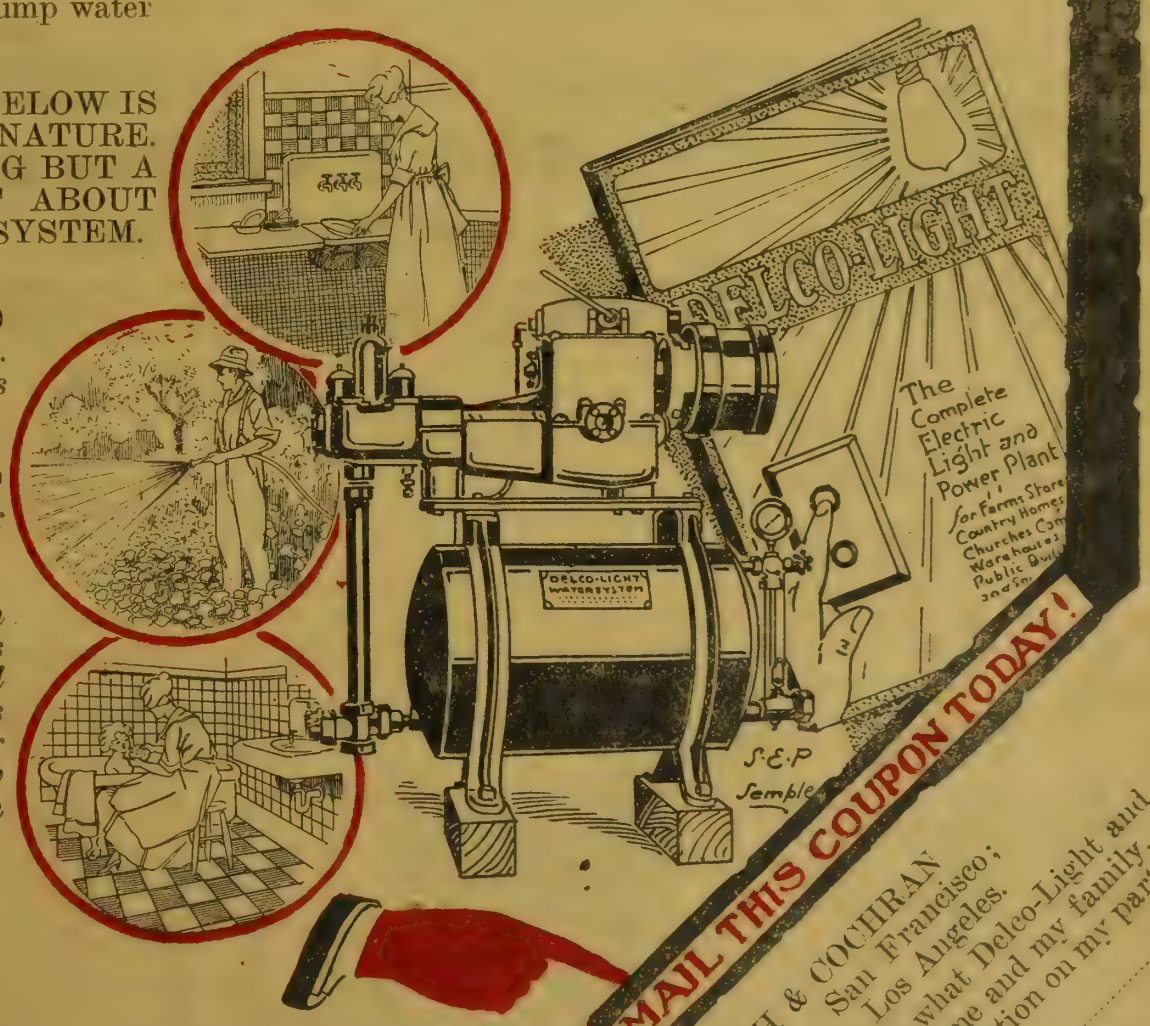
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I want the Booklet to see what Delco-Light and Water System can do for me and my family.
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THE WATCH TOWER OF PROSPERITY

IT'S over, over there. Once more farm conditions are drifting toward normal. Grain farming, made necessary by labor shortage and war, will no longer yield its big profits. The world's grain supply is now released for distribution where most needed, and again the "Yanks are coming"—but this time to relieve the labor shortage at home. Now, as before the war, the origin of **sure profits**—the one **dependable source of income**—is the cow. And with the cow comes the demand for that greatest of all producers of cheap feed, the

INDIANA SILO

Before, and during, the war the Indiana Silo made millions for its owners by the cheap feed it produced and the saving it brought about on over 70,000 American farms. Now, during reconstruction, it will continue to be the greatest producer of cheap feed in the world. It is, indeed, the "watchtower of prosperity."

Released from Government work, our big mills are again cutting our choicest old Yellow Fir logs into stock for Indiana Silos. Our big 1919 silo feed book is now off the press and our EARLY BUYERS' DISCOUNT is in effect. Let us send you your FREE copy of our book and tell you just how much you will save by ordering your silo now for later delivery. Cut out this ad, write your name and address on the margin and mail to us **today.**

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HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families.

Registered Berkshire Pigs

Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.

Careful attention given to mail orders.

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Shorthorns

Bred for Range Purposes and of Pure Scotch Blood Lines.

Show Herd won highest honors in 1917.

Visitors welcome — information cheerfully given.

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Registered Shorthorns

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Berkshires—Both Sexes

H. L. & E. H. Murphy

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Some of the finest

GUERNSEYS

in the West are at

Hollow-Hill Farm

Colton, Cal.

Only Bull Calves For Sale

100 Bred Sows

and Some Boars

FARMERS! DAIRYMEN! BREEDERS!

The Western Berkshire Congress greatest annual sale will be held at the San Francisco Live Stock Show the second week of February. The sows of this sale will be the tops of the best herds in California. They are guaranteed to be safe with pig to famous boars. It is the right way for the beginner to start. Only boars that have high honors in the show ring will be offered for sale. Here is your opportunity to get the very best at your own price. Free catalogs can be secured from

O. L. Leachman

Auctioneer 1008 8th Street, Sacramento

Wyoming Herefords

Largest Herd in the World



Our herd is conceded to be one of the choice collections of the breed in the West. The entire herd is descended from the largest individual importation brought America, and is the result of careful selection for scale, bone and hardiness. We can supply herd bull material or carlots of bulls for the range. At the Liberty Fair our cattle won the largest number of prizes. See our cattle at the San Francisco Show. We can suit California Buyers in quality, kind and price. Correspondence invited.

Wyoming Hereford Corporation **Cheyenne Wyoming**

Shorthorn Cattle and Berkshire Hogs

Shorthorn herd headed by Count Glory 426982, grand champion at the California State Fair, 1916. Berkshire herd won Premier Exhibitor's banner at P. P. I. E.

513 Hearst Building San Francisco

CARRUTHERS FARMS Live Oak, Cal.

When writing advertisers, mention The Cultivator.

PROSPECTS GOOD FOR SAN FRANCISCO SHOW

Joseph E. Painter, manager of the California International Live Stock Stock Show, who has recently returned from conferences at the Royal at Kansas City and the International Live Stock Show at Chicago, reports an active interest in the forthcoming San Francisco show. "Everywhere," declared Mr. Painter, "there was unusual interest in the California show. Breeders from all over the East were in accord with the change of dates, which will make it possible for them to exhibit at Denver in January and then come to San Francisco for the February show here.

"The spring months are looked upon as most propitious to the Eastern exhibitor since November and December are devoted to local shows and to the Royal and International.

"Both the American Hereford Breeders Association and the American Shorthorn Breeders Association, which held meetings to which I was invited, decided to extend their appropriations for premiums for our show and this in addition to the promise of many sale cattle should prove attractive features to California breeders."

Farmers and stockmen who attend the California International Live Stock Show to be held in San Francisco February 8 to 16, will be given an opportunity to get facts and make observations which will inspire and aid them in their work.

They will find the show, in reality, a short course in animal husbandry—a concentrated, brief but convincing presentation of the vital points of live stock breeding. The teaching in this case will be done by observation and comparison, instead of by lecture and lesson. The spectators will have before them the best specimens of the different breeds, the choicest animals from great herds. It would be next to impossible to travel to all the different points to see these animals, but at the show they will be brought together, and a wonderful opportunity will be afforded to study size, type, conformation, finish, production and breed characteristics. Attending live stock shows has marked the turning point in the career of many a man.

Live Stock News Notes

Hartsook Polands in Demand

Maurice Rucker in charge of the swine department of the Hartsook Ranch, Lankershim, reports that Dr. N. Newton, who owns a ranch near Lankershim, recently visited the ranch and selected 19 head of Poland-China sows and gilts as a foundation herd.

Spencer Thorpe, a Los Angeles attorney, secured a promising young boar and gilt for his ranch at Santa Paula.

Army to Sell Horses

Now that the war is over the army is faced with the problem of disposing of a vast number of horses and mules. The British have held several sales in the East during the past few weeks, and now comes the announcement that the United States army will start a series of sales. The first sale will be held at the auxiliary remount depot Camp Kearny, Friday, January 10, and will continue until about 1500 head of horses and mules are disposed of. Included in the lot are 400 artillery horses, 500 cavalry horses, 500 lead mules, 50 wheel mules and 50 pack mules. Every animal offered has been accepted by the army inspectors and includes none that have been condemned. The terms of the sale are cash.

Gatewood & Son to Sell Polands

Chas. Gatewood & Son, Poland-China breeders of Fresno, will hold a bred sow sale January 28. It will be

recalled that this firm had the grand champion boar at the 1918 state fair—King's Big Bone Leader, by Big Bone Leader—and the fact that most of the offering will be bred to this boar adds much to the attractiveness of the offering.

Kern County Bureau Saves $15,000

George H. Peters, president of the Kern County farm bureau, states that $210,605.20 worth of live stock were marketed by the bureau with a profit of more than $15,000 to the members. The Kern County bureau was the first county to try the auction plan of selling live stock.

New Grazing Fees

R. H. Charlton, supervisor of the Angeles National Reserve, has received notice that grazing fees for the year ending April 1, 1920 will be as follows: Cattle, $1.20 per head; horses, $1.50 per head.

Under the regulations of the agricultural department, no sheep or goats are allowed to graze on the ranges, on account of the stream pollution. The privileges are restricted to the government land within the reserve, and there are at least 4000 head of cattle and horses now being grazed on privately owned lands within the Angeles National Forest.

Wool Growers Annual Meeting

F. A. Ellenwood, president of the California Wool Growers' Association announces that the next annual meeting will be held at the University Farm, Davis, January 22 and 23.

Problems of vital interest to the sheep industry will be discussed.

Shorthorn Sale During Frisco Show

The sale to be held during the California International Live Stock Show under the auspices of the California Shorthorn Breeders' Association promises to be an event of unusual attractiveness. Practically all of the prominent California breeders have made entries and word just comes that two of the leading herds of the Northwest will also contribute—the Day & Rothrock herd from Washington and the Frank Brown herd from Carlton, Oregon.

Catalogs for the event may be obtained by filing applications with Secretary D. J. Stollery, 320 Sharon Building, San Francisco.

Berkshire Sale Arranged

W. M. Carruthers, president of the Western Berkshire Congress, announces that at a meeting, held last week in Sacramento, arrangements were made to hold the annual sale and meeting at San Francisco during the California International Live Stock Show.

Around 50 head of bred sows and gilts will be in offer and an especial effort will be made to attract a very superior class of consignments. President Carruthers states that in order to hold to the established high standard set by former sales, it is expected that members of the association will cut deep into their breeding herds.

The staging of the event has been delegated to the following committees:

Committee on program — James Mills, Hamilton City; A. B. Humphrey, Escalon; Homer Hewins, Calistoga; J. Francis O'Connor, Santa Rosa.

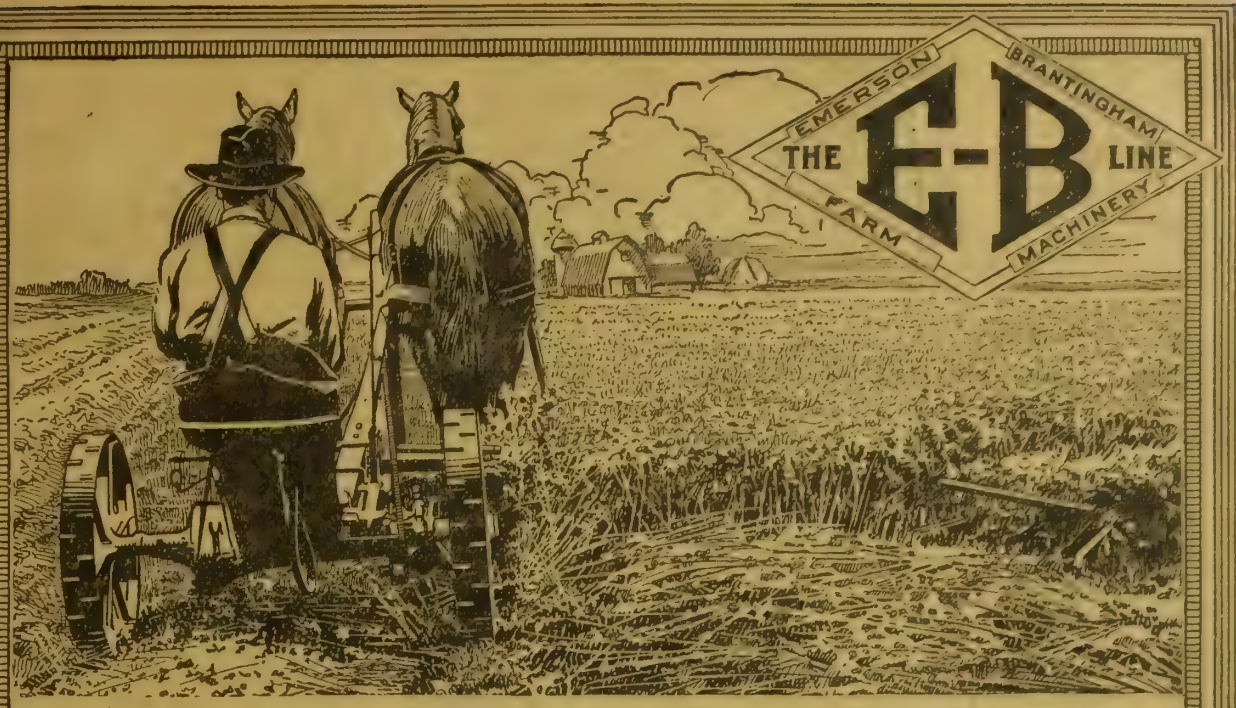
Committee on show—W. T. Sandercock, Sacramento; J. Francis O'Connor.

Committee on advertising — W. F. Sandercock.

Committee of Sale—J. Francis O'Connor; Ord L. Leachman.

A New 40 Pound Holstein

Malcomb H. Gardner, superintendent of advanced registry work for the Holstein-Friesian Association writes that the cow Nancy Lucy Hengerveld 277796 has shown a production of 620.2 pounds milk containing 32.04 pounds fat in seven consecutive days. She freshened at the age of six years, one month, 26 days. Her sire is Woodcrest Hengerveld De Kol 46514; her dam is Nancy Spofford 51336. She was bred by R. E. Haeger, Algonquin, Illinois; and she is now owned by David G. Maxwell, Waterloo, Iowa. With this production she is the 36th cow to obtain place in the list of Holstein-Friesian cows with productions exceeding 32 pounds fat in seven days. Computed on the 80 per cent basis, the equivalent butter claimed for Nancy Lucy Hengerveld amounts to 40.05 pounds.



Saves Crops and Labor By Cutting Twice as Much Grass in Same Time

Labor saving and crop saving are going to be more important than ever before in the history of the world.

The E-B (Standard) Mower is a big aid to conservation of man power and increase of crops.

With its eight foot swath it does more work in less time with no more pull on the horses than many a five foot mower. Also made in 7, 6, 5 and 4½ foot sizes, with correspondingly easy pull.

The E-B compensating lever and spring carries the weight of the cutter bar on the drive wheels. No side draft. No weight on the horses' necks. Less wear and tear and longer life to the machine.

Do your mowing with the E-B and you'll have a more successful haying season, less work, a better crop.

See your E-B dealer and have him explain all of the points of E-B Mower construction.

EMERSON - BRANTINGHAM IMPLEMENT COMPANY, INC.
Established 1852 ROCKFORD, ILL.
The Most Complete Line of Farm Machinery Manufactured



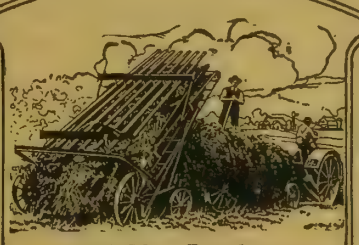
E-B Side Delivery Rake
Rakes Three Acres in the Time of Two

Three swaths instead of two, three acres while others rake two, that is the story of the E-B Side Delivery Rake.

Labor saving, time saving, when time means the difference between a good crop and a poor one. Light, fluffy windrows that allow the hay to cure gradually and thoroughly.

Teeth can be changed from seat for wet hay or dry. Lever changes from rake to tedder instantly.

See your E-B dealer for complete facts.



E-B Hay Loader
Gets All the Hay — Without Wadding, Rolling or Twisting

The E-B Hay Loader cleans the windrow as it goes along. It handles the hay gently—does not tear stems and leaves or thresh out seeds. 66-inch sweep of rakes parallel to ground assures clean raking and easy action.

Continuous push upward prevents hay being drawn off rack—hay may be allowed to accumulate at rear of rack without clogging. Put an end to the hardest work of haying by putting an E-B Hay Loader on your farm.

Get complete facts from your dealer.



E-B Swinging Stacker
Lifts the Hay High—Places It Where You Want It

Building a firm, well-shaped stack is easy with the E-B Swinging Stacker.

Simple in construction, with strong wood frame and powerful steel angle plate and cast hinge block.

Load of hay received from rake after being carried upward is easily swung into any desired location by operator and dumped.

The rapidly increasing number of E-B Stackers used by the most progressive farmers in the country is proof of their being practical for your farm.

STOP LOSING CALVES

You can **Stamp Abortion Out** OF YOUR HERD and **Keep It Out**



By the use of DR. DAVID ROBERTS' **"ANTI-ABORTION"**

Small Expense.
Easily Applied. Sure Results.
Used successfully for 30 years.

Consult DR. DAVID ROBERTS about all animal ailments. Information free. Send for FREE copy of "The Cattle Specialist" with full information on Abortion in Cows.

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212 GRAND AVE., WAUKESHA, WIS.

Great Demand for Raw Furs



You can increase your income this year more than you ever did before by trapping.

Our beautiful 36-page book

"Trapping for Profit"

tells all about trapping and the handling of furs, so that even the beginner can have wonderful success.

This Book and Fur Price List are yours for a postcard; they're absolutely free.

E. R. SKINNER & CO.
1121 FRONT STREET
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For Sale

My ranch on Putah Creek. Location three miles from Dixon 1½ miles off state highway and 8 miles from Vacaville, Solano County. Consisting of 320 acres richest sandy loam of which 100 acres are in bearing almonds where smudging never has been necessary.

One hundred sixty acres of five year old alfalfa, balance in grain.

Two good pumping plants furnishes plenty of water.

All buildings in excellent order. Will sell orchard separate or together with the alfalfa and grain land.

Easy terms. For further particulars write or see owner.

S. H. Fountain
Dixon, Calif.

When Writing to Advertisers Say Where You Saw Their Advertisement



PURE BRED REGIST'D HOLSTEINS

Tuberculin Tested State Supervision

Production Butter Fat Everything Guaranteed

King Korndyke Pontiac

(shown above)

by every right of inheritance should transmit great production and high class type. His sons and daughters have already proven his ability to transmit type of the first rank—daughters with the big, deep bodies and the ample, fine textured udders that go with large dairy production. As for his sons, one of them sold for $6500.00 at public sale, going to head W. J. Higdon's fine herd at Tulare.

Two daughters of King Korndyke Pontiac recently freshened in our herd and made very satisfactory records. King Korndyke Pontiac Charlotte, under official test made 22.92 pounds butter in seven days as a junior three year old. Natoma Superba Pontiac, freshening at two years four months, made 19.25 pounds butter in seven days. We have several other of King's daughters to freshen this winter and they look especially promising.

You need one of his young sons in your herd. Come and see what we have on hand or write for pedigrees and prices. We make liberal terms if desired.

Prince Gelsche Walker Kornkyke

(shown below)

JANE GARDEN FARM

SACRAMENTO — CALIF.

FRED W. KIESEL PROP'R. C. W. YOUNG SUP'T.



Individually Breeding

"He Has Developed Wonderfully"



Is the universal statement of all who saw our great junior herd sire

King Korndyke Pontiac 20th

when we bought him as a calf, and who again saw him out on the show circuit this year, where at California State Fair he was defeated in class only by the twice grand champion bull.

The way he is deepening and lengthening out, and the splendid vigor which he possesses, are most pleasing to us, as he is doing even a little bit better than we expected of him.

And his first calves that are now coming are certainly beauties. It is not too early to begin to figure with us on one of his young sons for your herd. Come and see them or write for description and price of one.

NOTE: We are selling some choice, highly bred cows and heifers bred to King Korndyke Pontiac 20th in the Tulare Sale, November 20-21.

Our Entire Herd Is Tuberculin Tested

Tulare Holstein Farm

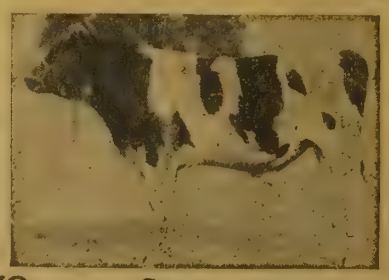
W. J. Higdon, Owner TULARE, CAL. H. L. Redd, Herdsman

Santa Anita Rancho

Anoakia Breeding Farm

REGISTERED HOLSTEINS

A herd of fine individuals, strongly bred in the lines of great production as evidenced by both short and long time records, handled in a manner to produce sound, healthy breeding stock.



Merci Lad Korndyke Burke

Son of De Kol Hengerveld Burke who has a long list of A. R. O. daughters with records up to over 35 pounds butter in seven days, and out of Winnie Korndyke Cornucopia De Kol who made 31,034.1 pounds milk in one year and was the first cow in California to make over 1200 pounds butter in one year. A few of his good sons out of excellent dams for sale.

SANTA ANITA RANCHO *Santa Anita, Cal.*

Anita M. Baldwin, Owner *W. H. Taylor Supt.*

Sophie's Agnes---World's Champion Jersey

SOPHIE'S AGNES, a six year old Jersey, owned by Ayredale Farms, Bangor, Maine, has just surpassed the coveted mark of 1000 pounds of fat in a year. She is the first Jersey cow to reach this mark, and she surpassed it by about the same fraction that her grandam, Sophie 19th of Hood Farm, fell short of it.

Besides being a remarkable record of itself, it shows that champions can be bred from champions, and that great cows are not necessarily freaks of nature. Sophie's Agnes is a line bred Sophie Tormentor, and there is greatness on both sides of her family tree. She was bred by Hood Farm, Lowell, Massachusetts, and was sold at public sale to her present owners for the record price of $10,099. She is thus the record holder in two ways, and has justified the high price that was paid for her. She was left at Hood Farm to finish her record, and she will now carry her laurels to her new home.

Figures speak louder than words in the praise of this great line of breeding; and the qualities of heavy production, persistency and prepotency, or "breeding on," furnish an example that cannot be duplicated in the records of any herd or any breed.

Sophie's Agnes has made the greatest Jersey record for one year. Her sire, Pogis 99th of Hood Farm, has the greatest bunch of high producing daughters that any bull can claim, and his dam, Sophie 19th, the grandam of Sophie's Agnes, is the champion cow of all breeds, all ages, for "long distance" production.

Beginning with Sophie's Agnes, it is possible to present here the most educational and inspirational array of figures that the pages of dairy history contain. It is largely because of the far sighted policy, its persistent pursuit and the breeding ability displayed at Hood Farm that any such figures can be compiled. Mr. C. I. Hood, whose fame as a breeder of Jerseys extends back over many years, has consistently tested his herd for production ever since 1904, when some of his cows helped to make up the "St. Louis Exposition Jersey herd," which defeated all competition in the economic production of butter fat.

Authenticated Records of Sophie's Agnes

Latest Record by Months.

Test began—	Days.	Milk lbs.	Fat Pct.	Fat lbs.
December, 1917...	31	1735.5	6.10	105.87
January, 1918....	31	1728.5	5.49	94.89
February	28	1458.0	5.58	81.36
March	31	1444.6	5.99	86.53
April	30	1368.2	6.13	83.87
May	31	1357.2	6.19	83.89
June	30	1347.6	5.77	77.75
July	31	1330.1	5.66	75.28
August	31	1245.7	6.07	75.61
September	30	1101.3	6.65	73.24
October	31	1102.5	7.24	79.82
November	30	994.7	8.24	81.95
Totals	365	16212.0		1000.07

Age, six years one month.
Average percentage, 6.17.

Previous Records

February 8, 1915, to February 7, 1916—365 days, 10,171.4 lbs. milk, 6.09 per cent fat, three years 3 months old, 619.89 lbs. fat.
August 1, 1916, to July 31, 1917—635 days, 14,149.7 lbs. milk, 5.90 per cent fat, four years nine months old, 834.88 lbs fat.
Class AA—Carried calf 166 days during 1916-1917 test.

Her Feed

J. E. Dodge, manager of Hood Farm, gives the feed record for Sophie's Agnes. This is information seldom given because of the enormous appetite that record cows have. In Agnes' case the feed can be computed and its cost deducted from the value of her product, and a substantial profit shown. During her test she consumed various grains as follows:

Wheat bran, 1095 lbs.; corn meal, 1095 lbs.; gluten feed, 1825 pounds; ground oats, 1460 lbs.; Schumacher feed, 730 lbs.; total, 6205 lbs.



Sophie's Agnes

First Jersey to produce 1000 pounds of butter fat, is a daughter Pogis 99th of Hood Farm and a granddaughter of Sophie 19th of Hood Farm.



Sophie 19th of Hood Farm

Former world's champion. Total production for seven official yearly tests 91,869 pounds of milk and 5,280 pounds butter fat. She is the dam of Pogis 99th of Hood Farm, the sire of Sophie's Agnes.

JERSEYS

The PROFIT BREED



WHY waste feed on cows that skim their own milk? Jersey's produce the highest per centage of butter fat at the lowest feed cost. The man with one Jersey is never satisfied until he has a herd. Write to Breeders for pedigrees and prices. Let us send you profitable facts about the Jersey.

THE AMERICAN JERSEY CATTLE CLUB
322 West 23rd St. New York City

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right
S. F. WILLIAMS
ORLAND, CAL.
Member Orland Jersey Cattle Club.

Venadera Herd
REGISTERED JERSEYS
Young bulls from proven dams in Register of Merit
GUY H. MILLER
MODESTO, CAL.

ALL MY RECORDS
are made under ordinary dairy conditions. The farmers cow is
The Jersey
YOUNG BULLS FOR SALE
C. D. HAYWORTH
MODESTO, CAL.

Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
W. J. HACKETT
MODESTO, CAL.

Get One of My Jersey Bulls
to increase the production of your herd. They are rich in the blood of the great cow, Gertie of Glynllyn.
Visitors Welcome Correspondence Invited
A. A. Jenkins
R. R. Box 46 Tulare, Cal.



Easy Milking

Is largely a result of a healthy udder and teats. Any condition that makes a cow restless interferes with the milk flow and makes milking hard.

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Valuing the feed at an average of $60 per ton, her grain feed cost is $186. She had besides alfalfa hay, clover hay and beets. The value of 1000 pounds butter fat at 50 cents per pound is $500. Sophie's Agnes, it can be safely said, made a substantial profit over her feed cost during the period of her test.

Her Sire, Pogis 99th

Pogis 99th of Hood Farm is not only the most highly productive sire of the Jersey breed, but of all breeds. He has just qualified for an A. J. C. C. gold medal, and at nine years of age has 35 daughters in the Register of Merit with a total of 49 yearly records. The records of his six best daughters (none over six years of age) are given here:

	Milk lbs.	Fat lbs.	Age Yrs.	Mos.
Sophie's Agnes..	16,212.0	1000.07	6	1
	14,149.7	834.88	4	9
	10,171.4	619.88	3	3
Sophie's Adora..	15,852.2	888.00	4	0
	10,271.6	587.80	2	1
Sophie's Bertha.	16,102.1	875.41	3	5
	14,954.2	829.54	3	5
	13,242.8	771.05	2	2
Sophie's Clara...	12,650.1	775.07	4	0
	7,463.01	438.06	2	1
Sophie's Charity	11,850.2	751.69	3	5
	7,242.3	463.06	2	2
Sophie's Jewel..	11,982.7	703.18	5	1
	9,019.3	511.34	3	10
	8,874.4	533.42	2	7
Averages	12,002.5	645.49	3	7

Sophie 19th, Dam of Pogis 99th

Sophie 19th of Hood Farm, dam of Pogis 99th and grandam of Sophie's Agnes, is herself a descendant of great individuals. Evidence that this great line of blood is "breeding on" can be readily obtained by a comparison of records and ages. The progression indicates that the end is not yet in sight. Sophie has done more than transmit equal qualities through her son. Many of her granddaughters have bade better records than Sophie did at the same age. Sophie's authentic records which make her "long distance" champion are:

Age, Years—	Milk, Lbs.	Fat, Lbs.
2	7,050.2	395.9
3	9,924.8	570.8
4	14,373.2	854.4
6	15,099.4	931.9
7	17,557.8	999.1
9	11,915.4	680.9
11	15,948.2	847.8

The cattle breeding and dairy world is indebted to Mr. C. I. Hood for his untiring efforts in behalf of greater efficiency in dairy production. His zealous support of the Jersey cow and his suchess in breeding her have been rewarded by many high honors, not the least of which is the development of the first 1000-pound butter fat producing Jersey. — American Jersey Cattle Club.

HIGHER FINISH WITH SILAGE

Include silage in your ration for fattening live stock, for silage cheapens the cost of gains and produces a higher finished animal, advises P. K. Heerwagen of the Colorado agricultural college. Mr. Heerwagen says:

"Silage cheapens the cost of gains, as shown by results of steer feeding experiments at the Colorado experiment station. Silage not only made a saving on hay, but steers fed silage along with grain and hay required less grain, one ton of silage replacing 128 pounds of barley and .297 tons of alfalfa.

"When silage is fed with a ration of grain and hay a higher finish on the animal results. This is due to the fact that the silage, which is a palatable, succulent feed, keeps the digestive system in the best of condition and improves the natural thrift of the animal.

"Cattle that are fed silage do not shrink in transit any more than do those receiving dry roughage alone. Silage fed cattle should be fed hay alone the last two or three days previous to shipping, as this puts them in better shape for the trip."

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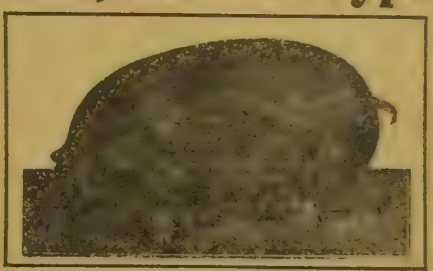
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Dairy Herd for Sale—70 head of Dairy Cows and bred Heifers, also some younger heifers and heifer calves, nearly all high grade Holsteins. Also one fine Registered Holstein Bull. Address Box 4, California Cultivator.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Registered Shorthorns (beef) calves and yearlings for sale. Both sexes, reds and roans. Choice goods breeding. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

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Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Guernseys for sale. P. J. Weisel, Santa Fe Springs, California.

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Guaranteed to do same work as new.
WE SELL FOR LESS. CALL AND SEE.
WINDMILLS: 8-ft, $29 to $35; 10-ft. $39 to $45; 12-ft. $55 to $65; 16-ft. $135; 12-ft. Aermotor and steel tower $110.
REDWOOD TANKS:
New and used, all sizes.
NEW GALV. TANKS: 1000 gal., $39; 2000, $53. Used galv. tanks 4500 gal., $90; 6000, $135; 7000, $145.
RANCH TOOLS: 10-ft. Hoosier Drill, $95; mowers, $45; Fresno, $16; beet drills, $35; broadcast seeder $18.50. Fine 2-gang disc plow $75; Avery tractor only used month $450, runs like new. Deere 14-in. riding plow $35; 4-gang Fosmir Stockton $35; brand new P. & O. tractor plow $230; 3-gang disc $85; 3-4-gang disc plows $120 to $150; spike harrows $10 to $18; cable 10c; Aspinwall potato planter, $75; Planet Jr. new potato digger $20; new Planet Jr. two horse riding cultivator, never unpacked, $95; 2-row Killifer bean cult. $25 to $45; weeder $8.75; 500 ft. 2-in. galv. pipe 27c; bone grinders, cheese cutter, wire stretchers, shears, discs for plows, sundries.
PUMPS: Double acting Ames $145; Bulldozer pump jack $49; large size $98; No. 6 horiz. Gould centrifugal $95; No. 4 two-step $150; No. 7 vert. cent. $150, many others, also rods, pipe fittings. Also buy good serviceable material. DEMMITT CO., Upstairs, 120 No. Main. Yard 816 Yale, Los Angeles.

Waterloo Boy Tractor, two speed, all bearings incased, runs in oil, very little used. Also new Knapp orchard tractor plow. H. S. Blossom, Lakeside, California.

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D. Co. California.

For Sale—Sampson Tractor 10x25, overhauled and in excellent shape. Cheap. Geo. E. Small, Terra Bella, California.

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For Exchange—80 acres, good alfalfa and cotton land, Casa Grande Valley, Arizona for small acreage in Southern California. Address L. F. Beaty, 1061 Esperanza Avenue, Long Beach, California.

Exchange—Beautiful home in Berkeley for country realty. Address 5809 Ocean View Drive, Oakland.

FARM LANDS FOR SALE

FOR SALE—HEMET VALLEY
80 acres of as fine soil as there is in California. Grow alfalfa, beets, beans, sweet potatoes, corn. Two artesian wells, also el. pumping plant, large cement reservoir, liveable six room house, large barn stanchions for 75 cows. This farm especially adapted to dairying and hog raising. In barley at present, one-quarter crop goes with ranch. Appraised at $325 per acre will sell for one-half cash, balance easy terms. This is one of the best buys on the market. Deal with owner and save commission. No agents. Address, Owner, 132 N. Hope Street, Los Angeles.

For Sale—640 acres of foothill land, $20 per acre, one-third cash, balance long time; 400 acres of this land has been farmed to grain for many years. New set of first class buildings, 4 years old. Excellent stock ranch. Nelson Realty Company, "Pioneer Dealers in Almond Land," Arbuckle, California.

For Sale—400 acres, improved ranch, 7 miles south of Tulare, ¼ mile from State Highway. Fairly good buildings, excellent pumping plant with shallow lift, 95 acres alfalfa, 100 acres grain land, balance pasture, but can all be plowed, $90 per acre. Beckwith & Anderson, Tulare, California.

For Sale—Choice Yucaipa Valley, 6 acres apple orchard, 5-room house, garage. Price $6800, terms. Ten acres apple orchard, 5-room house with garage, price $750 an acre—terms to suit. R. D. 2, Box 4, Yucaipa.

Wanted To Sell, trade or exchange 80 acres of alfalfa land in Imperial Valley, for a dairy having 60 to 80 cows, together with lease on place to keep them. Address Frank C. Dias, Holtville, California.

For Sale—300 acre mountain ranch, timber. Splendid for prunes, apples. Free water. Terms. E. A. Maas, Woodleaf, Yuba Co., California.

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Pine Ridge Rabbitry, Monterey, California. A fine line of Flemish Giants, New Zealand Reds and Long Haired Blacks. All stock guaranteed. Write for particulars.

For Sale — New Zealand rabbits. None better, with litters or without, always in stock. Los Angeles Route 9, Box 485 Vermont Heights, West Athens. Burlingame Rabbitry.

Money in Rabbits
Raise rabbits for us. Will pay $6.00 per pair. Send stamp for particulars. H. E. Gibson Co., Arcadia, California.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

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Largest Herd Swiss Toggenbergs on the Coast. 100 grade does bred to my $1000 Buck, Captain No. 256, A. M. G. R. Association, due to kid in February and March, $40.00 each, lots to suit. Crating $2.00 extra. Stamp. Rae P. Williams, Oakland, California.

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"TESTED" and "GUARANTEED" Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.
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Several New and Slightly Used Engines, ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

TRACTOR SCHOOL AT LINCOLN

A tractor training course for a period of three weeks is to be established by the state board of education in Lincoln from January 20 to February 8. This course will provide for both day and evening classes.

It will consist the first week of a study of gas engines, carburetors, ignition systems. The second week tractors, their assembling, disassembling, operation and repair, the third week a practical operation of a tractor in plowing a field. The instruction will be in the hands of experts. The course is open to anyone interested. The training center will have its headquarters at Lincoln Garage. All interested in this matter enroll at once with C. M. Fulkerson of the Lincoln union high school.

ILLUSTRATED CATALOGUE

An illustrated catalogue, the illustrations of which mean much to the careful reader, is that of the Fancher Creek Nurseries. In addition to being an illustrated catalogue, it is a practical planter's guide and has in it many suggestions for planting and care of orchards. Still more, it enables the careful planter to arrange his orchard so as to secure continuous ripening of any desired fruit, for practically every fruit listed is given a harvesting month.

The illustrations, like those of the Zante currant on Page 48, are very large, filling, in fact, the entire page. Mr. Roeding's idea is that large sized illustrations are of value in giving more correct idea of the fruits.

The ornamental feature of the book is especially valuable. Illustrations are shown, together with plans, or sample sketches, such as will be furnished to customers by the landscape adviser connected with the company.

Smith Brothers, Southern California distributors of the Cleveland Tractor, have been appointed distributors for Arizona also.



"This Is *My* Hired Man"

"I never had a man who was as willing to work as this little stick of dynamite—nor one who did his work as well either. Rain or shine, hot weather or chilly, day or night—this little fellow is always on the job.

HERCULES DYNAMITE

is what you need to help you work *your* place this season. I used to try to do all my heavy work by hand too. Dug post holes and ditches and the holes to plant my young trees in until my back was nearly broken. But no more of that for me. *I use dynamite now.*

Last year I sent to the Hercules Powder Co. for their book "Progressive Cultivation." It's easy to get—they send it to you *free* if you sign and send in the coupon that is printed at the bottom of every one of their advertisements.

Better send for this book. It tells you all about the use of dynamite on the farm and in the orchard."

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Get 'em Quick!

Rid your place of squirrels, gophers, prairie dogs, etc. Do it now when the young of these crop-destroying pests are being born. It's easy and cheap—when the ground is full of moisture to

Exterminate Squirrels and Gophers

and other rodent pests. Just gas them with Carbon Bisulphide. Used and recommended by U. S. and State officials for its efficiency and economy. Simple to handle—safe. Write today for prices and folder telling how Carbon Bisulphide works.

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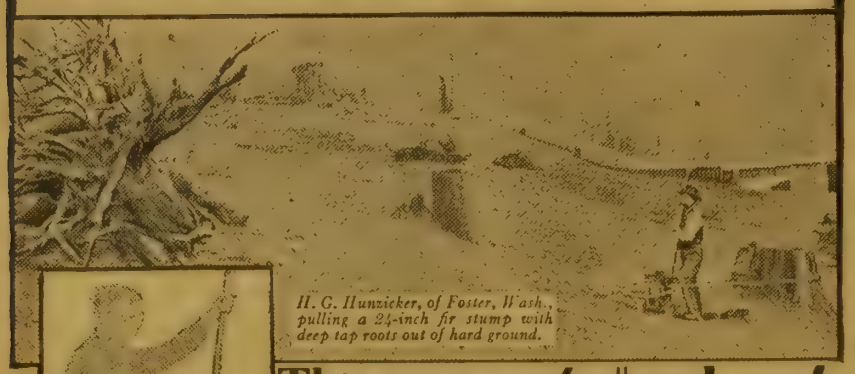
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It will pay you to investigate.
For information apply to the nearest NATIONAL FARM LOAN ASSOCIATION or write direct to

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Big Money In Stump Land



H. G. Hunzicker, of Foster, Wash., pulling a 24-inch fir stump with deep tap roots out of hard ground.



This man made $35 Land Worth $200 an acre Pulling Big stumps by hand

CLEAR your stump land cheaply—no digging, no expense for teams or powder. Your own right arm on the lever of the "K" Stump Puller can rip out any stump that can be pulled with the best inch steel cable. I guarantee it. I refer you to U. S. Government officials. I give highest banking references.

HAND POWER
K Stump Puller

Showing easy lever operation



Weight, without cable, 171 pounds

One man with a "K" can outpull 16 horses. Works by leverage—same principle as a jack. 100 lbs. pull on the lever gives a 48-ton pull on the stump. Made of best steel—guaranteed against breakage. Has two speeds—60 ft. per minute for hauling in cable or for small stumps—slow speed for heavy pulls. Works equally well on hillsides or marshes where horses cannot go.

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if you help your layers. Hens cannot lay heavily unless they *eat, digest* and *assimilate* plenty of feed. Many poultry rations, especially in these times of food conservation, are inferior and do not produce results. They are not palatable, are coarse and hard to digest.

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makes good rations better, is an absolute necessity in inferior ones. *"Guaranteed satisfactory or money back"*

Pratts Poultry Regulator flavors feed mixtures, thus inducing the layers to eat more. It strengthens and invigorates the organs of digestion and assimilation so the birds "get the good" of what they eat. It tones up the whole system insuring that perfect health which is the basis of regular production. It speeds up the layers and brings a steady flow of high-priced, profitable winter eggs.

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You can make $180 a week with fruit and vegetable apparatus. Write at once. Sahara Drier Co. New way fruit and vegetable drier. 20 Eighth Street, San Francisco, California.

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Buckwheat as a cover crop in orange groves is recommended by Farm Adviser Conner of Tulare County.

Feeding for Eggs

Written for California Cultivator By Jean A. Koethen

TEN days ago, hoping to gather up some little crumb of help for the discouraged poultryman who was finding the odds against him in his effort to feed economically, I sent out letters to 15 representative poultrymen asking for suggestions for econonomical wartime feeding. Today the word comes that there is to be no more war. Sooner than we dared hope the war is at an end and we face the new era of reconstruction and rehabilitation. Already there is a little drop in feed prices, and while there is still a long pull ahead of us before feed conditions are what they were five years ago, the dawn is plainly to be seen, and those who have held on and done their best in spite of loss may look for the reward of their persistence.

Perhaps it was because the men to whom I wrote already perceived the dawn of a better day that I received answers to only five of my letters. Be that as it may, I am grateful for their suggestions and feel sure Cultivator readers will be helped by them.

J. L. Harrison of Pasadena, well known to all of us as a thoughtful student of poultry husbandry, says the poultry ration is just as well off without wheat, except in the form of bran. "In fact, American breed hens get along better on the coarser, bulkier grains than they do on wheat, which is too compact a grain to be fed without more roughage than is apt to be available for yarded fowls. Leghorns do better on a straight wheat diet than do the heavier fowls, with fewer crop-bound cases in the flock. The most serious problem of wartime feeding is the continued shortage of a good, dependable grade of wheat bran. Commercial egg mashes, so-called, may be all right for the city lotter, but the cost looks prohibitive to the man accustomed to buying bran, corn meal, meat scrap, etc., for a few hundred fowls and mixing the mash to suit seasonal requirements. The mixed feed sold as a substitute for wheat bran varies in appearance and palatability and much of it looks like poor truck, barley hulls being decidedly in evidence with only here and there a flake of wheat bran. Even the ready made mashes are full of this junk and the hens must worry along until the war is over and a world's surplus of wheat has been established."

One of the questions asked related to the value of green feed as a substitute for grain, and another to the possible use of broken beans, potatoes carrots, etc., to eke out the more expensive grain. Of this possibility Mr. Harrison says: "The man who tries to economize in poultry feeding can safely figure out a marked saving in the size of egg basket needed to gather the output. Green feed and vegetables, while helpful in conditioning hens for egg making, will not make eggs worth mentioning without grain feed. Split beans, formerly to be had at the warehouses for a mere song, but now worth good money, make a good ration for work horse or laying hen but now the cost is too near the grain price to be alluring to the poultryman.

"Laying hens, or hens which should be laying, seem to require just about so much green feed and no more. Repeated experiments have shown that a pen of hens given all the scraps and vegetables from the kitchen laid just as well as but no better than the next pen of fowls, which had only the regular green feed, but no fruit, vegetables or scraps. Still, there is little danger of supplying too much green in this arid country and a variety of greens at all times and as much as the fowls will eat is to be strongly commended.

"For the past ten years slightly sprouted seed barley has been the base of the nightly grain ration, one-quarter to one-third bulk of cracked corn being added to correct the lack of fats in the barley. Milo carries practically 90 per cent of the food value of Indian corn though not so palatable, and not advisable unless 25 per cent lower in price than cracked corn. It is a mighty bad practice to be continually shifting from one to the other for hens are decidedly creatures of habit and resent any experiment or innovations in the line of feeds."

C. H. Kline of the Kline Poultry Ranch, Burbank, says: "We have substituted oats and barley for wheat, but have not tried potatoes, pumpkins, etc. Where it has come under my observation and vegetables were cooked they did help materially. Green feed cannot be substituted for the grain feeds, but we have plenty of oats, barley and milo for grain feed. Have never fed beans, except the soy beans, which proved to be very hard to digest, but I think if they were thoroughly cooked they might be all right. All cooked feed for chickens should be used sparingly, in my estimation."

C. R. Brown of Arlington thinks that with eggs at present price it would pay to feed anything that will produce the eggs.

"There is never any use trying to economize on chicken feed except in the selection of grains, which vary very little in feeding value, according to the market price. Regardless of price I do not believe it pays to feed much over 50 per cent of the grain ration in barley. At present I feed about 15 per cent cracked corn, 45 per cent milo in the head and 40 per cent sprouted barley (sprouts just started). I find the milo in the head a very good feed and about the cheapest of the grains just now, as it can be bought for $35 a ton or less and the waste is only about 20 per cent.

"As the market is now I think we can do better buying the ready mixed mashes than buying the material and mixing our own. At this season it pays to use the buttermilk mash. Green feed is necessary for its tonic effect but it is too bulky to produce eggs. A good patch of early barley is a great help to winter egg production.

"I have never tried beans but have often seen broken beans in the scratch feed. Damaged feed of any kind is dangerous. Stock beets and potatoes are both good. I feed the beets after cutting them up with a root cutter into small strips. The potatoes I chop fine and mix in moist mash. They can also be cooked and mixed in the mash. Radish tops are good feed and the radishes chopped fine and mixed in the moist mash make it pungent and appetizing."

B. R. Holloway of Van Nuys does not believe in attempting to substitute either vegetables or green feed for grain, but has used weevilly Black-

eye beans with good results when they were cheap. The beans were cooked and fed with wheat and Gyp corn. For scratch feed he uses Gyp corn, cracked corn and barley, part of the barley being sprouted and part hulled.

J. T. Johnson of San Gabriel has not tried potatoes or other vegetables. When a few damaged beans were left on his hands the birds refused to eat them. He feeds milo, barley and cracked corn and a mash of his own mixing. Cut alfalfa and barley furnish sufficient green feed.

I have not had the pleasure of visiting the Essenberg Ranch at West Riverside, but reports which have come to me of the work done there are interesting and suggestive. Mr. Essenberg owns ten acres and rents adjoining land which he plants to grain. He makes his 2000 hens pay by raising all his feed except the mash. Indian corn and dwarf milo are grown on his own ground, wheat and more milo on the rented ground. The hens are allowed to range on alfalfa and green barley a part of the time the range being supplemented by cut greens and mangel beets.

From the above suggestion it is evident that there is little now to be said about feeding for eggs. A good laying mash the hens must have, preferably a buttermilk mash. The scratch feed must contain a variety of grains, and should include Indian corn, if possible. Greens are absolutely necessary to high production, but cannot be made to take the place of grain. These are the essentials. If other things can be raised or bought cheaply, they may be added for variety's sake, but will never take the place of mash, grain and greens. When barley is used it is best to sprout a part of it. This is a practice followed by nearly all good feeders.

POULTRY IN FOOD PROGRAM

The importance of poultry in the food program for world relief is pointed out by the food administration, which calls attention to conditions that should make poultry raising unusually attractive during the coming year.

While poultry is not as well adapted for export as pork or beef, it can nevertheless be shipped in frozen condition. Chickens are used to a considerable extent by military hospitals and the American navy is also a large purchaser of poultry.

The principal demand, however, will be for domestic consumtpion to replace, in a measure, the meats needed for export. Outstanding merits of the poultry industry are the rapidity with which flocks may be enlarged or diminished in response to demand, and their adaptability for home consumption at any time of the year.

During the period of reconstruction these features make poultry a branch of agriculture having minimum market risks. The period between production and marketing is also relatively short; much of the labor can be performed by women if necessary, and under average farm conditions the feed required for poultry is largely a by-product not readily marketable. The American hen practices conservation by instinct.

Compared with other animals, the domestic fowl is a small unit, but wide distribution and large numbers make it a very important factor in supplying the nation's food requirements.

In anticipation of continued needs for large quantities of both poultry and eggs, the food administration points out the desirability of keeping laying hens and choice pullets, also of marketing only such surplus stock as is well developed and plump.

In brief, the poultry industry appears to be one of our national food resources which may wisely be developed both in amount and quality. The meat and eggs of our domestic fowls will help to maintain nutrition at home while the United States is supplying vast quantities of the foods required to stop famine and anarchy abroad.

HENNERY HINTS

If you want standard size chickens you must breed from standard size birds. Runts can be counted on to breed runts.

Pick out your best hens to supply hatching eggs. Better raise 20 really good birds than a hundred culls. It is surprising what a nice flock can be raised from two or three first class hens.

Mate breeding pens the first week in January and set every hen that goes broody after that time. If there are no broodies, start that small incubator going. A 50 or 60-egg machine is a handy thing to have for early hatching. If you have neither hen nor incubator it is better to buy a few chicks from the hatchery than not to have early chicks. Order now for February delivery.

Are your yards a mixture of pure bred and mongrel and breeds of assorted sizes and colors? For the love of good poultry, cut out the dunghills, and raise one breed only. There's nothing to be gained by mixing, and one breed is as good as another.

Fresh air is the best preventive of colds, but don't let it come in through a knot hole, or a crack in the wall. Open up the front of the house and fill it so full of oxygen that you won't know there is a chicken there. Oxygen is the deadly enemy of roup.

Watch for mold in scratching litter and grain after the first rains. Mold kills a good many chickens, even in sunny California.

You can't make bricks without straw or eggs without protein. Give the hens all they want of the right kind of feed and they will lay for you.

KEEP THEM LAYING

Eggs! Eggs! Eggs! More and more are needed. This is not time for layers to muster out—keep every honest hen on the job. Feeds are lower and eggs are higher than a year ago. Make the hens lay and keep them laying.

Kings County has adopted an ordinance quarantining influenza.

Alfalfa Seed

Common Variety 21c. per lb. Smooth Peruvian 30c. per lb.
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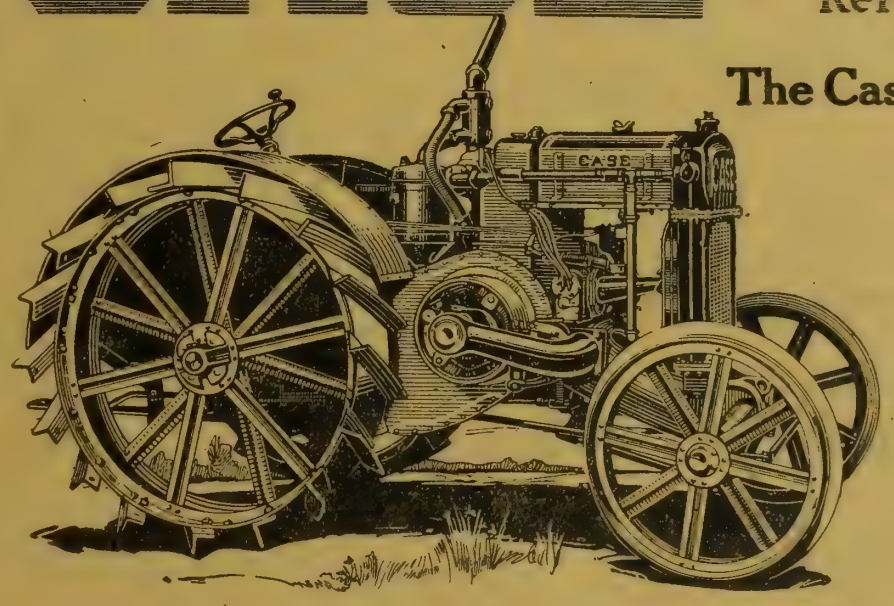
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With reasonably good footing this tractor easily delivers a pull of 3,000 pounds at the drawbar. Its reserve power makes it possible to attain 3,600 pounds pull, or over.

Under variable soil and field conditions, the operator may take advantage of the two-speed transmission, using low speed (2¼ miles per hour) for hard pulls, and high speed (3½ miles per hour) for normal draft.

Your field conditions will determine whether you should use 3 or 4 plows, or whether you should pull 3 plows on low or high gear.

A complete illustrated and descriptive catalog of all Case Kerosene Tractors will be sent gladly, upon request.

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1 Weighs about 5,600 pounds. Low and compact with short wheelbase. Turning radius 13¾ ft. Stays on all fours.

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3 Four-cylinder Case valve-in-head motor. Removable head. Motor is set crosewise on frame, affording use of all spur gears. This conserves power.

4 One-piece cast main frame, forming dustproof housing for rear axle, bull pinion shaft, transmission and the bearings for these parts. Also a base for motor. This construction brings rigidity and prevents disalignment.

5 Belt pulley mounted on the engine crank shaft. No gears used to drive it. Pulley is part of the tractor, not an extra-cost accessory.

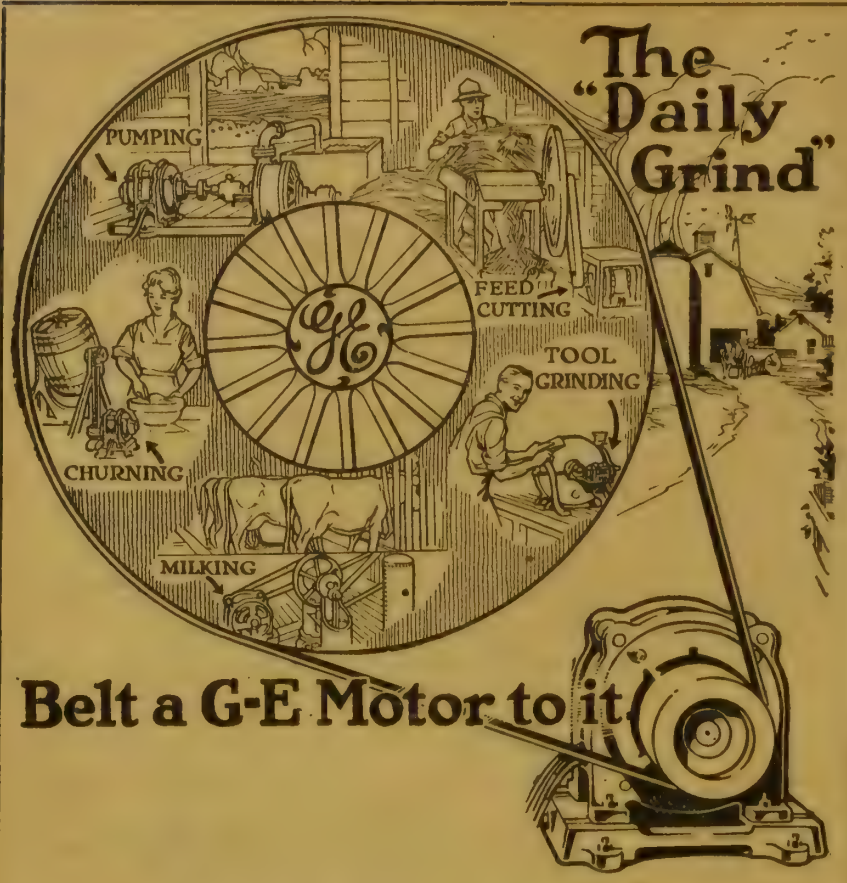
6 All traction gears are cut steel, enclosed and running in oil. No bevel gears, chain, worm or friction drive parts.

7 Case Sylphon Thermostat controls cooling system and insures complete combustion of kerosene in the motor. Prevents raw fuel from passing by pistons and diluting oil in the crank case.

8 Case air washer delivers clean air to carburetor. No grit nor dust gets into cylinders to minimize their efficiency and shorten their life.

9 All interior motor parts lubricated by a combination pump and splash system. Speed governor, fan drive and magneto are dustproof and well oiled.

10 Hyatt Roller Bearings throughout. High tension ignition. Kingston carburetor. Radiator with a cast frame. Core, copper fin and tube; non-clogging type.



Whether the job be one in the barn—milking, cutting the day's feed, pumping the water—or in the dairy—separating or churning—or wherever chores are everlastingly waiting to be done, there is a G-E Farm Motor that will do the work better and quicker. The labor released soon pays for the motor equipment.

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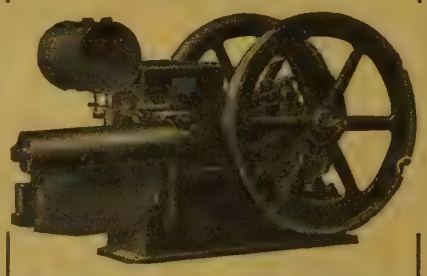
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Questions and Answers

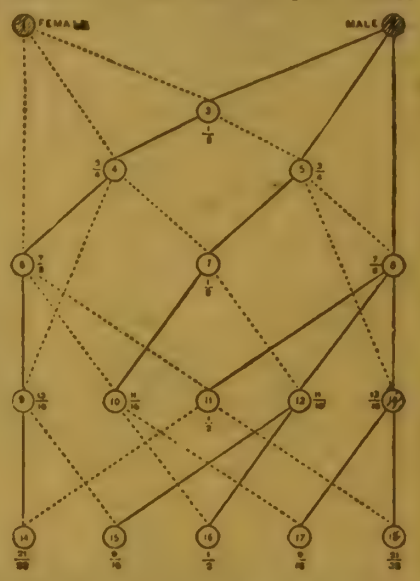
ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Line Breeding

Please give me some information regarding line breeding in poultry. I have a two year old rooster that I would like to use.—Subscriber, National City.

Line breeding is breeding within your own flock with the purpose of establishing a strain that has the characteristics of the parent stock and should be practiced only when you have thoroughly good birds to begin with. To start such a strain you should have mated your rooster when he was a year old to the best two year old hen you could find. As you did not begin then, the next best thing would be to mate him to his best daughters. If he has no best daughters, you can mate him to an unrelated hen, but another year he may be too old to breed and so you cannot



mate him to his daughter or daughters as you should to establish a strain.

According to the Felch chart, the first mating in line breeding is that of ideal cock to ideal hen. The next year the best son of this mating is mated back to his mother and the best daughters are mated to their sire. The third year the females of the female line are mated to males of the male line and males of the female line to females of the male line. The males and females of this generation are also mated back to the original parent. In this way two blood lines are established, related, but not too closely, and hereafter the males of one are mated to the females of the other and back to their parents in such a way as to intensify the characteristics of the original pair.—J. A. K.

Pickling Meat

Please give recipe for pickling meat. —Subscriber, Fresno.

Recipes for pickling and handling all kinds of meat is too long a contract for this department. For this information see the issue of the Cultivator of January 26, 1918, in which there is an article, "Farm Curing of Meats," by W. V. Cruess, on page 113. See also Household Department next week.

Rooster Lame

Can you please tell me what is the matter with my White Minorca rooster nine months old. He went lame in one leg about four months ago. Kept getting worse, got so bad he walked on the toes of the lame leg. Now he walks on the toes of both legs with very short steps, and after eating he opens his mouth like a chick with the gapes. Otherwise he seems all right. Eats well and has a nice red comb. Has a good tight house on three sides with open front. I feed milo and scratch feed with a wet mash at noon. —Subscriber, Pasadena.

Your rooster has rheumatism, which nearly always comes from dampness in houses or yards. Your house may be all right, but your yard is too shady for cold weather. Put him in a warm, sunny place, if he is not in such a place already, and give him all the greens he will eat, making his mash more bulky by adding bran. A half teaspoon of Epsom salts in moist mash, followed the next day by baking soda in his drinking water (one teaspoon of soda to a quart of water) sometimes relieves mild cases. If the attack does not respond to treatment in a couple of weeks you might as well kill the bird. He will never be fit for breeding after four months of rheumatism.—J. A. K.

Grafting Walnuts

When is the best time to graft walnuts over? I have some that are 11 years old that I want to work over this spring. Should I cut the grafts before I use them and how long before?—Subscriber, Fillmore.

Walnuts can be grafted at any time after this until the bark begins to slip which will likely be the first week in March. The grafts may be cut at any time after the leaves fall but if cut early should be kept in damp sawdust or damp sand and in a cool place, being careful that they do not get wet enough to damage the bark, in which case they will not grow. The grafts grow equally well, if carefully kept, whether they have been cut a few weeks or whether they are taken from the tree and inserted at once.—J. B. N.

Rabbits' Sore Feet and Ears

What cure is there for rabbits with sore feet and ears?—Subscriber, El Cajon.

Sore hocks and ear canker are often found today. Would advise that the animal with sore hocks be put in hutch with ground floor. Put some straw in one end on which has been sprinkled a weak solution of any good disinfectant. Sores may be washed with hydrogen peroxide daily. Feed a variety of green food and barks of trees along with the alfalfa hay and rolled barley. Use these sparingly as tonics and not as regular feeds, except in the case of carrots, which may be given as part of one feed daily. One tablespoon of sulphur in a vaseline jar of olive oil makes good medicine for ear canker. Use brush or dropper, putting in the affected ear twice a week till cured. One or two times is usually sufficient. Clean hutches thoroughly where these animals have been before using for other animals as diseases are contagious.—W. D. W.

Time to Wean Rabbits

Kindly tell me through the Cultivator at what age I should separate my young rabbits from their mother. At what age does she wean them and when should she be bred again?—Subscriber, Nipomo.

The time of weaning depends upon conditions of young and mother; it is generally six to eight weeks of age. Separate young a few at a time if litter is large, as to take them all away at once might affect doe's breasts. Separate sexes at three to three and a half months of age. Does can be kept together till bred, but bucks should be separated at five months of age. Generally a doe can be bred when young are six weeks old, but if run down from nursing the litter would suggest giving her two weeks or more of rest and special feeding. Ofttimes a doe does not have sufficient nurse. This can be ascertained by noting condition of breasts and milk canals and condition of young. Would advise obtaining a good rabbit book and a fuller study therefrom of the subjects of breeding and feeding.—W. D. W.

TRAVELING TRACTOR SCHOOL IN SACRAMENTO VALLEY

Gas Engine Instruction

Elk Grove, January 6-18; Lincoln, January 20-February 1; Gridley, February 3-15; Chico, February 17-March 1; Corning, March 3-15; Willows, March 17-29; Williams, March 31-April 12.

Field Instruction

Elk Grove, January 13-February 8; Lincoln, January 27-February 8; Gridley, February 10-22; Chico, February 24-March 8; Corning, March 10-15; Willows, March 24-April 5; Williams, April 9-19.

Household Department

SILENCE

In the mystery of the morning,
Of the hour before the dawn,
Comes a peace upon my spirit,
And within my soul are born
Thoughts of love and gentle kindness,
That throughout the day abide,
Till the evening sun is setting
In a glorious crimson tide.

For 'tis then the ever-present
And the all-surrounding good
Seems to bathe my soul in gladness
And to enter every mood;
And there comes the strength of angels
Throbbing through this heart of mine,
And I know the power within me
Is of God, and is divine.
—(Author unknown.)

LEARNING TO KNIT

Written for California Cultivator
By L. W. McNeil

MARGARET EARL was learning to knit. It was slow work, for her chubby, eight year old fingers were clumsy, and stitches would come off the needle, and there was disaster and much ripping out of the wash cloth she was doing. Indeed, it had been ripped so often that the white cotton was becoming soiled and dark, but she kept at it bravely, for was it not for the soldiers she was doing this? Her own grandfather had fought in the Civil War, and other grandfathers farther back in the line in other wars, so was it not her right to help in this last great war which was taking the boys from all over the country and sending them away over the ocean to fight for the little girls and babies there? So the patient fingers toiled and the tired eyes did not falter as she tried to manage the needles and to keep the stitches in place; but a tired sigh would come sometimes.

Only grandmother, busily knitting on a gray sock by the sunny window, heard the sighs and saw the weariness in the little face.

"Is it any easier now, Dear " she asked as Margaret paused in her work to look at the result.

"Yes'm. I think it is, some; but it is not very smooth, and holes just come somehow. Yours is so smooth and nice, Grandmother. How can you make it so? You do not seem to look at it much but it comes just as smooth. How do you do it?"

Grandmother smiled at the little girl softly.

"It is the doing of it over and over, child, that makes it easy," she answered. "I began when I was as small as you to do a garter stitch. By patiently trying I learned to make it smooth. I have knit many pairs of socks and mittens since I was young as you. When I was your age I knitted my own stockings. Mother helped with the shaping of them, but I did most of the knitting. When I was ten years old I knit socks to sell to buy calico for myself a dress. It was pink, I remember, and I thought very pretty. When my mother brought it home I was glad. I forgot the long hours I had knit when the flowers and grass and summer breezes were calling me out to play.

"Then mother cut out my new dress and said I was old enough to learn to sew, so I made my new pink dress all myself except the button holes."

"Why, grandmother! A little girl ten years old make a dress all by herself!" exclaimed Margaret.

"Yes, Margaret," answered her grandmother. "Girls were taught to work very young then. All the family had to help. We were poor, in a new country, and there was much to do, clearing away the forest and getting the land ready for crops, and all the clothes for everybody were made at home. My mother spun and wove and made my father's clothes as well as hers and mine and Brother Sam's. There were sheets and towels and all the other linen to be spun and woven. A girl ten years old must work too."

Margaret looked at her grandmother, at the soft white hair, at her face so full of wrinkles, but so pleasant and good to see. Grandmother was very old. What a long time since she was ten!

"It took you a long time to make it, didn't it?" she asked. "How could you ever do it?"

"Just a stitch at a time," answered grandmother. In a week it was done, every stitch by hand, for there were no sewing machines then to make it go fast."

Margaret sighed and took up her forgotten knitting.

"And I've been a whole week knitting and ripping this out. The cotton is nearly worn out. You made your dress a stitch at a time, grandmother, and that is the way I must learn to do this knitting, isn't it?"

"That is the only way to learn to do anything," said grandmother; "a stitch at a time; a little today and a little tomorrow, and by and by you know how and can do a thing easily. Keep on trying. Bring your knitting here and let me see it."

Margaret came and laid it in her lap.

"You must be careful of every stitch; take them off the needle just alike. If you take one off by slipping the needle through the front thread and the next under the back thread that will make a hole or a rough place. Do them all just alike by putting the needle under the front thread and hold the cotton just tight enough; neither too loose nor too tight, and you can soon do it well."

Margaret sighed. "Did you always like to do things right, grandmother?" she asked.

"Like all little girls I got tired and wanted to play, but I had the work to do and soon found that the best way was to do it well."

"Did you ever do anything but work?" asked Margaret.

"Why, yes, Dear, I used to go berrying up on old Pumpkin' Vine in the summer, sliding on the ice in the winter, and into the sugarbush with my father in sugar time. I loved that. I loved to sit before the big fire and hear the sap boil and watch the color of the coals in the fire. Sometimes I dug among the snow and found the Christmas ferns and played it was summer time. I gathered the mosses off the trunks of the trees and tried to see how many different kinds I could get. And then there were fairy palaces and caves in the snow which were beautiful to see. The birds came around in the trees, the woodpeckers and snow birds and nuthatches, and sometimes the crows would caw and make the woods ring with their noise. Then we would ride home on the sled with old Bet drawing us, and have hot biscuits or johnnycake and maple syrup for supper."

"How perfectly delicious that must have been," said Margaret, "as much maple syrup as you could eat? My!" and she drew a long breath.

"Yes, Dear, there were pleasant times along with the work then," and Grandmother sighed as she thought back through the years since she was a little girl.

Margaret knit in silence for a time, then she said: "I believe this is going nicer since I sit by you and listen to you tell about when you were a little girl like me. See, Grandmother?" and she held out her work.

"That is much better; you are really learning the way to do it. It will not be so hard any more."

There were several rows across the cloth, all straight, with no holes or dropped stitches.

"I am going to sit by you all the time after this when I knit," she said. "Will you tell me about what you did long ago every time we knit?"

"I will tell you all I can to help you, Child," every day," Grandmother said.

"You said something about Pumpkin Vine hill. What is the story about that?" said Margaret.

"I will tell you that another time. It is nearly dinner time and you had better go and help mother. Tell her that you can do better with your knitting this morning."

Margaret laughed happily as she laid away her knitting and went into the kitchen.

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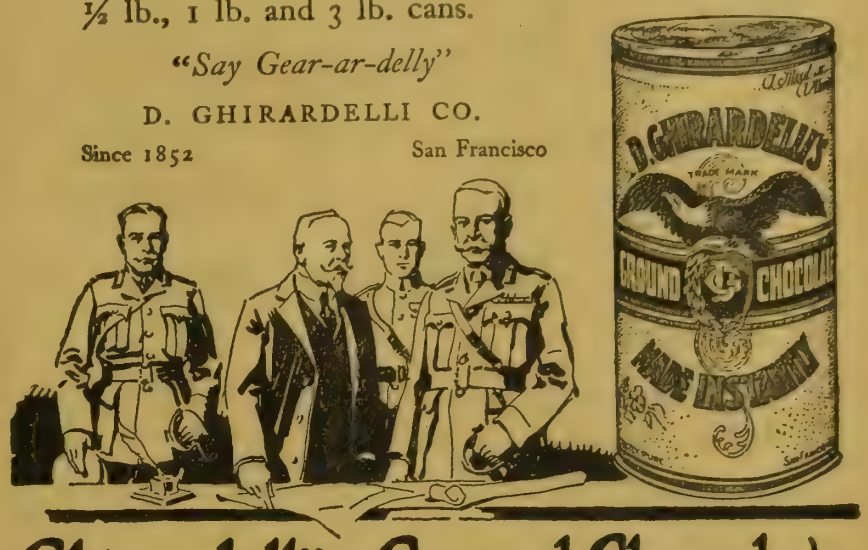
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FRENCH PRUNES on all roots grown from carefully selected bearing trees unsurpassed for size and quantity of fruit.

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Boxwood (buxus sempervirens).

English Holly (ilex aquifolium)

Oregon Grape (mahonia aquifolium)

Persian Mulberries
Trees which will bear young and produce large, luscious fruit.

Niles Giant Rhubarb
Easily excels any other variety in the great size of the stalks which are exceedingly crisp and juicy.

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Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

A NEW SWEATER FROM AN OLD ONE

Written for California Cultivator
By Ruth Bullock

As the fall and colder days came, I wanted a sweater, but having a good coat did not feel justified in purchasing a nonessential garment.

Found an old sweater, relic of college days, not badly faded and made from good wool, but now rather short, too tight and finished with an old fashioned collar.

With some time and more patience, and one and a half skeins of new yarn I have an attractive blue sweater with white collar, cuffs and belt and crocheted buttons with loops for fastenings.

How? An inch hem at the bottom was let down and the stitches carefully picked up. The old collar raveled supplied enough yarn to add one and one-half inches to the original length.

The front hems ripped out made two inches extra in the bust measure (fortunately they were loops instead of buttonholes).

The cuffs were raveled out half their length and bound off.

The neck of the sweater was bound off and the shape of the collar, obtained from a paper pattern, was knit the desired shape.

The belt is three inches wide and fastened on the left side with three crocheted buttons and loops; three companion buttons are fastened on the right side—not directly under the arm but a little to the front so the buttons will not be so quickly soiled by constant rubbing of the arms.

As both the collar and cuffs are bound off it will be an easy matter to launder them and replace on the sweater.

Around the edges of the collar, cuffs and belt is a crocheted slip stitch which gives a firm edge. Tapes across the back, on the shoulder and under arm seams, aid greatly in retaining the normal shape of the sweater by not allowing it to stretch.

The white yarn cost $2.10 and sweaters I recently saw in the Los Angeles stores, priced at $15, were not nearly so attractive.

HOW AN OLD COAT WAS MODERNIZED

Written for California Cultivator
By Mrs. S. W. Bullock

The cloth was of good material, double faced, blue on the right side, blue and brown plaid on the wrong side.

Originally, two small blue pockets with plaid flaps were on the outside, but no belt was on the coat. The front facings were four inches wide, forming plaid lapels.

Removing the lefthand side of facing to the plaid lapel, gave a strip 30 inches long; while that from the right-hand or buttonhole side was only a 20 inch piece.

From these strips was obtained a 37 inch belt. This left a piece with which to enlarge both pockets; the blue pockets turned plaid side out, the piecing, owing to the plaids, did not show. The former plaid pocket flaps, turned blue side out, not being large enough for the wider pockets the space was filled by two buttons which were removed from the cuffs.

The linen taped raw edges on the front of the coat were underfaced by wide dress braid neatly hemmed down.

The larger sized plaid pockets and the belt put a stylish finish to an old coat, and gave me the wherewithal for two installments of a Liberty Bond.

TRULY IRISH

A North of Ireland man wanted to send a telegram to a friend in a remote part of the island. The clerk told him the charge would be one shilling and sixpence.

"How do you make that out?"

"Sixpence for the wire and a shilling for delivery outside the radius."

"That be hanged!" retorted the Irishman. "You send the telegram and I'll write and ask him to call for it."

The Cultivator Patterns



8817—Ladies' Waist. Cut in sizes 34, 36, 38, 40 and 42 inches bust measure. The waist is to be slipped on over the head; the sleeves may be made full length or three-quarter.

8403—Ladies' Waist. Cut in sizes 36, 38, 40 and 42 inches bust measure. The collar is hemstitched and the fichu is gathered to it at the shoulders.

8596—Children's One Piece Dress. Cut in sizes 4, 6, 8, 10 and 12 years. The dress hangs straight from the yoke, but a belt of contrasting material holds the fulness in place.

8842—Ladies' Blouse. Cut in sizes 36, 38, 40 and 42 inches bust measure. The upper section extends below the waistline, and the line of joining is curved high at front and back.

8582—Ladies' Bungalow Apron. Cut in sizes 36, 40 and 44 inches bust measure. The apron buttons down the center back, and a narrow belt holds in the fulness at the waistline.

8827—Boys' Overalls. Cut in sizes 2, 4, 6, 8, 10, 12, 14 and 16 years. The overalls have a seam at center front and the opening is at the sides.

8409—Ladies' Two Piece Skirt. Cut in sizes 24, 26, 28, 30 and 32 inches waist measure. The skirt has two gores and they are gathered to the slightly raised waistline.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

HOW TO ORDER PATTERNS

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

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The Profits of Pear-Growing

are so great that this is possibly the most attractive branch of orcharding.

The one great drawback is BLIGHT—a danger impossible to over-exaggerate, yet always discounted by the grower until he learns wisdom by sad experience.

Not yet generally destructive in Southern California, IT IS AS SURE TO COME as death and taxes, since the highest authorities agree that no pear district in California is PERMANENTLY blight-free.

Progressive planters will safeguard their orchards so far as is humanly possible by planting ONLY

Blight-Resistant

trees. These do not eliminate all possibility of damage, but bring the danger down to the irreducible minimum.

Pears budded on Jap roots are in great measure immune to blight in the underground parts of the tree. A greater degree of protection can be had by use of the new, practically-blight-proof, Chinese seedling,

Usuriensis

planting this in orchard rows, heading it to suit your preference, and budding in the branches to Bartlett or other desired variety. Every part below the bud will be positively blight-proof.

We have magnificent trees on the Jap root—trees with superb roots, rarely equalled and never excelled in quality—and can also supply genuine Usuriensis seedlings, having the only stock in America this year outside the experiment stations.

Beside Bartlett on Jap, we have on the same root some splendid Anjou, Comice, and Winter Nellis—varieties much more resistant to blight than Bartlett. These sell for top prices in the Eastern fruit auctions, and by cross pollination make Bartletts much more fruitful—in our orchard as much as 700 per cent increase.

Apple Trees

of the profit-making varieties—Delicious, King David, Rome Beauty, Jonathan, Spitzenberg—trees with the best and biggest root system that ever left a nursery—the kind every grower pronounces perfect.

Use our trees for your orchard foundation and you will have success if you do your part, because

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When Writing Advertisers, Mention The Cultivator.

PERSIMMONS IN COOKING

Is there anything better than a persimmon, ripe, rich and luscious? Still, if you ever bit a green one—!

To be on the safe side in cooking it is well to add a half teaspoon of baking soda to each cup of persimmon pulp whenever the fruit is subjected to heat. This does away with all risk of astringency. If the fruit is perfectly ripe this precaution is not necessary, but as there is always the possibility of some green fruit finding its way into the pulp it is usually advisable.

The following recipes will be found simple and agreeable:

Persimon Bread

One cup of persimmon pulp, one cup of water, one-half teaspoon of soda, yeast, shortening, flour to make a stiff dough. Set to rise, mold, and bake like other bread.

Persimmon Crumpets

Take one pint of the sponge of persimmon bread which has been set over night, add one egg and enough milk to make a thin batter, set to rise for one hour, then bake on a hot griddle like griddlecakes. Serve hot with butter or syrup.

Persimmon Griddlecakes

One cup of persimmon pulp, one egg, One cup of flour, one teaspoon of baking powder, one-half teaspoon of soda, milk to make a thin batter. Bake and serve as above.

Persimmon Cake

One cup of persimmon pulp, one-half cup of sugar, one egg, one cup of flour, one teaspoon of baking powder, one-half teaspoon of soda.

Butter of size of a walnut. Bake 40 minutes in a moderate oven. For a soft pudding leave out the eggs. For a custard pudding leave out the flour and the baking powder.

Preserved Whole Persimmons

Put a thin layer of sugar in the bottom of a jar; then a layer of whole ripe persimmons, then a layer of sugar, and so on until the jar is full. The sugar will soon dissolve and form a syrup. Press the upper fruits down under the syrup or add more syrup to the jars. Seal and store until used. The syrup may be drained off and the fruits served like dates, which they will resemble very much in both appearance and flavor.

Persimmon Ice Cream

Two cups of persimmon pulp, one cup of thick, sweet cream. Beat together thoroughly and freeze like ordinary ice cream. The fruit must be thoroughly ripe and nonastringent.

Persimmon Fudge

Two cups of persimmon pulp, two cups of sugar. Cook over a slow fire, stirring occasionally, until graining begins. Add one teaspoon of baking soda and stir over the fire until quite stiff. Spread on buttered platter or paraffin paper.

AN UNFORTUNATE TEXT

The widower had just taken his fourth wife and was showing her around the village. Among the places visited was the churchyard, and the bride paused before a very elaborate tombstone that had been erected by the bridegroom. Being a little nearsighted, she asked him to read the inscriptions, and in reverent tones he read:

"Here lies Susan, beloved wife of John Smith, and Jane, beloved wife of John Smith, and Mary, beloved wife of John Smith."

He paused abruptly and the bride leaning forward to see the bottom line, read to her horror:

"Be Ye Also Ready."—From Norman E. Mack's National Monthly.

WHEN THE LID IS OFF

"I tell you, Bill, when you take a wife, you just go it blind, as the sayin' is."

"Sure thing! As the wise guy remarked, you never know whether you married a peach or a lemon until the first family jar is opened."

EXTREMES MEETING

"My wife just hands me her bills."

"What do you do about it?"

"Oh, I just foot them."

For a Fruitful Crop—

See that your dormant spraying is done properly. Remember—it takes a long time to grow your crop. A little care now will mean better fruit and bigger profits. Right now you need a general clean-up spray that will not only kill the insects but will tone up your trees. In other words, you need—

Crude Oil Emulsion

No matter what Universal Spray you order you can be sure that it is dependable—uniform in quality—and made under the direction of trained laboratory and field men.

Here are some of the other sprays manufactured or distributed by us: Dormant Soluble Oil; Lime Sulphur Solution; Bordeaux Mixture; Arsenate of Lead; "Triumph" for Citrus Trees; Miscible Oil No. 1 for Olives; Miscible Oil No. 2 for Thrips.

Don't hesitate to write our Service Department—in charge of Paul R. Jones, Entomologist—for expert advice. This service costs you nothing.

Insecticide Department

Balfour, Guthrie & Co.

350 California Street, San Francisco — 816 Higgins Building, Los Angeles

USE UNIVERSAL BRAND ORCHARD SPRAY **NOW**



"A dip in time saved mine"

Harness rots because the natural oils of the leather fiber dry out, and dust, sweat and moisture get in and cause rot. Eureka Harness Oil takes the place of the natural oils and keeps rot out—keeps harness strong, flexible and jet black. No animal oils in "Eureka"; rats, mice and other rodents dislike it and won't gnaw harness dressed with

EUREKA HARNESS OIL

MADE BY STANDARD OIL COMPANY (CALIFORNIA)

MOUNT LOWE

6100 Feet in Skyland

MOST SCENIC MOUNTAIN Trolley Trip in the WORLD

Fare $2.00

PACIFIC ELECTRIC — COMFORT-SPEED-SAFETY

You can't afford to miss our Southland's Greatest Scenic Novelty

Five Trains Daily

8, 9, 10 A.M—1:30 and 4 P.M.

Pacific Electric Railway

SECURE FOLDERS

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Write a Letter or Postal Card to

Fancher Creek Nurseries

207 Holland Building **Fresno, California**

and we will send you a copy of our new 1919 ninety-six page profusely illustrated Catalogue and Practical Planters' Guide combined.

This book tells a lot of interesting, valuable and helpful things about old and new varieties of deciduous and citrus trees, shrubs, evergreens, palms, vines and roses.



A Real Hand Book

of information for the Horticulturist. Totally different from the usual nursery catalogue—chapters on Planting, Pruning, Irrigation and other important details.

It is sent free on request.

MORSE'S SEEDS FOR FARM AND RANCH

Plant Morse's

Alfalfa, Clover, Beans, Peas, Grass, Tomatoes, Onions, Corn, Mangold, and all farm, field and vegetable seeds.

Strong Germination and Vitality

Sold by all Leading Dealers or direct from

C. C. MORSE & CO.

SEEDSMEN

729 Front Street San Francisco

When writing advertisers, mention The Cultivator.

Los Angeles Market

Los Angeles, Jan. 8, 1919.

BUTTER

Produce Exc. Quotations.
Prices to trade 1½ to 2½c higher.
Cal. Extra Creamery 64

Jan.	1	2	3	4	6	7
'18 ...	..	64	64	..	64	64

CHEESE

Brokers' prices:
California fresh, lb. 31

EGGS

Exchange quotations. Price to retailers 2 to 3 cents higher.
Fresh extras 66
Case Count 64
Pullets 64

Jan.	1	2	3	4	6	7
'18 ...	..	65	67	..	67	66

POULTRY

Hens; heavy, 30@32; light, 30; colored, 32; broilers, 40@43; fryers, 35; roasters, 30; old cocks, 20.
Ducks, 30; ducklings, 32; geese, 28; turkeys, 34@35; squabs, 40-43; Belgian hares, 20.

LIVESTOCK

Due to the scarcity of range steers and cows the market for live cattle is gaining strength almost daily.
The demand for all grades of steers has improved and will further improve owing to the scarcity of good cows. Local killers are compelled to slaughter more steers to keep their plants running than they have for several months previous. In former weeks the kill of cows was larger than that of steers but the reverse is now the case.
The hog market is on a firm basis and hogs properly finished are bringing record prices for killing grades. There is every indication that the market will continue good for some time to come.
The future of the sheep and lamb market is not as rosy as are cattle and hog. Wool prices are expected to start on a toboggan downward at a rapid clip since government orders for wool have been discontinued and clothing manufacturers are clamoring for cheaper wool to start their plants and place returning soldiers in employment. Local killers seem to be able to secure their requirements at prices about steady with last week. Wethers are very scarce and command firm prices. Ewes are plentiful but demand for them is very light.
Report of live stock conditions on the Los Angeles market as compiled by the United States Department of Agriculture, Bureau of Markets, through the local office. The following are live stock prices on the Los Angeles market f. o. b. packers' yards. Prices at country points are $1.00 to $1.50 per cwt. less than these quoted:
Good Steers .....13.00@14.00
Common .....11.50@12.00
Good Cows .....10.50@11.00
Medium Cows .....8.00@9.00
Common and canners .....6.00@7.00
Prices quoted below are for carload shipments f. o. b. slaughterers' pens. Driven-in, or truck hogs sell for ½ cent less.
Hogs—
No. 1 hogs, 150-225 lbs. .....17.00@18.00
No. 2 hogs, 250-350 lbs. .....16.00@16.50
Sheep—
Lambs, 65-80 lbs. .....15.50@16.00
Wethers .....11.00@12.00
Ewes .....8.50@10.50

POTATOES

Wholesale selling prices:
Burbanks .....2.50@2.75
Sweet, lug .....90@1.00
Idaho Russets .....2.40@2.50
Seed stock, Oregon, White Rose, sacked per 100 pounds 2.80@3.00; Red Rose, 2.70; Homegrowns, White Rose, 3.00.

ONIONS

Wholesale selling price, cwt.
Australian Brown, lug .....1.50@1.75
White Globe, cwt. 7.00
Lompoc .....2.00@2.25

VEGETABLES

Wholesale prices:
Beans—String 15
Limas, lb. .....9@10
Cabbage, cr. .....1.00@1.25
Carrots, doz. .....40@45
Cauliflower, cabbage, cr. .....3.25@3.50
Celery, cr. .....2.50@4.50
Lettuce, cabbage, cr. .....1.75@2.00
Parsley, doz. 15
Peas, Tel. .....14@16
Peppers, Chili, lb., 17@20; Bell, lb. .15@20
Pumpkins, lb., best 1
Radishes .....15@20
Rhubarb, bx .....1.75@2.00
Strawberry .....1.10@1.25
Spinach, doz. .....30@35
Squash—Hubbard, best, lb. .....1½@2
Turnips, doz. .....40@45

FRUITS

Apples—Bellfleurs, bx. .....1.75@2.25
Yucaipa Delicious .....2.75@3.75
Pearmains .....1.60@1.75
Newtons .....1.75@2.00
Pears: Winter Nellis, lb. .....5@6

CITRUS

Lemons: Fancy packed 4.50@5.00 bx.; loose, 2.75@3.00; poorer, 2.00@2.50.
Oranges: Navels, medium and large size, best packs, 5.00@5.25; poorer, 3.00@3.50; loose, 2.50@3.25 bx. Tangerines, 6½@7½ lb.
Grapefruit: Tulare County Seedless, medium, large fy., 2.75-3.00; Arizona Seedless, 3.00@3.50 packed bx.

HONEY

Supplies very light. Exchange now controls large share of honey remaining in producers hands. Demand slow, little change in prices. Cash to producer on farm extracted light amber alfalfa 19@20 per pound. Light amber sage 20½@21½c per pound. Comb light, No. 1, $5.00@6.00 case; beeswax, 36@38c per pound.

BEANS

Very few sales, hardly enough movement to establish a market. Practically no demand. None being sold. Warehouse cash to growers: Limas sacked per 100 pounds, recleaned basis, $9.75@10.00. Small Whites best $8.25; Large Whites best $8.00; some rain damaged sold by sample only. Henderson bush best $9.25@9.50; Pinks best, $6.75@7.00. Some rain damaged, as low as $6.25; Blackeyes, $4.50@5.00; Teparys, $4.25; old crop, $4.00.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:
Tame Oat .....21.00@26.00
Barley .....19.00@24.00
Alfalfa .....17.00@21.00
The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:
Choice dairy hay .....25.00@26.00
Choice alfalfa .....24.00@25.00
No. 1 dairy .....23.00@24.00
Standard dairy .....22.00@23.00
Standard alfalfa .....20.00@21.0

GRAIN AND FEED STUFFS

On L. A. Grain Exchange on Tuesday the following prices were asked: Wheat, per ton, 45.00. Other quotations per cwt.: Rye, 2.60; Corn, yellow, 3.40; Corn, white, 3.48; Milo, 2.70@2.72½; No. Bran, ton 41.00; No. Shorts, ton, 43.00; No. Middlings, ton, 50.00; Alfalfa Molasses, ton, 35.00; Alfalfa Meal, ton, 34.00; Rice Bran, ton, 32.00; Barley, 2.37½@2.45.

San Francisco Markets

San Francisco, Jan. 7, 1919.

BUTTER

There was an upward trend in the butter market the past week and active trading was reported on all markets.
The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:
Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½c to 2½c; 1-pound squares, in cartons, 2c to 3c.
Dairy Exchange quotations, lb.:
Extras 65½

Dec.	31	Jan. 1	2	3	4	6
'18 ...	64½	..	64½	65	64½	65½
'17 ...	49	..	53½	53	50½	..

Rcts. wk. ending Jan. 6, 297,300 lbs.

CHEESE

Dairy Exchange quotations:
Cal. Flats 33½
Ore. Triplets 49
Jack, full cream 30

EGGS

Dairy Exchange quotations:
Extras 75
Extra Pullets 75

Dec.	31	Jan. 1	2	3	4	6
'18 ...	74½	..	75	76	77½	75
'17 ...	53	..	59	59	59½	..

Rcts. wk. ending Jan. 6, 8253 cases.

POULTRY

We quote to producers, lb.:
Hens, 40@42; broilers, 45@50; fryers, 40@45; old roosters, 21@25; young roosters, 37@39.
Ducks, 30-32; geese, 30@32.
Belgian hares, live, 20@22.
Jack Rabbits, doz. 3.25@3.75.
Squabs, doz., 3.00@4.00.
Turkeys, dr., 40@43; live, 35@37.

LIVESTOCK

Prices gross weight:
Cattle: The following prices are for grass fed stock. Hay fed brings ½ to ¾c more.
Steers, lb., 11½@13¼; thin, 9@10; cows and heifers, 8@9½; thin, 6@6½; calves, 10½@11½.
Sheep — Lb. gross weight: Wethers, 11½@12; ewes, 8½@9¼; lambs, 14; yearlings, 12½.
Hogs—Hard grain fed, weighing 100 to 150 lbs., 16¼; 150 to 250 lbs., 16¾; 250 to 300 lbs., 16¼; 300 to 400, 16.

POTATOES

Wholesale selling prices at wharf, cwt.:
Choice deltas, 1.50@2.25; fy., 1.75@2.00; Red Shima, 2.30; Oregon Burbanks, 1.85@2.25; Gems, 1.85@2.35; British Queens, 1.75@1.90; sweet, lb., 2½@4.

ONIONS

Wholesale selling price on wharf, cwt.:
Australian, Brown and Yellow..1.00@1.50

VEGETABLES

Wholesale selling price:
Artichokes, doz. .....35@1.50
Beans, String, lb. .....20@30
Limas .....12½@15
Beets .....1.25@1.50
Brussels Sprouts, lb. .....5@7
Cabbage, lb .....¾
Carrots, sk. .....1.00@1.25
Cauliflower, doz. .....75@1.00
Celery, doz. .....30@50
Cucumbers, hothouse, bx. of 30..2.25@2.50
L. A., lug .....2.50@3.00
Egg Plant, lb., Southern.....10@15
Lettuce, doz. .....20@40
Southern Iced, cr. .....1.75@2.25
Egg Plant, lb. .....5@10
Peppers, Chili, lb. .....5@6
Mushroom, wild .....20@60
Peas .....17½@25
Pumpkins, sk. .....1.00@1.25
Rhubarb, bx. .....1.25@2.00
Squash—Cream .....75@1.15
Hubbard, sk. .....1.25@1.50
Marrowfat .....1.00@1.25
Tomatoes, cr., Southern.....1.75@2.50
Turnips, sk. .....75@1.25

FRESH FRUITS

Apples—Newton Pippins .....1.00@1.75
Pearmain .....1.25@1.50
Spitzenburg .....2.00@3.00
Bellefluer .....1.50@1.75
Avocados, doz. .....6.00@7.00
Bananas .....7@9
Cranberries, bbl. .....17.00@20.00
Grapes, lug .....1.50@2.25
Olives, lb. .....10@12½
Pears—Beurre Hardy 1.50
Kieffer, ½ bx. .....1.50@1.75

Winter Nellis .....2.25@2.75
Bartlett .....2.50@3.00
Persimmons, bx. .....1.00@1.50
Quinces, bx. .....90@1.15

CITRUS

Box: Lemons, 2.50@4.50; lemonettes, 2.00@3.00; grapefruit, 2.00@3.50; limes, 1.25@1.50; Mandarins, 1.30@1.75; cr., 1.75@2.00; tangerines, bx., 1.25@1.50; half orange bx., 2.50@3.00; new Navel, 2.75@5.00.

BEANS

Per cental:

Limas 11.00
Large White .....8.00@8.25
Small White .....9.40@9.50
Blackeye .....5.40@5.60
Pink .....6.75@6.90
Bayou .....7.25@7.40
Red .....7.00@7.25
Cranberry .....8.25@8.50

HONEY

Supplies light. Demand and movement slow, no change in prices. Cash to producer at country loading points: Extracted water white, 20@23 lb.; Sage white 20@22; White alfalfa, 20@20½; light amber alfalfa, 19@20; dark amber, 16@17; beeswax, 36@37 lb. Nevada white, 24 section cases, 6.50; light amber, $6.50; dark amber 4.00@4.25.

GRAIN

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Cental
No. 1	$2.20	$3.62 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$3.63 1-3
No. 2	2.15	3.58½
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 ½

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Barley — Feed, 2.17½@2.22½ per cental for choice spot; shipping, 2.25-2.27½; milling, nominal.

Oats—Red feed, 2.35@2.55 per cental; seed, do, 2.85@3.00, with recleaned at 3.15@3.20.

Corn — Egyptian, 2.75@3.00 per cental for choice white; Milo, 2.65@2.70. Rye nominal.

HAY

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market. For prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.

Fancy Wheat Hay (light 5 wire bales).....24.00@26.00
No. 1 Wheat or Wheat and Oat Hay .....22.00@24.00
No. 2 Wheat or Wheat and Oat Hay .....16.00@20.00
Choice Tame Oat Hay .....21.00@23.50
Other Tame Oat Hay .....16.00@19.00
Wild Oat Hay .....16.00@18.00
Barley Hay .....16.00@18.00
Alfalfa .....18.00@22.00
Stock Hay, in order .....14.00@17.00
No. 1 Barley straw, bale .....50@80
Damaged hay, all kinds, according to condition.

SEEDS

Flax .....8@8½
Millet .....5@5½
Rape .....2½@5

Citrus Fruit Market

Los Angeles, January 8, 1919.

Practically all picking has stopped until time for determining extent of frost injury. This will probably be about the 16th. Quantity of fruit in packing house picked before the frost is still going forward. A few growers are not observing the request to cease picking entirely. Fruit still offered in market is commanding fair price.

Lemons in some sections injured by cold weather so that mid-summer to fall delivery will probably be very light. Market conditions at present vary slightly.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 2286 cars, lemons 1209, total 3495. To same date last season; oranges 2226, lemons 564, total 2790. Central California this season; oranges 2798, lemons 257, total 3055. Last season to same date; oranges 1764, lemons 76, total 1840. Northern California; oranges 224, last year same date, 197.

AT THE AUCTIONS

January 2

New York: Navels 2.65-5.95, lem. 2.85-3.75.

Boston: 10 cars. Nav. 4.15-5.75.

Philadelphia: 4 cars. Nav. 3.25-5.05, lem. 2.75-4.10.

January 7

New York: 9 oranges, 2 lem. Nav. 3.65-5.35.

Philadelphia: 2 oranges, 2 lem. Nav. 4.35-5.40, lem. 3.60-4.60.

Boston: 7 oranges, 2 lem. Nav. 3.55-6.05, lem. 3.10-4.35.

PARTIAL LIST CALIFORNIA FRUIT AND VEGETABLE SHIPMENTS

From post card reports to the Los Angeles branch of the bureau of markets, report is made of the following shipment of cars of products from California for the week ending January 6: Apples, 58; cabbage, 16; carrots, 14; cauliflower, 34; celery, 54; dried apples, 3; dried apricots, 2; dried beans, 75; dried figs, 3; dried peaches, 12; dried peppers, 1; dried prunes, 33; lettuce, 29; mixed vegetables, 45; mixed fruit and vegetables, 15; mixed dried fruit, 21; olives, 2; onions, 15; potatoes, 131; raisins, 204; spinach, 4; sweet potatoes, 6; Arizona potatoes, 1; Nevada potatoes, 4.

ORANGE MARMALADE

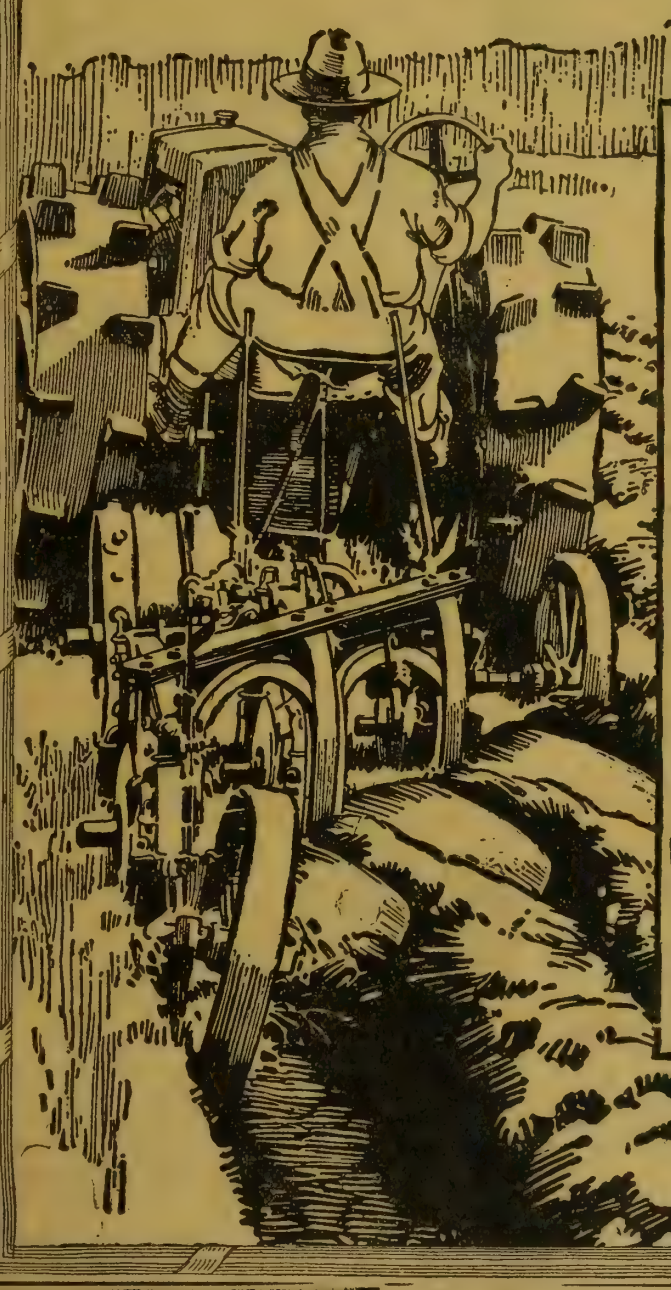
Continued from Page 43

at $15 per ton, the cost of the fruit per quart can will be about two cents. It should be possible to sell this material retail at not more than 200 per cent of the cost to manufacture. This would bring its cost to the housewife not much above 12½ cents per quart. From each quart she will be able to make above seven or eight four-ounce glasses of marmalade or jelly. The use of these products by the housewife will make it possible for her to be always certain of her results. She will always get a fine flavored marmalade or jelly of good jelly-like consistency. She will be spared the trouble and labor of slicing or boiling the fruit. In the writer's estimation, these products may be marketed under an association label and would in time have a very wide market. It is suggested that the large canneries of Southern California seriously consider the possibilities in these products. The equipment necessary is not very expensive and it would be possible for many packing houses to install the necessary machinery to produce the canned material at the packing house. However, it would probably be more advantageous to transfer the fruit to canneries or other established factories.

Grape fruit may be substituted in whole or in part for oranges.

By the use of presses and filter presses the yields can be increased and the labor costs reduced.

J.I.CASE PLOWS



No "Drag"

THE J. I. Case Tractor Plow is one example of J. I. Case skill. This plow is famous for extreme light draft. The "drag" of furrow bottom and land side pressure have been eliminated. Besides, J. I. Case dust-proof, easy lubricating, long-distance wheels carry all the weight of the frame.

That's why this plow "rides" like any wheeled vehicle, instead of dragging like a stone boat. Easily handled from the tractor seat; has a simple, sturdy power lift and enters and leaves the ground instantly, point first, like a walking plow.

This J. I. Case plow makes the tractor a better investment because more acres can be plowed per day with a minimum of fuel, labor and repair expense.

See your J. I. Case dealer. He is usually the best dealer in each town. If you don't know his name, write us.

J. I. CASE PLOW WORKS

601 W. Sixth St., Racine, Wisconsin

BRANCHES AND DISTRIBUTING POINTS AT

Minneapolis, Minn. Omaha, Nebr. Baltimore, Md. Washington, D. C. Toledo, Ohio. Cedar Rapids, Iowa. Saginaw, Mich. Kansas City, Mo. St. Louis, Mo. Oklahoma City, Okla. Little Rock, Ark. Denver, Colo. Bloomington, Ill. Columbus, Ohio. Richmond, Virginia. Syracuse, N. Y. Dallas, Texas. Indianapolis, Ind. Sioux Falls, S. D. San Antonio, Texas. Des Moines, Iowa. Great Falls, Mont.

Douglas Boswell, Sacramento, California, Distributor for California, Oregon, Washington and Northern Idaho.

Dealers Everywhere

REG. U.S. PAT. OFF.

GOOD FARMING PAYS

Protect your crops against drought by using the Western Pulverizer, Packer and Mulcher for preparing your seed bed and keeping a moisture-retaining mulch on your growing grain.



The Western pulverizes, packs, mulches and makes a perfect seed bed in one operation, saves time, horse power and one-third seed, still producing a better stand. Seed will start at once when seeded. Especially adapted for breaking crust on growing grain, will break the hardest crust, forming it into a moisture-retaining mulch without injuring growing grain and will raise a crop with half the moisture during growing season.

MADE IN 12 SIZES, 1 AND 3 SECTIONS FOR HORSES AND TRACTORS

This year's crop will bring high prices; make it a record breaker by using the Western. Free illustrated catalog describing machine and its principle, shows its work by pictures taken in the field, gives nearest shipping point to you, contains valuable information on up-to-date farming. Worth its weight in gold to farmers and land owners. Send for it today.

Western Land Roller Co., Box 400 Hastings, Neb.

Smilo Grass

For Ranges and Non-Irrigated Land

A forage plant especially suitable for hills and barren spots to increase the grazing value of the range. Will grow on semi-desert land or on dry hills among rocks and brush where no other grass will grow. Once established it seeds itself down and spreads rapidly.

Smilo Grass is a hardy perennial bunch grass, greatly relished by stock. Is not an experiment but a proven forage plant endorsed by leading stockmen and recommended by the University of California. Sow one-quarter pound per acre. Price 50 cents ounce, $1.00 quarter pound, $3.00 pound.

Harris Seed Co.

909 Sixth St. San Diego, Cal.

BUNT'S



RODENT EXTERMINATOR

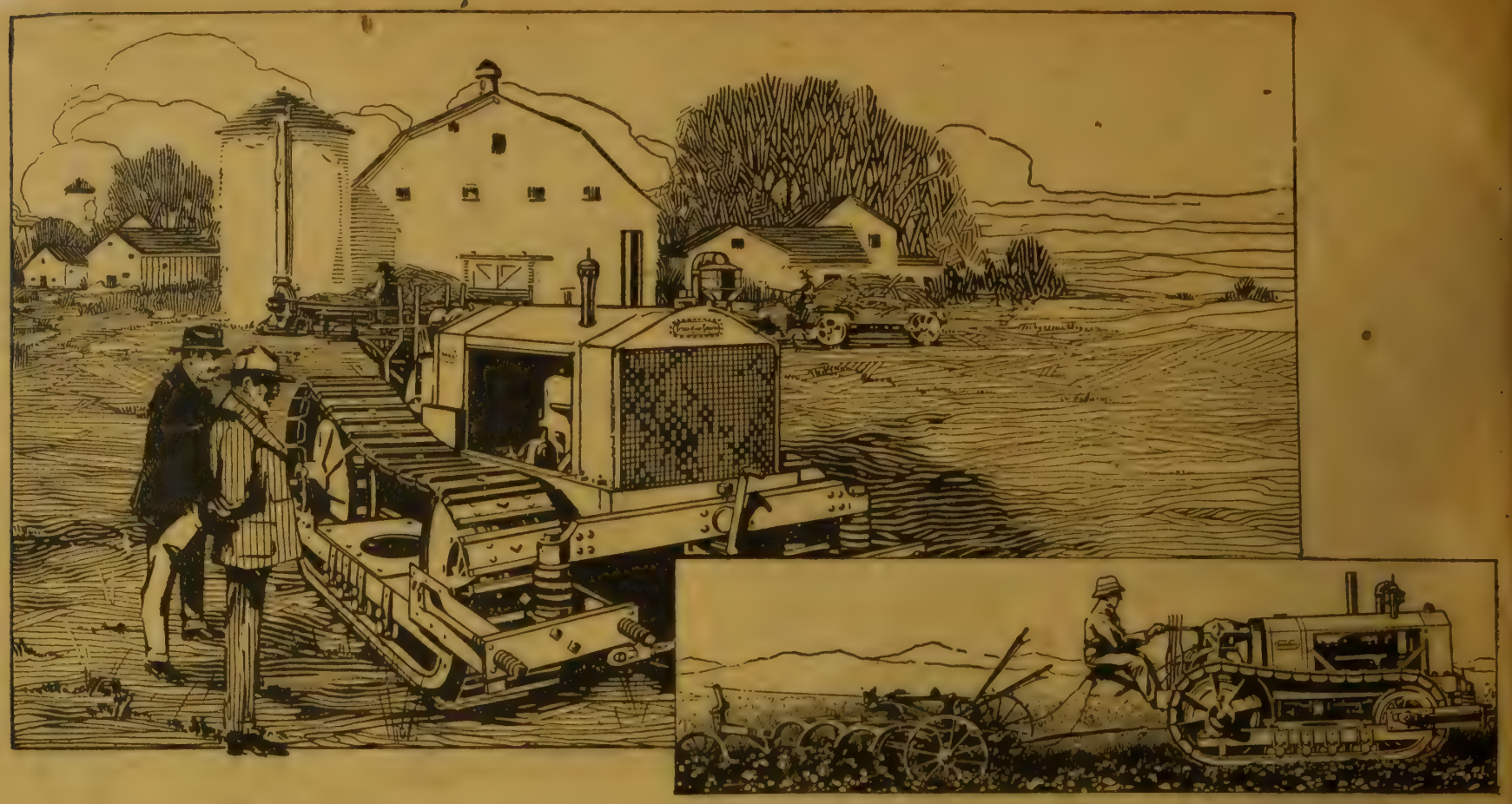
Spend 1½ cents, kill one squirrel, and save $1.00 worth of grain.

Bunt's Rodent Exterminator kills; non-explosive; no rancher can afford to feed squirrels.

Box 150 exterminators.....$ 3.00
Case 900 exterminators..... 13.50

Calif. Chemical Co.

340 Sansome St., San Francisco



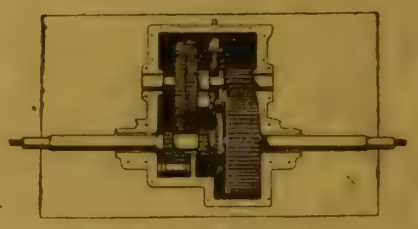
How to judge a tractor

PERFORMANCES, rather than promises, are the most satisfactory ways to judge a tractor. Judged by performances, Trundaar Tractors have given universal satisfaction to all who operate them. Every owner reports complete satisfaction with the Trundaar's plow-pulling ability, stationary work, economy and excess power. The one feature which more than any other has occasioned favorable comment is the absolute reliability of the Trundaar. When it is wanted for service it is ready. It is not laid up for repairs just when it is most needed.

With a tractor the idle days are the costly days and the Trundaar has no idle days.

Why there are no interruptions

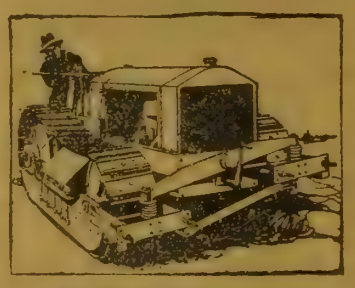
The biggest source of interruption on most tractors is the tread. The common practice of lubricating the tread of a tractor causes the mixture of dust and oil to work into the bearings, causing rapid wear. The Trundaar tread is built on the old log-chain principle and requires absolutely no lubrication. If a link or grouser plate on the Trundaar tread does break, it can be replaced in fifteen minutes by the removal of the four bolts. This eliminates costly interruptions in the busy season and decreases the repair bill considerably.



The massive Trundaar transmission requires no differential,



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The flexible suspension keeps the tread on the ground in the most uneven going

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Carl Scheneke of Vacaville, California, says:

> "We are pulling eight 10-inch bottom plows in adobe land to a depth of an average of six inches deep. The tractor is handling this load with no trouble so far as power is concerned as the motor never heats in the least."

The massive transmission, the special three-point suspension, the multiple disc clutch and all other parts of the Trundaar are built with the main idea of giving dependable service under the most difficult work.

If you are farming 200 or more acres, you should have complete information about what the Trundaar has done for others, and will do for you.

Write today for record of service and complete information about the special mechanical features of the Trundaar.

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Trundaar Tractor
SPEEDS UP THE BUSINESS OF FARMING

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — January 18, 1919 — No. 3



Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

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Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916.

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Saturday, January 18, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

One of California's wealth making crops and one which affords food for man and beast is shown on our cover. The sorghum grains have proven good producers under trying conditions in the arid Southwest. In this state milo, feterita, dura, or "Egyptian corn," all do well, but the long favorite is milo, a field of which is shown in the illustration. This field is on the place of J. C. Sharp near El Centro, and interesting items as to cultural directions may be found on Page 76.

W. S. S.

We may still buy war savings stamps, and thrift stamps left over from 1918 are still good in payment. The new 1919 stamps, however, are different from last year's and do not mature until 1924.

There is special need for the fund which comes from these stamps, and everyone who can should still purchase. They start at the same price carried by the stamps of the previous issue, that is $4.12 in January, the price being advanced one cent each month until December 31.

SAN FRANCISCO SHOW OFF

The California International Live Stock Show, originally planned to be held at San Francisco last fall and postponed until early in February, has been definitely called off.

This decision was announced last week following a meeting of the board of directors who felt that the influenza situation was such that it would be inadvisable to attempt a spring show.

No new date has been announced, but the show will probably be held next fall.

MAKE MARMALADE

Prof. Cruess gave last week to Cultivator readers plain instructions in the home making of marmalade from cirus fruits. There will be a vast quantity of citrus fruits which will be waste unless they are used in the making of jellies and marmalades or some similar product. Fortunately California is saving a vast quantity of waste product in marmalade and jelly. Factories are being established in various citrus sections. We visited one a few days ago at San Dimas where thousands of pounds of citrus fruits, practically worthless even to sell in the market as culls, are being made into a high class product, put up in glass jars with most attractive lithographed labels.

There is one unfortunate feature of this method of disposal of waste fruit, and that is that it takes a large quantity of sugar, in fact, more than 50 per cent of the finished product is sugar. Notwithstanding this it is hoped the product can be marketed so as to make return to the grower of at least two cents per pound for his cull oranges.

ARMENIAN WEEK

This is Armenia's week. America is raising $30,000,000 in the effort to save the remnant of people left of four millions of Armenians and a large number of Syrians who are being starved by conditions brought about by war or, more particularly, by the cruelty of Turkey. England has been more in touch with these people because of the nearness of her troops, and she has, with the American Red Cross, carried this burden for months. The Red Cross is unable to enter Armenia as an organization, but it is understood it has supplied food to these people to the extent of a quarter of a million dollars a month. This has been distributed through the Armenian relief committee. The American campaign has been largely taken up by the churches of the country and they are hoping to make good every penny of the $30,000,000 requested. California gets the privilege of paying something over $1,000,000.

WHEAT GUARANTEE

Some wheat growers have questioned as to whether the government pledge of the maintenance of wheat prices for all the 1919 crop will be made good. This not because of any intimation on the part of the government, but because some who are not wheat producers question as to whether the farmer should be singled out for such a favor. To which the wheat grower replies that the "favor" of this guarantee when first established reduced the price from $3.50 which it was commanding on the open market, to less than $2.00. We say, "to less than $2.00," for grades and differentials as established resulted in few farmers receiving $2.00. It is said the treasury officials fear the loss to the government in making good wheat pledges. If made good, this may aggregate a half a billion dollars. Even if it does, it is hardly probable this amount will make good the loss which was visited on the farmers by the original price making.

One point which complicates the wheat situation is the fact that both England and France are cancelling some of their food purchasing contracts. But there are other consumers, and as fast as transportation problems are solved it is to be hoped a great quantity of American food may be put where it will stop some of the suffering which prevails the world over at this moment.

MORE EGGS

We presume there will be more eggs produced during 1919 than during any other year in the history of the country. Notwithstanding the almost prohibitive prices of feeds, poultrymen have twisted and turned and as a rule have made some money because of the exceptionally high price of eggs and of poultry. Every hatchery is running incubators to full capacity, and it now appears that great numbers of pullets will begin laying early next fall. However, we presume this campaign is not so general in the East as it is in California. The best thing about poultry prosperity is that it is so generally distributed.

At the recent farm center meeting, or rather city farm center at Los Angeles, Farm Adviser Coit referred to the great profit of the poultry industry when carried on by the orchardist as coming from the fertility adedd to the soil. Dr. Coit has made careful observations in the matter of fertilizing citrus orchards and has found that quickest and most emphatic return from fertilization comes from the use of poultry manure. In fact, it is asserted that this manure contains at least three, and possibly four, times as much fertility as the average stable manure. If this be true, the citrus grower can well afford to keep poultry which will board itself and supply this fertility.

PURE FEED LAW

THE combined live stock and poultry interests in California have agreed upon a form of pure feed law that has been submitted to the legislature and strenuous efforts will be made to see that it passes both houses and is signed by Governor Stephens, who gave a similar measure the pocket veto last session. This bill was agreed upon at a meeting held in San Francisco last week called by the California Swine Breeders' Association and made up of representatives of the dairy, beef cattle, poultry, sheep and rabbit interests.

The meeting was called by Vice President Alec D. McCarty of the Swine Breeders' Association as President C. B. Cunningham was suddenly taken ill on the morning of the meeting. Professor E. J. Lea, director of the bureau of foods and drugs of the state board of health, outlined the proposed bill which was discussed from every angle and in some instances amendments were proposed by the stock men. The bill defines commercial feed stuffs as including all feeds for feeding live stock and poultry except whole seeds or grains and the unmixed meals made directly from and consisting of the entire grains of corn, wheat, rye, barley, oats, buckwheat, flaxseed, kaffir and milo and whole hays, straws, cottonseed hulls and corn stover, when unmixed with other materials, and all materials containing 60 per cent or more of water.

On all such feeds other than the above stated the following rule must apply: That the manufacturer label the container with the net weight of the contents; the name, brand or trade mark; the name and principal address of the manufacturer or person responsible for placing the commodity on the market; the minimum per cent of crude protein; the minimum per cent of crude fat; the maximum per cent of crude fibre; the specific name of each ingredient used in its manufacture and their proportion.

The law shall be enforced by the pure food inspectors of the state board of health, which makes it more easy to obtain a successful passage of the bill as it does not create any new state jobs to be frowned upon by the legislators. So that the law will not be looked upon too lightly a good strong penalty has been attached, consisting of a fine of not more than $100 for the first violation and not less than $100 for each subsequent violation. In addition to the labeling of the contents, the law also provides that it is a violation to mix or adulterate any feed stuffs with any substitutes injurious to the health of live stock or poultry. Any such feed stuffs can be condemned. This should protect the stock and poultry feeders who may not realize from the reading of the contents of the feed bag that there may be some ingredients injurious to the health of his stock.

As soon as copies of this bill are available they will be sent to the officers of every live stock and poultry organization of the state, and a vigorous campaign is to be made to insure its becoming a law.



Top Dress with Nitrate of Soda

Warning!

Those who neglect the orchard now will suffer later. Now is the time to make your plans to *Fumigate, Irrigate* and

Fertilize with Nitrate of Soda

Place orders now for next Spring's supply of *Chilean* Nitrate of Soda. We will tell you how and when to use. Drop us a postal stating the crop you wish to fertilize.

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Wm. A. Curtis Co.
San Francisco . . . Cal.

The Poultry Breeders Show

By J. A. Koethen

HALF a dozen pink silkies, guarding a nest full of real pink eggs on a woodsy-looking hillside, made a most alluring window advertisement of the Poultry Breeders' Show in the Coulter Building on Broadway, Los Angeles, which began Wednesday, January 8 and continued to Tuesday evening January 14. A pair of peafowl and several gorgeously colored pheasants attracted almost as much attention in the other window. Inside, on the first floor, crows and cackles from several hundred feathered throats blended with the cries of geese and quacking of ducks in a not unmusical medley, while the second floor was occupied by nearly as many furry aristocrats.

Poultry shows are all alike in their general characteristics, but all differ in the qualities which give atmosphere, if one may use the word in describing a poultry show. The number of entries was not so large this year



Two Great Cockerels
Best R. I. Red male in show. R. C. cockerel owned by Granville Hall Yards. First White Leghorn cockerel owned by E. E. Emerson.

as it has been some previous years, nor was the crowd of visitors so great, but there was a busy hum of enthusiasm and interest reaching from one end of the long room to the other. It caught judges, exhibitors and visitors. It caught passersby who stopped to look at the silkies in the window. There is "something doing" in poultry circles this year. The industry is coming up, and the year on which we are just entering will see, so thoughtful commentators say, something as near a poultry boom as we wish to see. Booms have never been healthy in California, but there should be a steady growth in all lines of poultry husbandry this year which is better than a boom. Especially noticeable is the interest in rabbit culture. "The demand cannot be filled," said a sign in the rabbit department. We must grow as much as possible of our own food, and eggs, chickens, ducks, geese, turkeys and rabbits can all be easily raised in the backyard of a 50-foot lot or around the barnyard of any ranch.

The rise of a new breed into popularity is always an interesting study at the poultry show. It is not five years since the first Rhode Island White was shown in Los Angeles. This year 64 birds were shown, and they were subdivided again into two



Judges at the Southern California Show
Lieut. E. B. Smiley of Nebraska, judge of White Rocks, Anconas, Leghorns, and turkeys. W. S. Russell, Concord, California, Rocks, except Whites, Andalusians, Minorcas, Cornish, Sussex, Asiatics. C. H. Burnett, Jr., Seattle, R. I. Reds, 'Dottes, Orpingtons. Chas. S. Gibson, Detroit, rabbits and cavies.

varieties, Rose Comb and Single Comb. The original R. I. Whites were Single Comb birds, but there were 19 of the latter, most of them birds of fine type and color. The rose comb gives a neat shapeliness to the head which is very taking, to say the least. The splendid records Rhode Island Whites have made at some of the egg laying contests, together with the liking of the American public for a white bird, are combining to give these birds an abundant entrance into the fancier's favor, as well as into the amateur's heart.

But the rise of a new breed is no more interesting than the return of an old one. Barred Rock Alley used to be always the longest. Of late years Reds and sometimes Anconas and Minorcas have given the Barred Rock a run for his money. The Barred Rock is hard to breed, though always worth while when you get his markings right. Cockerel breeding and pullet breeding are perplexing, and the differentiation in color and markings so nice that many an incipient fancier has given up in despair and turned to something easier. Many have persevered, however, in spite of difficulties, and this year Barred Rock Alley is again the longest, 110 birds being shown. This year, too, ribbons were given to both pullet-bred and cockerel-bred males, a distinction which has not always been made.

Next to the Single Comb White Leghorn, which has no competitor for commercial egg production, which is the most popular breed in Southern California? Not the Barred Rock, however dear that may be to the fancier, but the Rhode Island Red. Single Comb Reds were only two behind Barred Rocks in number, but in addition to 108 S. C. Reds there were 32 R. C. Reds. The best male Red in the show was a R. C. Red cockerel, a bird of splendid type and deep rich coloring, and the first pen was very fine. The R. C. Red has all the virtues of the S. C. Red, and has in addition what many consider a more beautiful comb.

Whether it is because they are more easily bred and therefore not so tempting to the real fancier, or because they so nearly resemble the Wyandottes of the same colors, or just that in their utility qualities they have never quite equalled the good old Barred Rocks, the fact remains that White and Buff Rocks lag far behind Barred in the number of their admirers. There were some fine White Rocks in the show, first cock, especially, his sale price was $200, which means that he was some bird. But there seems to be no increasing interest in the breeding of these admirable birds. I have always suspected that fashions in fowls are exactly like fashions in clothes. This year Mr. A comes to the show with a long string of extra fine Anconas or Minorcas or Andalusians, and next year a lot of other folks, who have been impressed by Mr. A's birds and bought eggs from him, come with their strings. Not because the new bird is better than the old, but because it is apparently the "coming" bird and that means sale of hatching eggs and chicks. I have even seen a man who took all the ribbons one year with a string of wonderful birds apparently all his own breeding, come next year with a string of just as fine birds of an entirely different breed. Perhaps there really is a "coming" breed, but I



Liberty Bond
Second at Liberty Fair, first at L. A. Show, and first at Poultry Breeders of Southern California. Bred and owned by E. A. Weaver.

doubt it. All breeds are good, but fashions come and go.

With the Wyandottes, now, the case is slightly different. Wyandottes have never really "come" in California, as they have in the East, where they are considered the best of the dual purpose breeds. A few persons here have bred them and insisted on their excellent qualities. This year at all the shows there has been a noticeable increase in number of White Wyandottes. White Wyandotte Alley, with 50 birds on exhibition, attracted much attention at this show, and the first cockerel received the gold medal for being the best cockerel in the show. There were 23 Silver Wyandottes and 23 Partridge Wyandottes, making nearly 100 Wyandottes all told.

Orpingtons hold their own as as excellent show birds and good layers. They are not usually a large class, but are always a strong one. This year Whites led, and there were some particularly fine specimens among the 25 exhibited. Six Black, eight Buff, twelve Partridge and two Blue Orpingtons made up the list. First White cockerel was one of the best in the show.

There were 42 Anconas, 38 Andalusians and 27 S. C. White Leghorns. First White Leghorn cockerel was a splendid bird, and the whole string of Anconas was good, as it always is. These little birds are not so impressive in their beauty as some of the larger breeds, but to one who knows just what constitutes true beauty in the breed there is much to admire. Minorcas were an unusually small class, only 23 birds of all colors being shown. There were 31 Light Brahmas, 15 Speckled Sussex, 12 Silver Spangled Hamburgs, 7 Black Langshans, and 7 Dark Cornish.

More than the usual number of rare and curious breeds were noted. There were two White Langshans, five Golden Gates, a Black Rhinelander, a pen of Golden Aztecs, three Missouri White Fluffs, four Golden Sierras, one Houdan, and four Japanese Games, the property of Mr. Misoumi, a Los Angeles Japanese. These Games, which are wonderfully gentle in appearance, though willing to fight on occasion, their owner says, were brought from Japan to San Francisco for the 1915 exposition. There were also a couple of Transylvania Bare Necks, a most curious fowl, almost entirely black, with a queer, bare neck, red in the male, and pale in the female. Among the bantams were two specimens of the Java Jungle fowl, the original Gallus Bankiva. The hen looks like a Brown Leghorn, though much smaller. The cock is a yellowish brown. Campines and Buttercups can hardly be called rare birds, but they are becoming rather rare in Los Angeles shows. Apparently they have not made good either as show birds or producers. Two Buttercups and four Campines was the length of the string.

Mention should be made of the one solitary capon, a Rhode Island Red, which must have felt very strange and lonely among his elegantly combed and wattled brothers. Whatever may

Continued on Page 90



Two Great Whites
First White Orpington cockerel owned by W. J. Stewart. Below, best cockerel in show, White Wyandotte owned by W. O. McCubbin.

Agricultural News Notes of the Pacific Coast

Northern California

Glenn County farm bureau meetings at Codora, Monday, January 13.

The tractor school at CLico, Butte County, will open February 10.

Cloverdale, Sonoma County, holds its next citrus fair in February.

Reports from the Feather River Canyon indicate a fine ice harvest.

Corning, Tehama County, has made carlot shipments of oranges to Eastern markets.

There are 3,000,000 acres of olive trees in the state, more than half of them bearing.

The state highway commission contemplates general extension of construction work.

Over 500 deciduous fruit growers of Sonoma County have attended pruning demonstrations.

The first cotton gin in the Sacramento Valley has been built at Durham, Butte County.

An irrigation project near Chico contemplates placing of 3000 acres of the Phelan ranch under water.

The farm bureau of Butte County is working in conjunction with the community council on reconstruction plans.

The California Tomato Growers Association has signed up several hundred acres among growers of Sonoma County.

Bean threshing in Butte County was not finished until early in January. Some damage has been done by the early rains.

The Sperry Company has a grain elevator or bulk storage plant at South Vallejo with a capacity of one million bushels.

Chairman Behr of the California rice committee is in Washington endeavoring to secure outlet for the great quantity of rice in storehouses.

The cost of the Sutter-Butte by-pass will be reduced by about four million dollars. This is made possible by cutting out the levees through Butte Basin.

There will be a meeting of wool growers at the university farm at Davis January 20 for the purpose of forming a cooperative marketing organization.

The Preston School of Industry near Ione is purchasing pure bred live stock principally for the purpose of interesting the boys attending the school in breeding.

Rio Vista, Solano County, is organizing swamp land reclamation district 317 on the lower point of Andrus Island. It will be used in the growing of asparagus.

Pear growers of California met at the office of State Horticultural Commissioner Hecke and discussed methods of securing more general campaign against blight.

The California state viticultural commission estimates that hundreds of cars of California grapes will be shipped to other states to be used in making home made wine.

Yuba County farm bureau is endeavoring to secure aid from the United States reclamation district in making a survey of the Sacramento Valley, especially of the Yuba River.

Arrangements have been made for the meeting of the Western Berkshire Congress and Berkshire sale to be held in connection with the California International Live Stock Show at San Francisco in February.

Central California

Cold weather in the East has cut down the demand for citrus fruits.

Fresno farmers are talking about "keeping better farm records for 1919."

O. W. Fletter has been elected president of the Santa Cruz County farm bureau.

An office of the United States department of labor will be established in Fresno.

Tulare County has shipped about 3000 cars of citrus fruits since November 1.

One bunch of Shorthorn steers, 102 head, recently sold in Kings County for $12,000.

California last week shipped out 140 carloads of apples, New York taking 37 carloads.

Santa Cruz County is planning a great gopher "drive" during the month of February.

Woodlake, Tulare County, sent out 35 carloads of Navel oranges for the holiday market.

The cannery at Lodi, San Joaquin County, is putting up about 50 tons of pumpkins daily.

The annual meeting of the Tulare County farm bureau was held at Visalia, Thursday, January 16.

Pruning demonstrations are being held in Santa Cruz County under the auspices of the farm bureau.

November prices of butter fat in Kings County dropped two cents from the October price of 69 cents.

Stanislaus County's rice fields while not extensive were very productive, running around 35 sacks to the acre.

The cannery at Selma, Fresno County, packed a large quantity of spinach as well as pumpkins, sweet potatoes, etc.

L. C. Trewhitt has been appointed sales manager of the Kings County unit of the farm bureau marketing association.

The damp foggy weather of the early part of December brought serious loss to the raisin men who were trying to get their fruit dried out.

The cannery at Turlock the past season put up 800 tons of apricots, 3800 tons of peaches, 2000 tons of tomatoes, or a total of about 215,000 cases of fruit.

A Hollister wool grower recently sold his wool in San Francisco at 35 cents per pound. Something over a month ago this same wool commanded around 56 cents.

The Prune and Apricot Growers Association has arranged a meeting with the regents of the state university to ask for more experimental work in deciduous fruit culture.

According to preliminary report on investigations conducted by Bioletti and Cruess of the state university, the making of grape sugar from wine grapes will be entirely practicable.

Thirty-seven tobacco growers of Fresno County pooled their interests and signed up 187,000 pounds of leaf tobacco to one buyer. Price quoted varies from 60 to 85 cents per pound.

The Turlock Merchants and Growers' Association has just completed its fourth season in operation. It has a membership of 7000, with shipping sheds at Turlock, Denair, Keyes, Hatch, McGill, Hilmar, Livingston and Atwater.

Southern California

Imperial County is to experiment with tobacco growing.

San Luis Obispo County has about 7000 acres of almonds.

The Arlington cannery closed its season's work last week.

San Dimas marmalade factory is now employing about 125 hands.

The tractor course at Ontario begins January 27 and ends February 15.

Brawley is ready to start shipping lettuce. The lettuce was not injured by the recent cold.

Some extra early tomatoes planted in the Imperial Valley were caught by the recent cold spell.

Inspectors report highland grown oranges in Riverside section as practically untouched by frost.

Tangerines are proving one of the most profitable of citrus crops to growers in Santa Barbara County.

Riverside tractor course to be held at the grounds of the citrus experiment station begins February 24.

The cold weather is past and the orange groves are now enjoying weather acceptable even to the tenderfoot.

J. M. Davison of Arlington has been elected president of the Southern California Poultry Breeders' Association.

The Fillmore Herald estimates damage to the lemons of that section from the recent cold weather at 15 to 25 per cent.

Brawley, Imperial County, shipped in one day, seven cars milo, six cattle, five cottonseed, five fertilizer and one barley.

San Luis Obispo County proposes to dehydrate carrots and other vegetables, having contracts with the government.

H. W. Campbell, well known exponent of dry farming, is expected to visit Riverside County and talk before farm bureau centers.

The principal discussion at the citrus institute to be held during orange show week at San Bernardino is on frost protection.

It is reported that nearly one-fourth of the olive crop in the Hemet district was nipped by frost so that the fruit will have to be used for oil making.

The Walnut Growers of Southern California met at the Lambert Ranch, El Monte last Monday. Sacks and codling moth both under discussion.

Tepary bean growers are talking of organizing in order to secure more just treatment for Teparies in Eastern markets. This excellent bean seems to be discriminated against.

The Pima roller cotton gin at El Centro is turning out between eight and ten bales of cotton per day. One hundred and twenty-four Pima cotton growers are having their cotton ginned.

Orange growers of Orange, San Bernardino, Los Angeles and Riverside Counties have been asked to pick no oranges for two weeks after the freeze in order to make sure that no frosted fruit goes into the market.

Supervisor Charlton of the Angeles national reserve announces that the government rate for cattle and horse pasturage during the coming season is $1.20 per head for cattle and $1.50 for horses. This is much higher than last season. The year extends from April 1 to April 1.

The Coast and General

Winter wheat in Nevada proves to be wintering well.

Oregon's streams are low because of deficient rainfall.

California oranges dropped a dollar a box in one day in New York.

Extra fancy Winesaps shipped from Spokane are commanding around $2.40 to $2.50.

Brazil's castor seed crop was practically all destroyed by heavy frosts last June.

Cuba's production of sugar is 3,600,000 tons, the largest in the history of the island.

The first sugar beets of Walla Walla County, Washington, were harvested the past season.

Fairly liberal snowfall in Washington has proven very satisfactory to winter wheat growers.

The farmers of Warden, Washington, recently featured a rabbit drive, but only netted 100 jacks.

Farmers of Lewis County, Washington, have greatly reduced dairy costs by large increase in use of silos.

Sugar beet growers of Yakima, Washington, netted $300,000 for beets shipped Idaho-Utah sugar factory.

Tillamook County Creamery Association, Oregon, is advertising to increase consumption of Tillamook cheese.

Boys in the forestry regiments now in France maintain that their usefulness is ended there and are appealing for return home.

The department of agriculture estimates the value of Florida's and California's crop at 19,587,000 "bushels" of oranges at $92,723,000.

The forest supervisor of Okanogan, Washington, is taking applications from live stock men for pasturage permits for next season.

Butter makers and cheese makers of Oregon attended short courses at agricultural college at Corvallis from January 6 to February 1.

The department of agriculture is making its first complete survey of the South Texas onion fields. Last year's production of nine counties aggregated about 18,000 acres.

The annual Corn Growers and Stock Men's Convention scheduled at the college of agriculture of the Illinois University, January 21-30, has been recalled because of the flu.

Edgewick, a small village in the Cedar River basin in Washington, was wiped out and 15 families made homeless by the breaking of a large irrigation reservoir above the town.

The Wapato Indian project in Washton, comprising 74,881 acres, shows production of crops aggregating $7,205,500. This was an increase of a million dollars over the preceding year.

The Arizona Goat Raisers Association and the National Mohair Raisers Association recently convened in Phoenix and made appeal to the government to use mohair in the uniforms of the American army.

The soapweed which grows so luxuriantly on the hills of Arizona which would otherwise be barren, is now proving to be a fairly good stock feed when made into ensilage. A machine has been invented which cuts up this yucca or soapweed so as to make very good stock feed substitute.

To Fight or Not to Fight Jack Frost



Mr. Peyton's Storage Station

Five tanks, each with the capacity of one car of oil, gives a supply which will carry the ranch until other carloads, or train loads if necessary, may be supplied from oil centers. It is necessary to haul in wagon tanks from the cars. The wagon stops so that the outlet enters the big six inch steel pipe shown in the foreground. Gravity carries it into the small tank at reader's right. From there a steam pump, connected with the large pumping plant, lifts it into the large tanks. The station for filling service wagons is on the lower side of these tanks. Mr. Peyton is now laying four inch supply lines down through the orchard so that the shortest possible haul will be necessary when it comes to orchard firing.



Filling the Heaters

Many orchardists follow the plan of drawing from tank on wagon into five gallon can and pouring into the heater. This is expensive in time, and time is the "essence of the contract" when it comes to frost fighting. The two inch hose saves its cost several times over. The faucet is at the end, in fact at the right hand of the filler in the engraving above. He is filling the 10 gallon heater while next to it is the seven gallon heater, next again the big 10. Thus an almost solid row is maintained along the upper edge of the orchard.

THERE is perhaps less satisfaction in fighting frost than in carrying on any horticultural operation in the state. In the first place the investment in equipment and preparation for the work is so expensive that many growers question the advisability of carrying frost insurance at such a cost. Again, a long continued campaign may exhaust both labor and supplies and nights of successful fighting may be made of no avail because of a lapse in effort for the last hour or two of the campaign.

After the 1916-1917 campaign Prof. R. S. Vaile, at that time with the University of California experiment station, made investigation and approximated cost of average equipment. These averages, he concluded, would run around $145, but even then he makes this addition: "With the present high cost of material this expense would be considerably increased." Cost of the material has been doing little since that date but advance.

There is no means of arriving at present day cost for manufacturers have thrown up their hands and refused to consider the making of orchard heaters for the reason that few orchardists were interested enough even to inquire for them, but we may arbitrarily take some approximate figures and guess that orchard heaters could not be secured today for less than $200 per acre; storage and equipment for handling oil, $25 to $50 per acre. Let us take the low figure which is probably too low. Small equipment, wagon tanks, etc., $30 per acre; oil to be stored and ready for starting operations, $55. There is a total investment of $300 per acre.

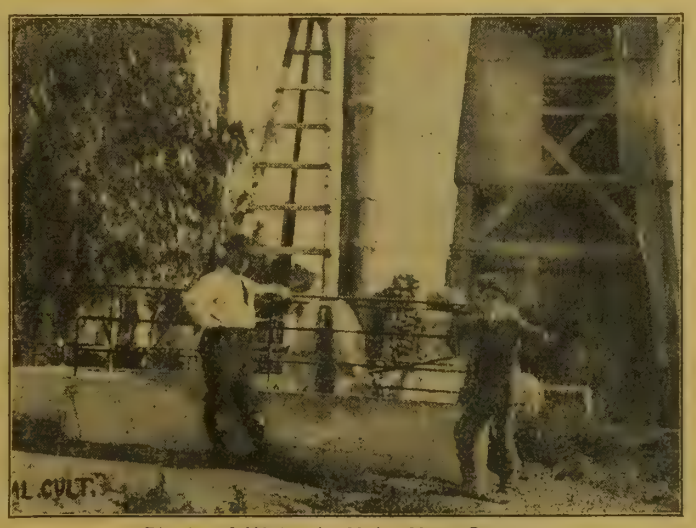
At six per cent interest — which is probably lower than the fruit grower will pay—there is $18. Depreciation on such a plant might amount to ten per cent, or another $30. Labor to care for it, under present conditions, certainly would be not less than $10. Hence, without labor or oil consumed in the campaign when the frost fighting is actually on, we have well toward $60 per acre per year overhead.

Frost loss, unlike fire loss, may not be entire. That is, presumably bearing trees will not be killed by any "spell" of weather we may have in California. Also, presumably the loss of fruit will not be absolute. But, assuming that the fruit might be all lost, as was the case in most orchards in 1913, and that the bearing capacity of trees for a year or two may be affected, an arbitrary figure of $1000 annual risk may be taken. That figure, probably, is altogether too high, but in that case the annual overhead frost fighting cost is nearly six per cent on the risk. This is prohibitive from an insurance man's standpoint.

But presumably steel and equipment generally may be lower than at the present moment, and many farmers find themselves supplied with equipment which was secured at a lower cost, and partial replacement and upkeep may be had at prices lower than those given in figures above.

So frost fighting will be continued, especially on such places as that of Valentine Peyton at La Verne in eastern Los Angeles County. This place is a lemon and orange grove of some 200 acres, and Mr. Peyton and his foreman, Mr. Summerville, have planned a frost fighting campaign which involves a much lower cost than our figures above show. However, equipment was practically all purchased at other-day prices. Mr. Peyton has invested approximately $18,000 in pots, $1000 in storage tanks, $1500 in wagons and tanks and $2500 in stored oil. This makes an investment of only about $115 an acre, but this is not full equipment.

The scheme of frost fighting followed on this ranch calls for mass firing of a large number of heaters along the two upper sides of the ranch. Careful observation has proven to the satisfaction of the ranch management that their most dangerous enemy is the drift of cold air from the mountains down over the valley. As this drift of cold air strikes the upper corner of the ranch it comes in contact with the wall of flame rising from the great number of heaters. From careful observation of the large number of thermometers Mr. Summerville thinks that this current of air may be diverted rather than warmed, and as it passes around the lower end of the wall of heaters there may be eddies formed which will result in the cold attacking lower portions of the ranch. These portions have been protected by installation of other orchard heaters at the rate of about 100 to the acre. For this reason probably not more



Plenty of Water to Make More Oranges

Besides the gravity flow of water from the mountains, the original water right of the ranch, Mr. Peyton has two exceptionally large producing wells. The pumping plant, which cost about $25,000 and is a model of efficiency, is worth a whole story for its efficiency is largely responsible for the success of the ranch. The compressed air system of pumping is used, one well being in the foreground near the ranch foreman, W. D. Somerville. The other well is more in the background and its supply is flowing into the same receptacle between the cobblestone walls nearer to Mr. Peyton the gentleman with the coat.



Ready for the Fight

The heaters here are not massed so heavily as in some portions of the line. It will be noted that there is a double row, the outer row being large ten gallon heaters, the inner the ordinary seven gallon heaters. This double row is supposed to turn the current of cold air drifting from the snow covered mountains in the background. The arrow near the second in the first line of heaters points to a thermometer located down that row in the orchard.



Filling the Lighters

A big bunch of these lighters filled and ready for the night's service is seen at the left. Others with the torch feature removed are on the bench in front of the workman who fills, using kerosene and gasoline. The wick of the torch is asbestos and sufficiently loose so that when the lighter is placed over the fuel in the heater a small quantity of the mixture of kerosene and gasoline is injected into the distillate in the heater and instant lighting is secured.

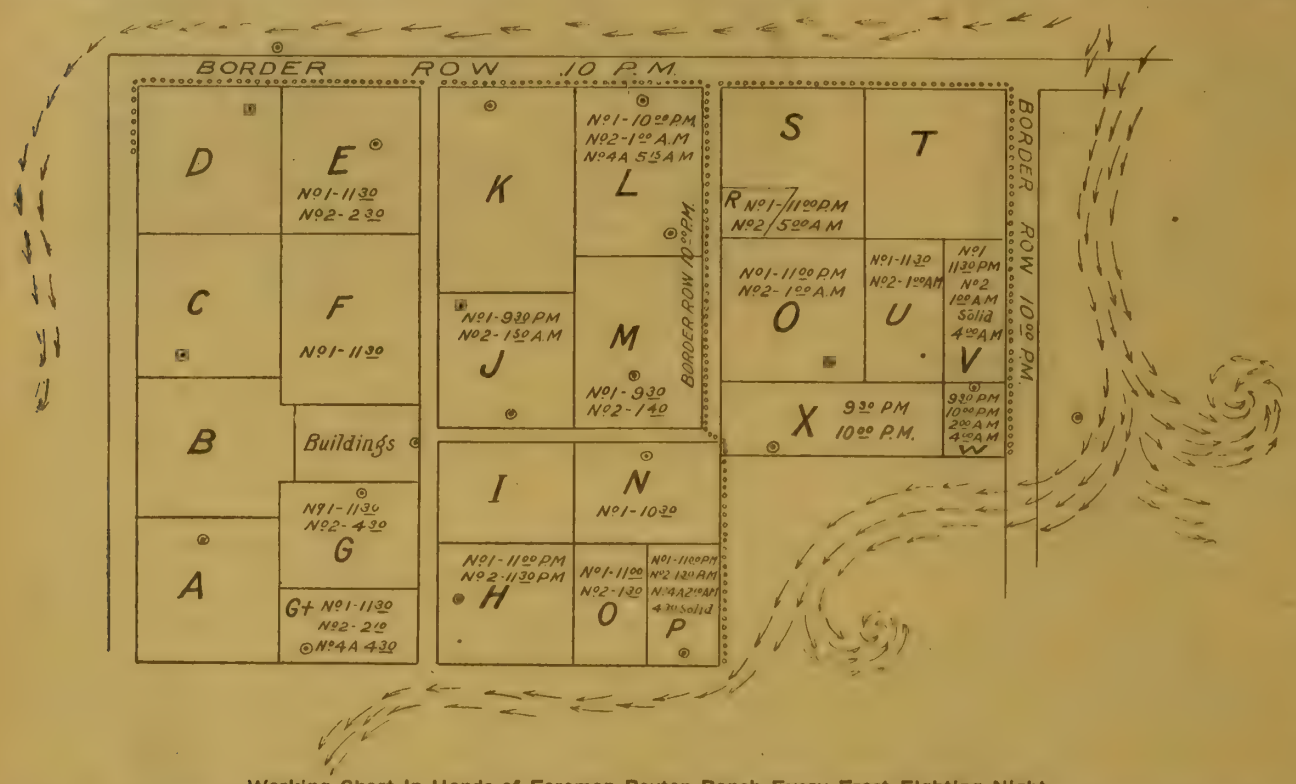
than one-half of the ranch is covered with heaters.

The drift, or currents, of air following definite "channels" is shown by thermometer readings in two adjoining blocks on the Peyton ranch. Ordinarily these two thermometers have read practically the same. In reading them one night, however, the regular observer noted that one stood at 36 while the other continued to drop, finally reaching 28. In looking for a reason the observer finally recalled the fact that in line with the known drift of the air current, but several hundred feet up-grade from the higher registering thermometer, workmen had lighted a number of orchard heaters for their own personal comfort while patrolling the orchard. In distance the heaters were practically the same from the two thermometers, but the one showing low temperature was on much higher ground and much farther to the east out of the drift from the lighted heaters.

In blocks of the lemon orchard where Mr. Peyton's equipment was complete there were lemon trees filled with young fruit, none of which showed injury. Tender tips were untouched and some trees showed blossom buds and even blossoms fully out, and this more than a week after the colder weather. Examination of near-by orchards, where the campaign was not conducted, showed practically all young fruit ruined and even some full sized lemons already showing dry cells.

But here is one serious problem for owners of five or ten acres, which is not a problem for men who have 200 acres, and that is for a man with a small grove, with a few heaters, endeavoring to warm up all outdoors. Frost protection is a matter of cooperation. In fact, at one time there was serious discussion of the proposition to ask the state legislature to provide for frost protection districts somewhat similar to the reclamation districts, all within the district to share in bearing cost of frost fighting. This was, of course, never put through, but there have been organized frost fighting associations, at least one such association, that at Pomona. Where reasonably general cooperation may be secured it becomes comparatively easy to raise the temperature five or ten degrees, and ten degrees difference in temperature means the saving of the crop of oranges and lemons in any weather which has ever come to our citrus districts. And it is to be hoped that with the return to normal conditions in supplies of steel and other requirements for frost fighting equipment that the prohibitive cost now obtaining may be overcome.

(See chart on opposite page.)



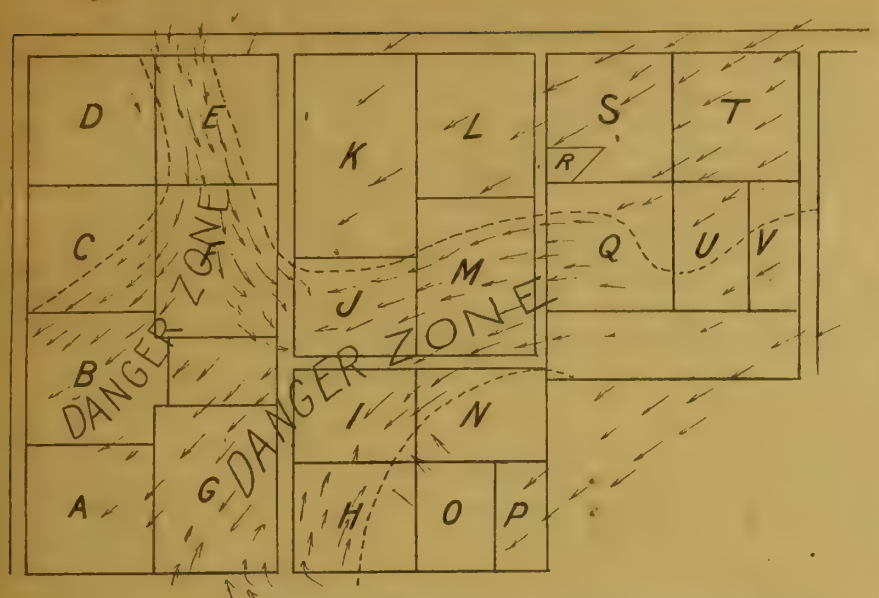
Working Chart in Hands of Foreman Peyton Ranch Every Frost Fighting Night

This is the finished record of one night's campaign. The top of the map is north and it will be noted along the north and east sides and down the driveway between Blocks L and S are small circles which indicate a double row of orchard heaters. On the night in question these were fired at 10:00 p. m. Other pots or heaters in orchard were fired as indicated in each block.
The circled dot in the block indicates location of thermometer.
Arrows indicate air currents, or drift, as shown by temperatures.
Blocks S and T given no protection excepting by border fires.
Blocks A, B, C, D and K no protection excepting from border fires and the firing in other blocks.
Firing "No. 1" means half of the heaters in rows 1, 7, 13, 19, 25, 31 on each ten acre plot or 8.1 heaters to the acre.
Firing "No. 2" means half of heaters in rows 4, 10, 16, 22, 28, or 8 heaters to the acre.
Firing "No. 4-A" means half of heaters in 2, 8, 14, 20, 26, 32.
Rows 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33 in each protected block are blanks.

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Natural Drift of Air Currents on Peyton Ranch on Average or Ordinary Nights when there is No Artificial Heat

Chart on opposite page gives indication of changes brought about by the frost fighting campaign.

Frozen Lemons and Oranges for By-Products

By E. E. Thomas

A PROBLEM confronting citrus growers at present is whether in groves that have been rather severely frozen, the fruits should be harvested immediately and sent to the by-products factories, or whether such harvest can be delayed until the extent of the injury becomes apparent. If one-third of the fruit remains sound doubtless better financial returns would be obtained by marketing the good fruit than by selling the entire crop for by-products. If, however, the frozen fruit deteriorates rapidly in value for manufacturing purposes, the grower might lose the sale of any portion of the crop if it is all badly frozen and picking is delayed. What are the facts regarding the changes taking place in frozen fruit?

The following data is from studies made by the citrus experiment station following the 1913 freeze.

Sound fruit and badly frozen fruit of navel oranges and Eureka lemons were picked every four days following the freeze for a period of two and one-half months, and these were weighed and analyzed. These were compared with sound fruit and frozen fruit picked immediately after the freeze and stored.

It was found that the weight or density (specific gravity) of the frozen fruit decreases rapidly, whether the fruit is picked and stored or remains on the tree, while the unfrozen fruit increases in density when picked from the tree and stored and remains about the same if left on the tree.

The unfrozen oranges in storage show a variation in the amount of total sugar present but show no progressive changes, thus indicating that the variation is probably due to the difference in individual samples taken for analysis. The average of the unfrozen lots in storage was 9.16 per cent, the frozen 7.42 per cent throughout the experiment. The percentage of sugar in the juice of the lemons shows the same kind of variation as was the case in the oranges. However, the great change which has been taking place in the fruit is more clearly illustrated when we consider the actual amount of sugar present in the unfrozen and frozen fruits. We find that the actual amount of sugar in a frozen orange, expressed in grams of sugar per fruit, drops to less than two grams of sugar per fruit, against an average of 6.5 grams for an unfrozen fruit. The fruit remaining on the trees showed almost the same differences, as the frozen fruit dropped to the same point, while the good fruit showed a slightly greater average than the stored fruit, or 6.9 grams. The lemons again show the same kind of variation as is found in the oranges, but in a different degree. The unfrozen lemons held in storage average one gram of sugar per fruit while those that were frozen decreased from .7 to .2 grams per fruit. The fruits which remained on the trees showed about the same amount of variation. There seems to be no change in the relative amounts of the different classes of sugar present.

The per cent of acid in the frozen and unfrozen oranges in storage decreased in almost the same degree, the average of both lots of fruit being 1.49 per cent. The fruit picked at intervals showed the same change, but had a lower average. The unfrozen oranges showed 1.45 per cent and the frozen 1.43 per cent. We find again, however, that, as with sugar, the total amount of acid present decreases very markedly in the frozen fruit. The frozen oranges show .3 of a gram of acid per fruit in comparison with an average of about one gram in unfrozen oranges. Owing to the fact that lemons have a much higher percentage of acid than do the oranges, we find a much greater variation between the unfrozen and frozen fruit than is the case with oranges. The unfrozen lemons kept in storage averaged 7 per cent acid throughout the experiment, while the frozen ones averaged 5.2 per cent. The acid in the fruit picked at different intervals averaged 6.3 per cent in unfrozen lemons and 4.6 per cent in frozen samples. When we come to the actual amount of acid present, the great difference in the fruit is shown. We find that the unfrozen lemons vary to a considerable degree in the amount of acids present ranging from two to three grams per fruit, while in the frozen fruit it practically all disappears. (See table.)

Grams of Acid per Fruit—Eureka Lemons

Date.	Unfrozen stored.	Frozen stored.	Unfrozen picked fr'm tree.	Frozen picked fr'm tree.
Jan. 14..	2.3	...	2.3	...
Jan. 18..	2.0	1.5	2.0	1.2
Jan. 22..	2.9	1.0	2.4	0.8
Jan. 26..	2.9	0.7	Lost	0.7
Jan. 30..	2.8	0.4	2.3	0.4
Feb. 7..	2.7	0.3	2.2	0.3
Feb. 15..	2.0	...	2.3	0.2
Feb. 23..	...	...	2.3	0.2
Mar. 3..	2.8	0.1	3.0	0.5
Mar. 7..	...	...	1.6	0.2

We see from these analyses that when the fruit is badly frozen it is advisable to sell it at once to a by-products factory owing to the fact that within ten days after the freeze it is found that one-half of the total amount of acid present in the fruit is lost. This decrease does not stop at this point, however, but is very rapid for the first month after the fruit is frozen. Where the fruit is only partially frozen a more serious problem arises, due to the fact that some of the fruit may be entirely free from injury by the frost, and it would thus bring a very much higher financial return if picked and sold as good fruit than if sent to the by-products factory.

Now we know that when the kaiser said "the hour is grave" he meant "the grave is ours."—F. N. F.

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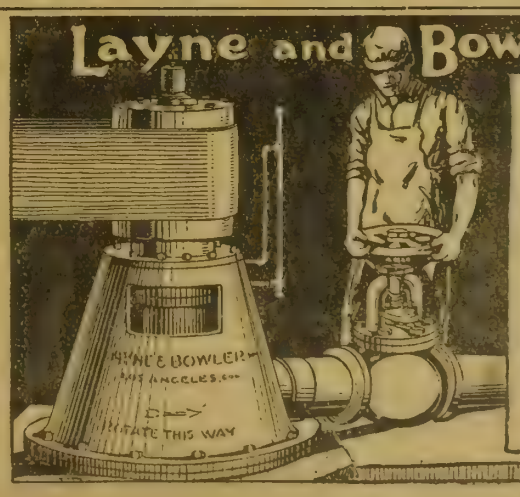
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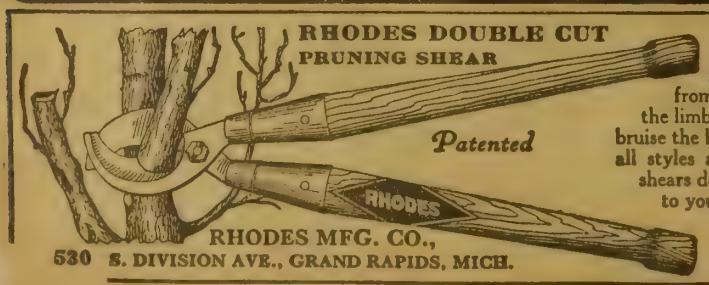
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Grape Syrup

MORE than 40,000 tons of sugar, of a present value of nearly $8,000,000, can be conserved if the 250,000 tons of wine and table grapes that cannot be used next year in the usual way are made into grape sugar.

This is the conclusion reached by Professors Frederic T. Bioletti and W. V. Cruess of the college of agriculture of the University of California after an investigation into the possible utilization of wine and table grapes covering a number of months. A preliminary report of their investigations is published in a bulletin just issued by the University Press.

The conclusions are as follows:

"About 250,000 tons of wine and table grapes cannot be used next year in the usual way.

"This represents a value of the raw material of over $4,000,000, and of about twice this amount in the manufactured state as wine, etc.

"Their loss would involve the ruin of thousands of grape growers.

"If they were made into grape syrup the product saved would be equivalent to over 40,000 tons of sugar of a present value of nearly $8,000,000.

"Investigation has shown that a grape syrup can be made which is wholesome, attractive, and suitable for table use, cooking, the making of jams, and fruit butters, and for the canning of most of our fruits.

"Most of the equipment necessary for making this syrup already exists in the wineries and sugar beet factories of the state and what is lacking could be easily obtained.

"The marketing of this large quantity of a new product could be successfully done only if many fruit canneries could be induced to use a certain quantity of grape syrup during the season of 1920. This could probably be done only by suitable governmental regulation."

The bulletin may be had upon application to the Director of the College of Agriculture, Berkeley, California.

We quote entire the introduction, which contains many interesting points:

Sugar in Grapes

Ripe grapes, especially those grown in California, are so sweet that their use as a source of sugar is naturally suggested. Most of the proposals to utilize them for this purpose, however, are based on a misunderstanding of the nature of the raw material and of the proposed products.

Various Kinds of Sugar

Sugar, in the common use of the word, means dry, granulated or crystallized sucrose. This is only one of several sugars and one which cannot be produced from grapes because they contain none. Grapes contain, however, two sugars, glucose and levulose, both of which are wholesome foods. The sweetness of glucose is less than that of sucrose, but that of levulose is greater. The mixture known as grape sugar has about the same degree of sweetness as sucrose, usually called cane sugar. What is often known in commerce as "grape sugar" is simply glucose and is made from corn or other starchy material. It is less sweet than real grape sugar.

At present, no method is known by which the sugar in grapes can be given the dry, granulated texture required in commercial sugar. A sugar syrup, however, can be made from grapes and their sweetness utilized in this way.

Sugar Syrups

Sweet syrups are of various kinds which it is necessary to distinguish and understand before attempting the manufacture of any of them.

A syrup can be made by dissolving pure cane sugar in a little water. Such a syrup is that used in canning. It is perfectly neutral in flavor, that is, it has no taste but that of sweetness. Similar neutral syrups can be made in the same way from pure glucose or other sugar.

Syrups of varying flavors, on the other hand, can be made from impure cane or other sugars. The syrups commonly sold, such as maple syrup, sorghum syrup, corn syrup, "golden syrup," and molasses are of this character. The flavors may be agreeable or disagreeable, according to the nature of the impurities to which they are due. These imprities, moreover, may be wholesome, unwholesome, or indifferent.

If the flavors are agreeable and the impurities harmless the syrup may be preferable for some purposes to pure, neutral cane sugar syrup. This is the case for some tastes with maple syrup and others, and when a market is established for such syrups, they command a higher price than the neutral syrups with which they do not compete. On the other hand, if the flavors are not agreeable, the syrups must compete with neutral syrups and this they can do successfully only by being sold at a lower price.

Grape Sugar

To manufacture and market grape syrup successfully, we must therefore attain one of the following results:

1. Produce a neutral syrup that can be sold profitably at the same price as cane sugar syrup.

2. Produce a syrup of inferior quality that can be sold profitably at a lower price than cane sugar syrup.

3. Produce a syrup of superior quality that will attract consumers at a price higher than that of ordinary cane syrup.

Preliminary tests indicate that probably the first two results cannot be obtained under ordinary conditions of the market. To raise grapes profitably they should bring at least $15 per ton and this would represent a cost of close to four cents per pound for the sugar they contain. To this cost must be added the expenses of manufacture which would bring the cost of the finished syrup higher than that ordinarily ruling for cane sugar syrup. With the present high cost of cane sugar, a neutral grape syrup might be sold for a price that would make it possible to pay $15 or more per ton to the growers. Grapes this year, however, are bringing much more than this for other purposes, and if the price of grapes falls, it is probable that that of sugar will fall in proportion.

The only chance of making grape syrup profitably as a permanent industry, therefore, seems to be to obtain a product that will command a price higher than that of the ordinary cheap syrups. It can do this only if it possesses qualities that are preferred by consumers. It must, in other words, be sold on a basis similar to that of maple syrup.

The more distinct the flavor, providing it is agreeable, the more likely it is to find and keep a permanent profitable market. It would seem a mistake, therefore, to attempt to make

a syrup of neutral flavor to compete with cane syrup.

Nature of the Investigations

The two problems to be solved then are:

1. Can a grape syrup be made that will be bought for its special qualities? and

2. Can it be produced and sold at prices which will attract the consumer and pay the grape grower?

The production of grape syrup involves: (1) growing the grapes, (2) extracting the juice, (3) concentrating the syrup.

No changes are necessary in growing the grapes. Cull table grapes, second crop raisin grapes, and in case of the prohibition of wine making, wine grapes are the available raw material.

Wineries are already equipped for extracting the juice for wine making purposes and would require few changes or additions to prepare juice for syrup making.

Condensers for making the grape syrup needed in sweet wine already exist in many wineries. Their output, however, is small and the product not well suited for the object in view. They would have to be considerably modified and expanded to be of much use in making table syrup. The beet sugar factories, however, have a very large capacity, sufficient to handle all the grapes grown in California and could be adapted to the manufacture of grape syrup with little change. As they are idle for several months in the year, they could easily concentrate all the grape juice that would be available if this juice could be obtained during the proper season of the year. This season is the spring and summer when they are not busy with beets.

One of the main problems, therefore, is the keeping and storage of the juice from the vintage to the spring.

AMERICAN POMOLOGICAL SOCIETY

The report of the last meeting of the society, at Boston, is ready for mailing. The volume will be excellently illustrated and will contain several papers of particular value to both amateur and professional pomologists. The regular membership fee for the biennial period is $2.00; for life, $25; for associate societies $10 and $5.00 respectively. Further information upon the subject of the society and its program of activities may be procured by addressing the Secretary, 2033 Park Road, Washington, D. C.

Recently President Bailey has been advised that many of the state horticultural societies have taken action covering the new membership, given life at the Boston meeting. This betokens a renewed interest on the part of the state societies in this old and stable organization and bespeaks much for the increased activities, attendance and results at the next meeting, which probably will be held in some Eastern center the latter part of 1919, though as yet the executive committee has not taken action upon the questions of time and place for the event.

It is expected that New York, Pennsylvania, Delaware, Maryland and the District of Columbia will be in the race for the convention. If the reader has any preference or knows any good reasons why some place in particular should be selected he ought to write the committee or secretary his views.

A feature of the 1919 session will be another student judging contest. Committees in charge of the several phases of the society work will soon be announced; in particular will an early announcement be made of the committee in charge of the score card, judging contest and exhibits.

SPRAY TO SAVE THE FRUIT CROP

Fruit, either in fresh, dried, canned, preserved or jellied form is a food product of recognized value. The maximum production of good fruit at this time is, therefore, of paramount importance. Directly concerned in the production of such fruit are spraying operations for the control of various insects and diseases.

Owners of commercial orchards have long recognized the importance of spraying, but there are many small orchards and so-called home orchards, the owners of which have not adopted spraying operations or do not give sufficient attention to the work. The uncared for condition of such orchards is too often revealed by the great number of windfall fruits and the inferiority of that which remains on the trees.

No single feature of orchard practice yields so high a percentage of benefit as spraying, often increasing the value of the product several hundred per cent. Every fruit grower, large or small, has it within his power to save his fruit from loss by insect and fungous pests, and thus add materially to the food supply of the nation. Spraying is now recognized by progressive growers as an exceedingly cheap form of insurance, not only protecting the fruit during the growing season, but insuring its proper keeping in storage.

ARSENIC UNDER EMBARGO

At the request of the United States food administration, the war trade board has placed an embargo on the exportation of white arsenic. The chief purpose of this order is to protect American farmers and gardeners against a shortage of arsenic insecticides.

Besides feeding ourselves, the United States is pledged to feed the Allies, and we must also supply the people in territory now being recovered from German dominion. We must realize that peace will bring no additional food, but instead increased obligations. Poland, the Balkans and other parts of Europe now isolated from relief will clamor for a share of our present and future reserves.

Thus strict conservation in all foods and feeds stored on farms is imperative in addition to the food program for homes and public eating places. Compliance with these requests will enable the United States to fulfill present obligations and be ready for new responsibilities.

Orchard Trees

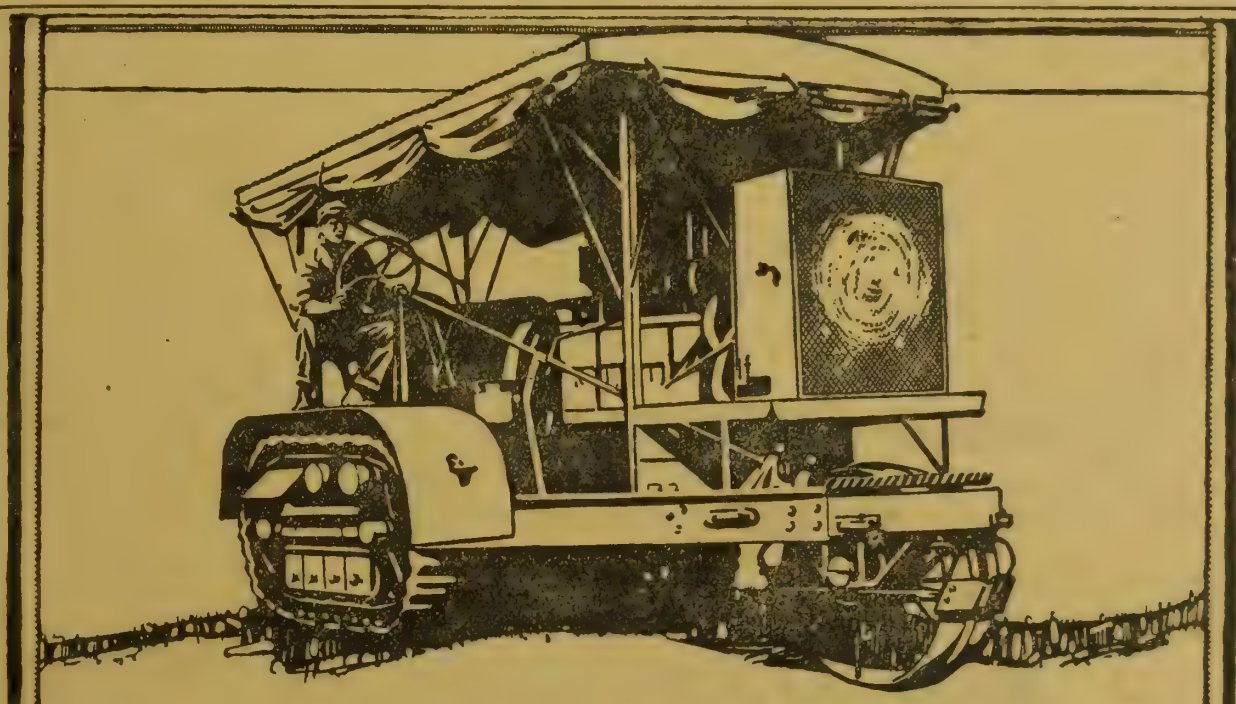
French Prunes
Bartlett Pears
Almonds—
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Black Tartarian

Pears on Japanese and French Pear root; Prunes on Myrobolan; Almonds on Almond; Peaches on Peach.

Choice, well grown trees. Prices on request.

James Mills Orchards Corporation
Hamilton City California

California Cultivator
Costs Only $1.00 Yearly



Power at the Drawbar is What Counts

The tractor you purchase should have a powerful motor—but that isn't all. The power of the motor should be delivered in actual pull without undue losses. The high percentage of its motor power delivered at the drawbar is an important point of "Caterpillar" Tractor supremacy.

The "Caterpillar" Tractor has a remarkably simple and direct transmission. It has no complicated, power-robbing differential. Its simple, long-lived track positively eliminates power losses due to ground-slippage. Those items mean superiority in design, and it is because of superiority in design that the "Caterpillar" Tractor invariably stands foremost not only in public and private competitions of every description, but also in the continuous test of severe every-day work.

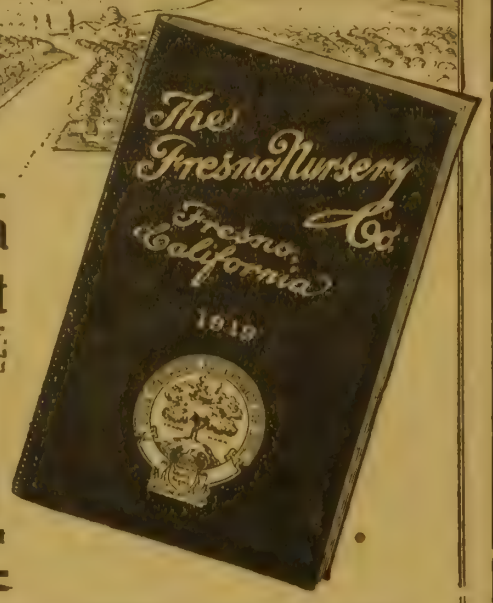
The "Caterpillar" Tractor's position in the lead was not the achievement of a moment, but the result of more than three decades of manufacturing experience—experience coupled with the highest standards, rigidly maintained, of workmanship and materials.

These points in construction and materials are explained in "Caterpillar" Tractor Catalog No. 392, which also tells many other things you will want to know if you are interested in tractors. It will be sent on request.

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An Orchard is a Good Investment

Write today for this

TREE Catalog

and learn how to plant and grow trees successfully

THIS BOOK answers in a satisfactory manner many questions which you may want to know, for instance, if you are going to plant plums, what kind?

Early varieties of peaches bring good returns, but an assortment of peaches ripening from May to November is in many cases preferable.

While the Tilton Apricot is the canners' favorite, there are others equally good. Some trees grow and bear best in the warm interior valleys while others do better at a higher altitude along the foothills.

Growing almonds has become very profitable. Do you know whether your locality is suited to almond culture?

If you are in doubt as to what trees would do best on your land, write to us, describing as fully as possible all of the conditions, and we will be glad to advise you.

Send for Our Illustrated Catalogue and Price List. Contains 104 pages of real valuable information for fruit growers.—Free on request.

The Fresno Nursery Co.
P. O. Box 615-C Fresno, Calif.

Coates French Prune

After years of experimentation we have "bred up" several varieties of French prune which are reproducing exactly to type, the fruit being larger, and trees more regular bearers. Prices no higher than for any other good trees. Call next summer and see our ten acre Demonstration orchard, and order your trees now. We have plenty of trees on all roots ready to ship any time. Also Pears, Almonds, Apricots, and full general assortment. No better trees or more reliable.

Landscape Gardening

The best assorted stock of ornamental shrubs and trees in this part of the State. Liberal terms to dealers.

Leonard Coates Nursery Company
Morganhill, California

Federal Farm Loans

Long Term Low Rate

All loans made on an amortization plan whereby the borrower repays the principal gradually with each interest payment.
Over three thousand satisfied borrowers in this district.
It will pay you to investigate.
For information apply to the nearest NATIONAL FARM LOAN ASSOCIATION or write direct to

Federal Land Bank of Berkeley
California

The Garden

Written for California Cultivator By Ernest Braunton

THERE are considerably over a hundred named varieties of avocados in California, and each promoter knows that his is the best. Someone told me that it would require great courage to say which one was best or which half dozen were best. Well, deponent will so state. Deponent is defined as one who testifies in a court of justice, and I am going to make a just statement with the Cultivator as a court and, as our readers well know, "justice to all" is our motto.

But first of all, let me get behind the other fellow. In 1917 the Avocado Association recommended a list of eight varieties which are here given, from memory, in alphabetical order. They are: Blakeman, Dickinson, Fuerte, Lyon, Puebla, Spinks, Sharpless and Taft. Long ago I decided that the Fuerte is the one best for family use, and even promoters of other varieties have acknowledged the truth of this statement. After full investigation I believe it is the equal of any for commercial planting also. At the Liberty Fair in Los Angeles I met that prince of horticulturists, Geo. C. Roeding of Fresno. When I mentioned the increasing number of varieties and the range in values, he said: "There is none better than the Fuerte." So why should I stand abashed in the presence of him who asks: Which is best? Whether it really possesses the finest flavor, or my taster was in excellent condition, I know not, but the most delicious single fruit I have eaten was a Puebla, and this opinion is shared by some others who have eaten many varieties. Make up your mind before March to plant one or more avocados in the garden.

A Near-Orange

There grows in India a large handsome tree that bears a large citrous fruit, but not of the genus citrus, to which oranges and lemons belong. The fruit is frequently six inches in diameter, of orange shape, of greenish yellow color and possessed of a hard shell one-eighth inch thick. This shell is divided into a dozen or more long narrow cells which are filled with an orange colored aromatic pulp which the Hindus esteem beyond any citrous fruit. It is said the white man does not prize it so highly but makes of it excellent drinks or sherbets. The fruit is of considerable medicinal value, as when ripe it is mildly laxative and also beneficial to dyspeptics, while the unripe fruit is of still greater value for dysentery and in no wise injurious or dangerous. The tree is hardy, enduring temperatures below 20 degrees. Our government has for years been growing a few trees in various parts; why not plant more? Uncle Sammy should pass the seeds around more freely. The name of this tree is Aegle marmelos, and there is a small spiny tree of less value, but closely related, named Aeglopsis, which means "similar in appearance to an Aegle." There are scores of species of citrous trees that should be given trial for stock on which to bud citrus fruits, for some of them are hardy and inhabit swamps near the sea, wherefore we may yet grow oranges in our marshy peat lands.

Cork Plants

For the most part cork comes from an oak tree known as Quercus suber, but at least one other and closely allied species also furnishes cork of commerce. These trees thrive in all parts of California and in a variety of soils and general conditions. The corky barked elm is common in the northern half of this state, but rare in the south as locally deciduous trees are not popular. There is also a corky barked maple from Japan and other species somewhat corky. In one species of evonymus the branches on old trees have corky wings. But none of these except the cork oak have bark of commercial value and none of them are as beautiful as this oak.

The Abelias

There are several species of abelia grown, though but two are common in California, and these are of about equal value as ornamentals. One of these is said to be a garden hybrid. But little attention may be paid to these points by the garden owner, for what we want is abelias, and many of them. Where small shrubs only are needed I know of nothing more satisfactory. At all times of the year they are neat and clean and need no pruning or special care. When covered with the little flowers of bell shape they are peculiarly attractive. Plant the one known as grandiflora or rupestris.

Fruiting Hedges

The strawberry guava makes a fine hedge and yields a fruit which has few superiors, but the plants are without thorns and attract rather than repel all those who come in contact with them. Carissa will make a low broad hedge and its beautiful ivory-like thorns will halt the rush of any and all animal life, but the plants are not tall enough for effective hedges. Aberia Caffra, the kei apple from the Cape of Good Hope, is a small tree that may be trained to any shape or size desired in hedges and also bears repellent thorns. The kei apple is not related to any other fruit we grow, but is a round, strongly acid fruit, one and one-half inches in diameter and is used for either pickles or preserves. Though is does fruit freely under hard conditions, the tree is hardy, and responsive to good care.

Chinese Gooseberry

Actinidia Chinensis is the name of a vine of unusual value, since it is ornamental and fruitful. There are other actinidias of merit, but this one is the most beautiful and has the largest flowers and fruits. The latter have the flavor of a gooseberry, egg shaped, about an inch long. A. arguta, from

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Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

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GOOD AS CAN BE GROWN
Prices Below All Others

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Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Ill.

China, Japan and Korea, also bears a fruit of similar size, but more sweet to the taste. Either is preferable to a vine that fruits not.

The Biggest Tree

Adamsonia digitata, a member of the silk cotton tree family, is said to have the largest trunk of any tree in the world but it does not grow to more than 60 feet in height. Trees having a trunk diameter of more than 30 feet are not rare in its native Africa. There it is called the baobab, but I call it a boob, for it will not grow in California. 'Tis a pity, too, for it bears a very attractive flower six inches across. One of the trees may occasionally be found in gardens of extreme south Florida, and there the gourd-like fruit is called monkey's bread. Whether or not any of the trees surpass in girth our largest big trees is a matter of doubt.

Broad-Leaved Pines

To those living in warm sections and who are interested in trees both curious and beautiful, I would recommend the planting of a Kawri pine from New Zealand or Australia. Unlike the pines proper, these species of agathis have what appears to be true leaves, some of which are three inches wide, four inches long, and of thick leathery texture, very attractive. To one well versed in trees the agathis looks as little like a conifer as any tree familiar to us. A small specimen quickly grown quite closely resembles a woody stalked lily plant. A few specimens 40 or more feet high may be found in and around Los Angeles.

A Dual Purpose Climber

In Japan and China there grow two showy climbers, related to the barberries, that grow edible fruits, though but sparely. It is believed that in sunny exposures with rich, well drained soils the crop would be heavier. But in heavy or soggy soils the vines do not thrive. For covering partially, or where dense shade is not wanted, these vines should prove ideal. One species has been somewhat common in California for a half century. The botanical names are Akebia quinnata and A. lobata, and the writer has planted both species in local gardens. Fruits he has not yet seen, but they are said to grow to five inches in length, with a seed imbedded pulp not unlike that of a pomegranate.

Candlenut Tree

In the Orange County exhibit at the Liberty Fair in Los Angeles there was a basket full of fruits from a species of Aleurites, variously known as candlenut, candleberry tree, varnish tree, and wood oil tree. They are cultivated in the tropics for the oil derived from the seeds, an oil much superior to linseed oil. A commercial planting of these trees was made in Orange County a dozen years ago, but what use has been made of the nuts I do not know. It appears doubtful if these tropical trees would prove a commercial success in California, but the grove herein mentioned should now be old enough to demonstrate its value if it has any.

Color Harmony

Harmony of color is insufficiently considered in the making of gardens. Not alone should harmony prevail between all parts, objects and structures, but between the garden and its immediate surroundings. It should not constitute a "sore spot" in the general landscape. Flowers there should be in profusion but do not seek to have every color in great masses, and only white should heavily predominate if but a single leading color is used. The so called "scarlet and gold" has a seductive sound and is really a fine combination but it simply means an excess of red and yellow as compared with other colors. Few colors in mass and strength are far better than many dabs of many colors. Modesty and dignity is the effect to be sought.

The Floral Procession

It is not for all of us to have a perfect flower garden at any time. Still fewer may have one highly attractive at all times. It costs much time, labor, and money to keep up a constant or continual pocession of flowers. Just now our daffodils and other bulbs will be coming into bloom. Sixty days more, and their glory has passed. Shall we leave the beds bare all summer, or shall we plant them with seeds or plants? Shall we sow seeds broadcast and await the flowers, or shall we have plants growing in boxes that we may at once replant and quickly gain floral effects? Then when summer goes, shall we have an autumn crop while waiting for the daffodils to appear? These questions you will have to decide for yourself. You will find plenty of work but that is the price of a continuous floral succession.

Garden Equipment

Fully one-half of the possible joys of gardening are denied those who toil with an insufficient equipment. In every garden there should be a tool and storage house for the garden alone. Do not look for the farm or orchard pruning shears when you come to prune, but have a garden pair that is ever in excellent condition. There can be no fine garden on the farm if you use farm tools and equipment except you may also use farm labor. As a rule woman is the gardener in the rural home and she has to use such tools as she may find not in use. This is a most discouraging phase of the work; for nothing so adds to the joys of gardening as an excess of good tools. You cannot have too many.

ORDER AND PLANT SOON

In the frozen up East they have two seasons of tree planting, fall and spring. The spring season is exceptionally short, but, as short as it is, we do not believe there are as many planters who defer to the last moment as there are in California. Here we have but one season and it lasts from late November till late January or even late February. But go to any nursery as late as April and we will see deciduous trees, root system a mass of little rootlets just starting, young leaves on the tree, being delivered to orchardists who have waited too late to get best returns from the first season's growth. Too many orchardists are busy waiting until it rains or until it stops raining or until something turns up. Then the rush is made for any remnants or job lots which may be had. It is a great planting year for returns received during the past two years and, better than all, cooperative methods, to a degree guarantee the business of fruit raising.

"The BEAN is the Best"

Spray Now!



Clean up your trees! Rid them of moss and scale! Go after big crops of good fruit! Growers all over this State are busy with their winter spraying—and these are the growers who will get the money in harvest time. If you haven't a good sprayer—pick from the complete line of

BEAN Power Sprayers

Built in a variety of sizes from the sturdy, efficient little Bean Pony Duplex Outfit to the big Bean Giant Triplex, which supplies several lines of hose.

All are BEAN QUALITY through and through—it's simply a matter of how large your orchard is.

You'll get Bean dependability—reliability—efficiency—sturdiness—in any Bean outfit you buy. Better see your nearest Bean dealer at once—or send the coupon to us without delay. The quicker you clean up your trees the better.

You can't afford to miss any clear weather until the work is done.

Bean Spray Guns are supplanting spray rods this year. They save time, money, labor. Check coupon for descriptive folder.

BEAN Spray Pump Co.

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Address office nearest you.
BEAN SPRAY PUMP CO., Cal.
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Please send me your sprayer book with full information about Bean Sprayers.

I have.....acres of.....and am interested in .....Power Sprayers .....Hand Pumps .....Accessories.

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Olive Trees

such as these are grown only on our foot-hill locations.—Note the good roots,—for hardiness they have no equal.

We have a fine lot of Mission and Manzanillo trees, both on Picholine roots and grown from cuttings. We have had splendid success on all Olive plantings—a most important assurance to you.

Submit a list of your tree wants for special quotation. Do it right now.

We have also a complete assortment of Shipping Plums, Cherries, Prunes, Bartlett Pears, Fall Pears, Peaches, Almonds, Apricots, Walnuts, etc.

Our foot-hill grown trees are free from root diseases common to other localities. Our trees insure your future profits in fruit growing.

And remember—we will accept Liberty Bonds as full or part payment for trees. Write us today.

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J. E. Bergtholdt
Secy. and Mgr.

SILVA-BERGTHOLDT CO.
Newcastle—Cal.
"Behind each tree is our guarantee"



GIVE YOUR K-W MAGNETO the Care it has Earned NOW

It is only human nature not to pay much attention to any piece of machinery as long as it runs all right. Like thousands of others your tractor operator may have neglected to give your K-W Magneto the attention its faithful service deserved during the past year. But don't allow it to be run another year under these same conditions.

Our interest and responsibility in your K-W Magneto never ceases. We so carefully build each K-W Magneto that it will give years of efficient, reliable service if given ordinary care. But we don't stop there. We feel it our duty to show you how to keep it in A-1 shape by telling you what *to do* and what to avoid.

What To Do

Just follow the few simple instructions found in your K-W instruction book, and you can put your magneto in A-1 shape yourself. If you have lost your instruction book we will send one free on request.

What Not To Do

Don't tear down your magneto or allow any ordinary mechanic or garage man to do so either. If your magneto needs repairing—if it has become damaged, or put out of adjustment through the carelessness of some farm hand, send it to the nearest K-W "Licensed" Service Station.

A Factory Repair Promptly

In selecting these Service Stations we have chosen only such concerns as have the necessary equipment, a complete stock of repair parts, anda crew of expert mechanics who "know" magnetos, and can give you a "factory" repair promptly.

Don't Delay a Minute

Tractor owners everywhere are having their tractors overhauled now. In having yours put in shape for the spring plowing and the year of hard work ahead of it, don't overlook your magneto. Test it now and if it needs repairing, write us at once for the name of the K-W "Licensed" Service Station nearest you. Give your K-W Magneto the care a year of faithful service has earned.

THE K-W IGNITION Co. 2895 Chester Ave. CLEVELAND, OHIO, U.S.A.

K-W HIGH TENSION MAGNETOS FIRE ANY KIND OF FUEL K-W

Easy Ditching



THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with



THE Martin DITCHER, Grader and Terracer

GUARANTEED

Makes new ditches; cleans old ones; grades roads; builds dykes and terraces. Cuts alfalfa, Bermuda grass or sweet clover roots from ditch banks, without plowing. Does more work and better work than 100 men with old methods.

Made In Horse and Tractor Sizes

All steel. Reversible. Adjustable. No wheels, cogs or levers. More MARTINS now in actual use than all other farm ditchers combined. Warehouses and distributing points in nearly all Western States. Write for free descriptive catalog and nearest distributing point, together with list of MARTIN users near you.

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AWARDED GOLD MEDAL

Krogh Pumps are Absolutely Water Balanced
No End Thrust Possible *No Set Collars Used*

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Krogh Direct Motor Driven Pump

Fitted with Ring Oiling Bearings

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We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

Growing Milo

THE Imperial Valley promises to become "the granary of the world" in the matter of milo, or, as the Imperialite persists in calling it, corn The Cultivator has usually taken exception to this use of the term,—not but what it is correct enough—but it is somewhat confusing in view of the fact that in discussing the three billion bushel crop which the United States may produce next year the government statistics refer to Indian corn and not to the sorghums. But, call it what we will, the returns produced in the Imperial Valley are a great factor in its wealth and a greater factor in feeding the world, especially some of its live stock.

One of the most successful crops of milo, according to the El Centro Progress, raised in the valley is that on the ranch of J. C. Sharp and Son, formerly the W. E. Wilsie ranch west of El Centro.

Regarding cultural practice in the production of this crop we quote from Mr. Sharp's description of his methods:

Mr. Sharp has a theory that like produces like and he ascribes much of his success to the care he took in selecting his seed. He says the cost of seed is a very small item of expense in raising milo and it is false economy to buy poor seed because it is cheap. Get the best seed, whatever the price. The seed used was propagated at the Kansas City experimental farm at Garden City.

"Every farmer has his own theory as to just how and when to plant barley, milo, alfalfa and every other crop and as to how often the same should be irrigated. Some plant corn on ridges, others in furrows, others still on the level ground. Each method has its advocates. Because Mr. Sharp and his son have made such a signal success of their milo crop we believe it will prove of interest to our readers to know just how it was done.

"The field selected for the crop was in a very bad condition. Cotton had been grown on it for several years and as the crop had not been properly cultivated, Bermuda grass and weeds had taken entire possession. Mr. Sharp has another theory, and that is that deep plowing enables the water to get into the soil where it will do the most good. He started a caterpillar to work plowing in May and turned the entire field over to a depth of 16 inches, and when the plowing was done the field looked like a section of No Man's Land where Yankee shells had exploded. A large lister well weighted down, hooked to a caterpillar leveled the field somewhat and the water was poured on for a couple of weeks, and the field took water like a sponge. The foul seeds sprouted and when the land was dry enough to work it was thoroughly disced for the double purpose of killing the weeds and subduing the soil. After another irrigation and another discing to kill weeds that had again sprouted, a smoothing harrow finished the seed bed, which was then as mellow, moist and smooth as a garden.

"No ridges or furrows were made, the corn being planted on the level ground with a common two-row planter. About five pounds of seed were used to the acre. The seed sprouted quickly and grew rapidly and no further work was done on the field till the heads were beginning to form, the two irrigations before planting being enough to carry it that far. Since then the land has been kept moist, three irrigations being sufficient. Most farmers cultivate their corn while it is growing, but Mr. Sharp believes that the proper time to cultivate corn is before it is planted.

"Planting commenced July 1 and was finished August 5. Ordinarily it takes 120 days to mature a crop of milo maize in Imperial Valley, but this crop will beat that at least a couple of weeks. The day we visited the field the corn had been growing 86 days, counting from the first day of planting. The heads were well filled and at a distance the corn appeared to be ripe. Close inspection, however, revealed the fact that it was not fully matured. Three weeks more and the crop will be ready to cut, making 105 days from the day of planting.

"Mr. Sharp believes the 200 acres will average over a ton to the acre. One field of 80 acres, where the grain appears to be especially good, will produce fully 125 tons, so he says, and his judgment is backed by many who have examined the field. This he intends storing for seed.

"Here, in brief, are Mr. Sharp's rules for raising milo maize:

"Irrigate thoroughly before planting.

Kill the weeds by thoroughly discing the soil.

"Exercise great care in preparation of the seed bed.

Don't over-irrigate, but keep the corn growing steadily by keeping the ground moist.

Plant the dwarf variety of milo.

"Plant good clean seed.

"Plant on the level ground."

Control of Ground Squirrels

U. R. STEWART and John S. Burd unite in authorship of Bulletin 302, "Control of Ground Squirrels by the Fumigation Method." This bulletin may be had by addressing Agricultural Experiment Station, College of Agriculture, Berkeley, California. It refers to the five different methods of control, poison, fumigation with carbon bisulfide, trapping, shooting, natural enemies, and concludes that carbon bisulfide is the most satisfactory. There is so much interest in squirrel control at this time that we quote from its conclusions:

"The series of experiments here described clearly shows that carbon bisulfide is an eminently satisfactory fumigant for ground squirrels. Twenty minutes' to half an hour's treatment with air containing two per cent of carbon bisulfide is certain to be fatal. The concentration of gas actually used in practice will of necessity vary with the volume of the burrow which of course is not known to the operator. The dosage of one and a half to two ounces usual in the waste ball method corresponds to about two per cent gas in what we consider to be large burrows. The concentration in small burrows would be proportionately greater. Unless a burrow happens to be much larger than any we have found, the concentration produced with the usual dosage should be sufficient to kill in about 20 minutes, always, provided the vapor is completely diffused.

"It is not sufficient under adverse conditions to merely drop the carbon

bisulfide in the burrow on a waste ball. This will produce good results if everything is favorable. When the ground is level or slightly sloping the gas will flow for twenty or thirty feet to the lowest part of the burrow. Our experiments with the artificial burrow, as well as Dixon's field observations in the San Joaquin Valley, demonstrate that the gas will not flow over elevations of one or two feet. Exploding the gas will distribute it somewhat more but not sufficiently to make it rise over the usual irregularities.

"This clearly indicates that some form of apparatus to pump the gas is desirable. The commercial machines which were formerly on the market were all too expensive, ranging in price from $5.00 to $25. It is clear that all that is necessary is a bellows or large bored pump which will blow a strong stream of air through the tank which contains liquid carbon bisulfide. For field work in the San Joaquin or Sacramento Valley, where it is possible to drive readily over the country, a blacksmith's rotary blower, or hand spray outfit could be connected to a vaporizing tank and mounted on a wagon with one man to operate the pump and another to fumigate. In this way great efficiency may be obtained. If a power spray outfit were adapted for the purpose it would be necessary to observe great care to keep carbon bisulfide gas away from the exhaust of the engine and avoid the possibility of a serious explosion. It is believed that any handy person ought to be able to devise a satisfactory fumigation apparatus out of materials to be found on the average ranch. Circular 181 of this station illustrates and gives dimensions of the complete squirrel "Destructor" which could be simplified in many ways.

"The only difference in field procedure which is advisable when carbon bisulfide is used in a pump machine, is that the refined instead of the crude carbon bisulfide be used. This will necessitate ordering in large quantity from the wholesaler as only the crude article is usually handled by the local dealers. The price is ordinarily about the same, but the refined product will be found much more desirable for pump machines as the crude article ordinarily contains a small amount of free acid which will corrode the vaporizing tank.

"It will be found necessary to vary the dose of carbon bisulfide employed depending on the nature of the country in which the squirrels are located. In foothill sections of shallow soil and hard subsoil, similar to the Berkeley hills, treatments which average half an ounce to a hole will be sufficient if a pump is employed. Where deep valley soils prevail and especially where large colony burrows are found it will be necessary to use two or three times as much carbon bisulfide to secure satisfactory results.

"The laboratory investigations, as well as the field observations of Dixon, show that neither gasoline nor distillate are satisfactory materials for squirrel fumigation. Their effectiveness is so much lower that, as previously stated, even if 20 cents per gallon is paid for gasoline and 90 cents for carbon bisulfide the bisulfide will be found less expensive per squirrel killed. It is believed that the field has been thoroughly canvassed for possible fumigating materials, and with the exception of calcium arsenide, which will require further work to prove its possibilities, carbon bisulfide is the most satisfactory chemical so far developed.

"Intelligent observation and careful work will be found to yield good results at every stage of a squirrel campaign. In the use of fumigating materials it is possible to effect great economy by treating only occupied burrows. The poisoning campaign which precedes the fumigation should have been arranged for the earliest possible date that will find the squirrels actively working in the spring. A week or ten days after the poison has been distributed a workman equipped with a mattock should go over the infested areas and close every visible hole. The fumigators should follow in one or two days. Every hole that is now open will indicate that the burrow is occupied by a squirrel and very few empty holes will be treated by this method. The treated holes will be again closed so a later inspection should clearly indicate whether any squirrels have escaped.

It is too much to expect complete eradication of all squirrels in one or two season's work. California is too widely infested with ground squirrels for such a thing to be possible. A few squirrels will escape in gullies or dry washes. Even under the best possible conditions we must face the necessity of squirrel control just as the orchardist faces an annual outlay for spraying or fumigation. The encouraging thing about squirrel control is that the work will become less and less if it is intelligently performed and thus pay larger and larger returns on the time and materials invested."

HEMET TRACTOR TRAINING SCHOOL

Hemet in Riverside County has been chosen as one of the tractor training centers for the series of schools being conducted by the state board of education and the state board of control cooperating with the local high school. A training school opened January 13 and continue to and including February 1.

The first week of the school will be devoted to a study of gas engines, carburetors, ignition, etc. The work will be in charge of one of the group of experts employed by the state board of education. The second week will be given up to the study of tractors, assembling, disassembling and lubrication.

The third week is spent in a demonstration in the field, the students actually being trained to operate various types of tractors in the preparation of a piece of land for cropping.

These schools have been an unqualified success in other places and it is to be expected that the Hemet school will be no exception. It will be the purpose to enroll farmers and young men out of employment who may be trained to relieve the tractor operator shortage which exists all over the country. The course, however, will be of practical value to every one who operates a gas engine, whether it be in an automobile, pumping plant or tractor. Immediate enrollment is urged upon all who are interested. Full particulars can be obtained by corresponding with Oren B. Waite, principal Hemet Union High School, Hemet.

Smile, and the world smiles with you.
Weep, and you weep alone;
For the good old earth has need of your mirth,
It has sorrow enough of its own.

Concentrate all your thoughts upon the work in hand. The sun's rays do not burn until brought to a focus.

Life is not really what comes to us but what we get out of it.

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IN a climate not excelled by any agricultural area in America you can own a fine, rich farm of your own. The Canadian Pacific Railway offers you this opportunity to achieve independence and grow rich—in Western Canada. The lands offered are in the largest and most substantial irrigation undertaking in the Continent. The price is only $50 an acre—some for less.

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You pay down 10% and have 20 years in which to pay the remainder. The first crop is often worth more than the total cost of the lands.

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Loans of $2,000 in improvements are made to approved settlers on irrigated farms with no security except the land itself. You can take 20 years to repay this loan at 6% interest.

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Why an *Irrigated* Farm?
Because irrigation in Southern Alberta
—insures crops every year
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—makes you practically independent of weather conditions
—produces great quantities of coarse grains, pasture, alfalfa, roots, thus developing the live stock industry which is safer and ultimately more profitable than wheat farming
—tends toward close settlement, well cultivated farms, good neighbors, good roads, schools, churches, telephones, mail delivery, co-operative marketing, and a high standard of community life.

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The Canadian Pacific Railway knows that its prosperity depends on the prosperity of the settlers along its lines. Because it wants good settlers it is willing to sell its lands at these remarkable prices and terms.

Send for special railway rates and special booklet fully describing all lands and giving all details.

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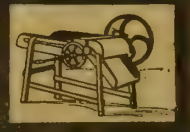
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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Laying Hens and Rainy Weather

Will you kindly answer through the Cultivator the following questions: Should hens that are expected to lay be allowed to get out mornings on the cold ground in cold rains from off a warm roost, then fed cold dry feed and allowed to drink cold water and stand around in the rain all day? Should not laying hens be fed warm, moist feed in the morning, and not be allowed to stand around on the cold ground, and should they not have warm water to drink and warm sand to stand and wallow in?—Subscriber, Red Bluff.

Moderately cold ground and moderately cold water ought not to check the laying of a vigorous hen, but cold rain is a different matter. Some Eastern poultrymen claim that their hens can run on frosty ground all winter without checking the egg yield. Others do away with yards altogether and keep their hens indoors summer and winter. Whichever side has the best of the argument, cold rain has no advocate, and "standing around" in the rain or out of it has no advocate. Don't let your hens stand around under any circumstances. Make them work if you want eggs. Here again the doctors disagree. Most poultrymen feed a moist mash at some time in the day, some in the morning, some early in the afternoon, some at night. Some like it hot, some like it cold. There are those who say a hen should never have warm feed, while others do not object to a little warming in cold weather. Personally I like the warm mash of cooked vegetables and ground grain and I give it in the morning because it is less trouble for me to attend to it then, but it is a question whether scratching for her breakfast in deep, dry litter won't warm a hen up more effectively than any amount of warm feed. Drinking very cold water is said to check laying, but my own idea is that hens will not drink water that is cold enough to chill them. Certainly they should have fresh water in their crocks every morning. If the water is very cold, it might be well to raise the temperature a little by adding hot water, but I would not make it warmer than the ordinary temperature of piped water. —J. A. K.

Princess Papershell Almonds

In further answer to question as to the Princess Papershell almond in Cultivator R. H. Taylor, assistant professor of pomology at the state universiity writes:

In our opinion the principal reason why the Princess is not grown more than it is, is because of its light bearing habits. Our experience with the Princess at the University Farm, Davis, shows that the Princess is a comparatively light producer as compared with other varieties and particularly so as compared with the Nonpareil. The Nonpareil is a very much better nut in every way and is a much heavier producer, in fact in most years the Princess has not produced much more than half the tonnage. While it is true that the Princess runs a higher proportion of kernel in proportion to whole nut, at the same time the shy bearing does not make up for the difference. By comparing the varieties in Table 11 of Bulletin 297 of this station, "The Almond in California," you will see that the average percentage of kernels to whole nuts for the Princess is 70.6 per cent, this being the average for four years. With the Nonpareil the average is 66.6 per cent Furthermore, the Nonpareil has a somewhat better shaped kernel—more even and with less projections. It is therefore more desirable for shelling purposes. In this connection it might be well to state that all the papershell varieties are valued chiefly for shelling. Another advantage of the Princess over the Nonpareil is the somewhat fewer number of double kernels, the Princess generally running somewhat less than the Nonpareil. The average for three years showed that the percentage of double kernels for the Princess was 1.88 per cent, while for the Nonpareil it was 3.05 per cent. We do not believe that this difference, however, is of sufficient importance to be worth considering. When all is said and done, our opinion is that the chief and only reason why the Princess is not grown more in the state is because of its light yielding habit.

Pumps—Centrifugal and Rotary

Will you kindly tell me which is preferable for irrigating purposes—a centrifugal or a rotary pump? Would a rotary pump dry out if not pumping oil? Is it so much better than a centrifugal that it is worth the higher price? My idea is that a rotary pump is more suitable for pumping oil or wine or for use in ships and that the large irrigating plants use the centrifugal.—Subscriber, El Cajon.

The centrifugal pump is much preferred for all ordinary irrigation work. There is almost always some sand or grit of some kind in water and particularly so when a large volume is pumped and currents formed in the water coming to the pump. Rotary pumps have close fitting surfaces and move slowly, consequently sand destroys them very rapidly, while centrifugal pumps fit loosely in the case and depend on the speed of the runner to throw the water to the desired height. A well made centrifugal pump will handle a large amount of sand in the water without much wear on the pump.—J. B. N.

Pigeon House

Can you give me a sketch for a pigeon house? Have been keeping them in the barn but snakes and cats get at them. I would like to put it on a high pole in the barn yard. How can I arrange it so snakes can reach them? I want a house large enough for eight or ten pair.—Subscriber, Owensmouth.

The pole pigeon houses in my neighborhood are built to house four pair each. If you tried to make one large enough for eight pair, it would be topheavy, I fear. It would be better to build two houses. One of these houses, which I measured, is 25 inches wide by 36 inches long and 13 inches high to the eaves. The corner posts of the frame are of light one by one material and the middle supports (the end ones reach to the gable) are one-half by one. Each side is divided horizontally in the middle by a half inch slat through which are strung coarse wires like those of a bird cage,

Big Seed Company Is Distributing New Catalog

Aggeler & Musser Seed Company of Los Angeles

Issue 26th Annual Book

The Aggeler & Musser Seed Company, the large Seed House of Western America, is distributing broadcast their 1919 Big Annual, which is claimed to be the most complete and finest yet issued.

Among the many new features incorporated is a department on "More and Better Potatoes." Important data is given on Home, School, Field and Demonstration Garden Work. Data concerning correct tools and implements to use for best results. Marketing notes on each subject, telling how and where to market. Hints on poultry, spraying, fertilizing and the use of insecticides. It is in reality several books in one, for it includes the important "Garden Manuel." One thousand questions are answered and valuable information on all varieties of plants is given.

The Aggeler & Musser Seed Company have opened a large store right in the center of shopping district, 620 South Spring Street, Los Angeles, a great convenience to rural customers. A special Call Department has been installed to accommodate customers in town for a short time on business. Orders left on arriving are ready when called for. The big Mail Order Department and General Offices are all situated at the new store, while the general milling, cleaning and warehousing will continue at the big warehouse, Sixth and Alameda. The new catalog explains fully all the new departments and why our service has been improved 100 per cent. Sent free, postpaid, anywhere. Write for copy at once.

running from top to bottom of the house. The gable roof is 18 inches from the floor at the gable, with eaves projecting about five inches. Another house of the same size has its gable 27 inches from the floor, with eaves projecting only three or four inches, so I judge there is no rule about slant of roof or width of eaves. The house is divided into four rooms by a wire partition similar to the outside of the house. Each room has its own perch and nest. A heavy 10x12 post, four and a half to five feet hign, with platform of boards for the house to rest on, keeps it above the heads of most marauders, and the closely wired sides do the rest. Post and platform and roof, which is of shakes, are all painted dark green and the rest of the house white, and a mound of rocks and greenery about the bottom of the post makes it as sightly a bit of poultry equipment as one could wish to see.—J. A. K.

Winter Irrigation

Please say through your valuable paper if peach orchards in Tehama County should not be well watered during winter months or in the fall when fruit has been gathered, regardless of the rainfall.—Subscriber, Los Molinos.

Yes, irrigate. We believe there have been many failures in deciduous crops because of lack of moisture after removal of the fruit and the preventing of the full development of the next year's fruit buds. Of course, there should be reason in irrigation; great quantities of water put on the ground immediately after crop removal and continued until frosty weather—which comes in some peach sections—might result in serious injury to the trees, but we assume the peach grower will use judgment in the matter.

As to winter irrigation, that is, after almost complete dormancy, that is another question and depends upon the section, nature of soil and subsoil and the rainfall. In a year when the rainfall is excessively light, if the soil is retentive of moisture, heavy winter irrigation may store up water which will make a successful crop where otherwise there would be failure.

Aphis or Plant Lice

Will you please tell me through the columns of your paper what to do for plant lice on rose bushes?

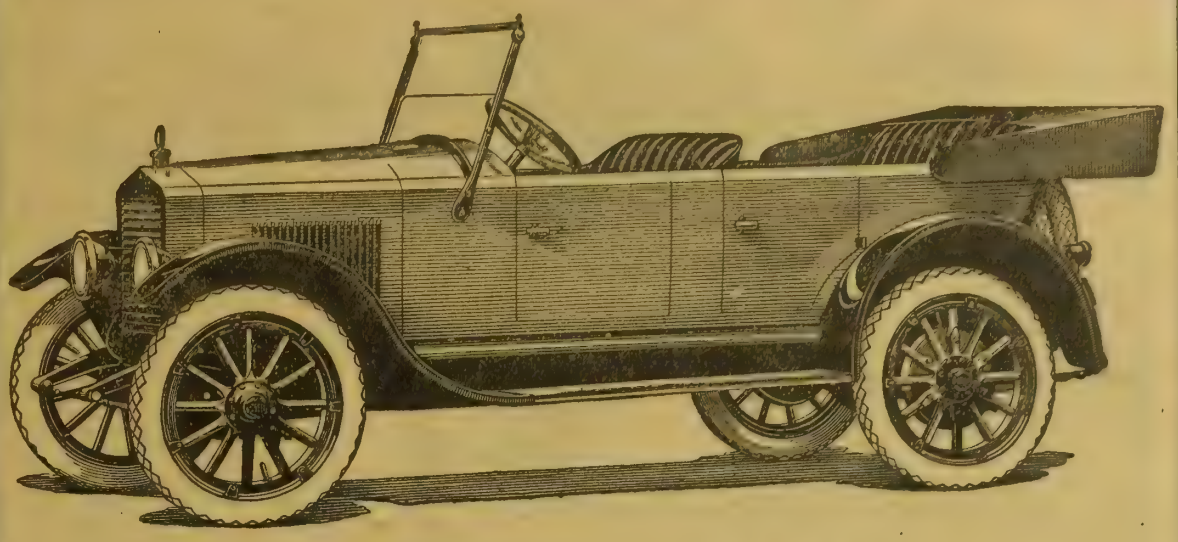
Spraying with tobacco extract or with kerosene emulsion is about the only treatment for this pest. However, at this period of the year destroying of all weeds which afford a breeding place for them may keep millions of them from next season's crop.

Hens Molting Twice

I want a little information in regard to my chickens. I have been raising chickens for 20 years but never had the experience I am now having. We moved to Antelope Valley in July. Hens laid well till September, then stopped a couple of weeks and moulted nicely, then began laying and laid well till the second week in December, stopped again and now they are moulting again. Can you or any of your readers tell me why? They have a hot mash of everything in the morning, dry mash during the day and kaffir corn and barley at night, with warm milk and slop to drink. They have not had a variety of green but all the green alfalfa leaves they wanted, a large run and plenty of exercise. Could it be the change in climate? We moved from Covina. Nights it gets pretty cold, almost zero, but days warm and sunny.—Subscriber, Lancaster.

If your hens laid steadily till the second week in December with only a two weeks' vacation in September I don't see that you have anything to complain of. That two weeks was not long enough for the regular moult, which usually lasts about three months. It must have been a slight dropping of feathers due to the excessive heat. Many hens molt twice a year in California and spend a good deal more than two weeks each time. With the excellent ration and care your hens have they will probably molt quickly and soon be laying again. Their molting so late shows that they are unusually good layers.—J. A. K.

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Be sure this is emphasized by driving over cobblestone pavements or rough roads. Take any speed you like. You will find it a comfortable ride and will marvel that over such a road and at such a speed you are not pitched or bounced about.

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The Essex's motor would inspire a whole season's advertising campaign. A slogan might be written about its beauty.

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Everyone says nice things about the Essex.

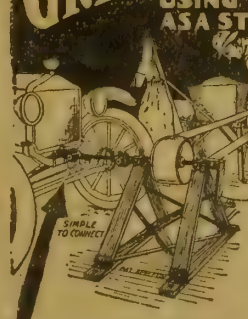
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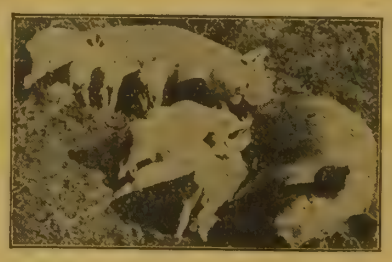
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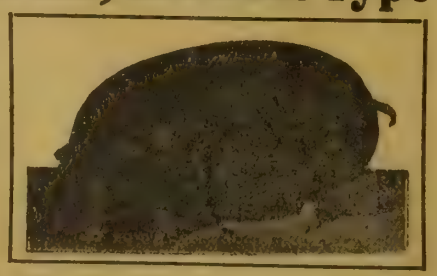
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The Range Cattle Situation

Written for California Cultivator By A. L. Spellmeyer

FOR some time the keener students of the cattle situation have felt that there were certain unmistakable signs that pointed to a shortage of beef and a consequent higher price.

The general public has been led to believe that the average Western cattleman and sheepman was rolling in wealth. This conclusion was arrived at after a visit to the local retail meat shop—or the restaurant. As a matter of fact and of general interest a brief outline of existing conditions affecting the beef industry may not be out of place, and, at the same time, may serve to enlighten the public.

There are fewer beef cattle in the United States today, than there were a decade ago, notwithstanding the fact that our cattle population shows an increase. Most of the increase has been in dairy stuff, and in view of our increased population, the number of beef cattle, per capita, has shown a decrease.

The big breeding ground for beef cattle may be considered to center in those states commonly counted as constituting the West and Southwest. Roughly speaking about 20,000,000 are in the West and of the number 10,000,000 to 12,000,000 are in the Southwestern states. It is these Southwest cattle that supply the fluctuating and variable number of yearlings and stock cattle that spell plenty or shortage. From the Southwest section are drawn the young cattle for the middle Western and Northwestern feed lots and steer ranges. The Southwest is the real breeding ground. Obviously these conditions seriously affecting the Southwest must in the end rest on the general trade. Let us see how the Southwest has fared during the past few years—say since 1914—and draw our conclusions.

During the past three years, practically every part of the West and Southwest has been hit by drouth. So serious has the drouth been that cattle operations, both large and small, principally small, though, have been forced to cut their herds, and hundreds of thousands have been forced on to the market. In many sections, notably southwest Texas, the govern ment aided in the movement of thousands of cattle to areas where there was feed. This movement accounts, in a large measure for the increased receipts received at the central markets, from which fact many draw the erroneous conclusion of increased numbers. The drift marketward was not confined to steers of good ages, ready for killing—but consisted to a large extent, of breeding cows and young stuff. And in this connection the banker of the Southwest, and the cattle loan companies can be charged with forcing a situation that will result in higher prices to the consumer. Any number of small, and reasonably large cowmen, who were operating on borrowed capital had their loans called when the water holes began to dry up and because they could not secure extensions or increased loans for the purchase of feed or the shipment of their cattle to better grass, were forced to liquidate their entire breeding herds.

This fact alone is sufficient justification for the assumption that higher prices are inevitable. With the breeding herds of the Southwest reduced to a marked degree, what other conclusion can be reached?

But other evidence can be furnished. There are three basic industries, agriculture, live stock and mining. Whenever any one develops a situation wherein little or no profit can be taken, production is restricted. Restricted production means higher prices.

The table on opposite page will perhaps throw some light on the live stock situation and indicate why production has been restricted:

Taking 1914 as a starting point: The cost of cattle operations has shown a steady increase, due to the cost of labor, supplies, etc. It is not too much to say that the cost of producing a yearling steer has increased at least 100 per cent since 1914, but the average price paid the producer has only increased about 15 per cent. There was little profit in yearlings in 1914 and now, with production costs doubled and only a 15 per cent raise in selling prices, can the business stand? In 1914, Arizona cows fetched about $35. There was a gradual increase to about the middle of 1917, but since then, owing to drouth and forced liquidation, they have sold from $24 to $38. The price of meat has increased about 64 per cent and the only class of cattle that has followed the raise has been the older stuff—the threes up—in reality a small percentage of the cattle.

Can any business keep going under such conditions? Is it not inevitable, that, unless better prices are received many men will be forced to cease production? And if supplies are cut, will not higher prices result?

Here is another fact that must not be lost sight of. Owing to good prices on the older stuff, the Northwest ranges—Montana, Wyoming, Colorado —and even the California ranges have been cleaned of heavy steers. I rather imagine that those ranges (judging from the stuff one sees at the Eastern yards), have been literally combed and dry cleaned of everything with a bit of age. Those ranges will clamor for yearlings next spring—and a lot of cows will be wanted.

Figure the situation from any standpoint and one must conclude that better times are in store for the cowman. If better times do not materialize then the average cow outfit must go out of business.

With a world shortage of food it is to the interest of all that the business be standardized as quickly as possible. The banker and the loan company must adopt a more liberal and rational policy toward cattle paper. The packers must pay all that the stuff is worth.

I believe that good times are ahead. I believe that the $100 cow is on the way and I would not be suprised to see $50 yearlings at Phoenix and 15 cent beef at the same point and yet, there is a possibility of beef reaching the point when consumption will be curtailed. In which case, the situation would be about as unfortunate as the present. What is really needed is a sane, liberal attitude on the part of those interests that control the cattle industry—the packers and the cattle loan companies, whereby the cowman can secure long time loans at let-live rates, in order that he can expand his operation. Assured of operating capital and a fair market for his stuff he can be depended on to deliver the beef—but he is human. With such a policy on the part of those interests and a broad constructive policy on the part of the government in matters of ranges — encouraging better methods of grazing, water development, fencing, range control, more and better bulls, the consumer can be assured of an adequate supply of beef at prices he can afford to pay.

POST-BELLUM MEAT PROBLEMS

ONE of the most illuminating articles regarding the problems that face the meat producers of this country that has appeared since the signing of the armistice was published in the Christmas number of the Breeders' Gazette and is from the pen of Jonas E. Poole, perhaps the keenest student of live stock markets in this country. Mr. Poole discusses the question from a world wide viewpoint and much that he says will be of high interest to many of our readers. The writer starts with the assumption that "all we know to a certainty is that four years of drouth, destruction and disease have so depleted the world's food supply that a large section of the human family is confronted with famine," and that "herds and flocks have been seriously depleted will not be disputed, cloven footed animals having disappeared from a large section of Europe, but what the world's food requirements during the next half decade, or even the ensuing year, may be, measured by ability to pay, is a knotty problem.

"That Europe will need a vast quantity of beef and pork during the post-bellum period is a certainty, and it is equally certain that the latter must be supplied by the United States. Other sources of supply of beef and mutton exist; how abundant or accessible they may be has yet to be determined. During the war period South America contributed a heavy but gradually diminishing supply of beef to Europe, and Australia was mainly responsible for rationing military forces in Asia, Africa and southern Europe with beef. Mutton accumulated in freezers, owing to its perishable character, and represents the major part of the stock in Australia and New Zealand. North America is without an accumulation.

"During the war live stock production has not been maintained at normal volume anywhere. The extent of depletion in Europe is naturally conjectural, and even in the United States nothing of a reliable statistical nature except actual slaughter is available. So far as Mexico is concerned, we know that the industry has been ruined, Canada has contributed heavily to the support of the British army, and in the early stage of the war was forced to liquidate cattle for financial reasons, drouth in the west this year giving the industry an additional setback. In the United States only the hog has multiplied under the stimulus of remunerative prices.

"From the Rio Grande to the Saskatchewan and the Missouri River to the Pacific Coast drouth has played havoc with the cattle industry, materially reducing the southwestern calf crop for three successive seasons, forcing cows and young cattle to the shambles by the hundred thousand, and dispersing others where they will be less available commercially. Aged cattle have all but disappeared. Replenishing pastures and defilling feedlots are constantly becoming more difficult and expensive, and while cattle receipts at the primary markets in the United States this year warrant the conclusion that beef plentitude actually exists a survey of the contents of any stockyard demonstrates that the figures actually mean depletion. High prices always exert a magnetic influence, and if this year's gathering has not cleaned up the surplus cattle of the country, many in the trade are guessing wrong. The sheep industry has also been hit by drouth, arresting expansion at a moment when energy and capital were being devoted to a rehabilitation campaign."

In speculating on the world's meat requirements Poole is of the opinion that many of the estimates have overshot the mark, owing to the fact that, of necessity, Europe must continue on an extremely economical plan of living. Commenting on the fact that fats will undoubtedly be needed, he points to the large accumulation of vegetable fats that will find an outlet through domestic consumption.

As regards the probable sources of meat supplies he states that the British government "began a survey of the world's beef prospects more than a year ago, taking measures to stimulate cattle production in its colonial possessions, and provide facilities for conversion and transportation. American packers, equally alert, have spent millions on "meat works" in South America and Australia, so that the maximum production capacity of the

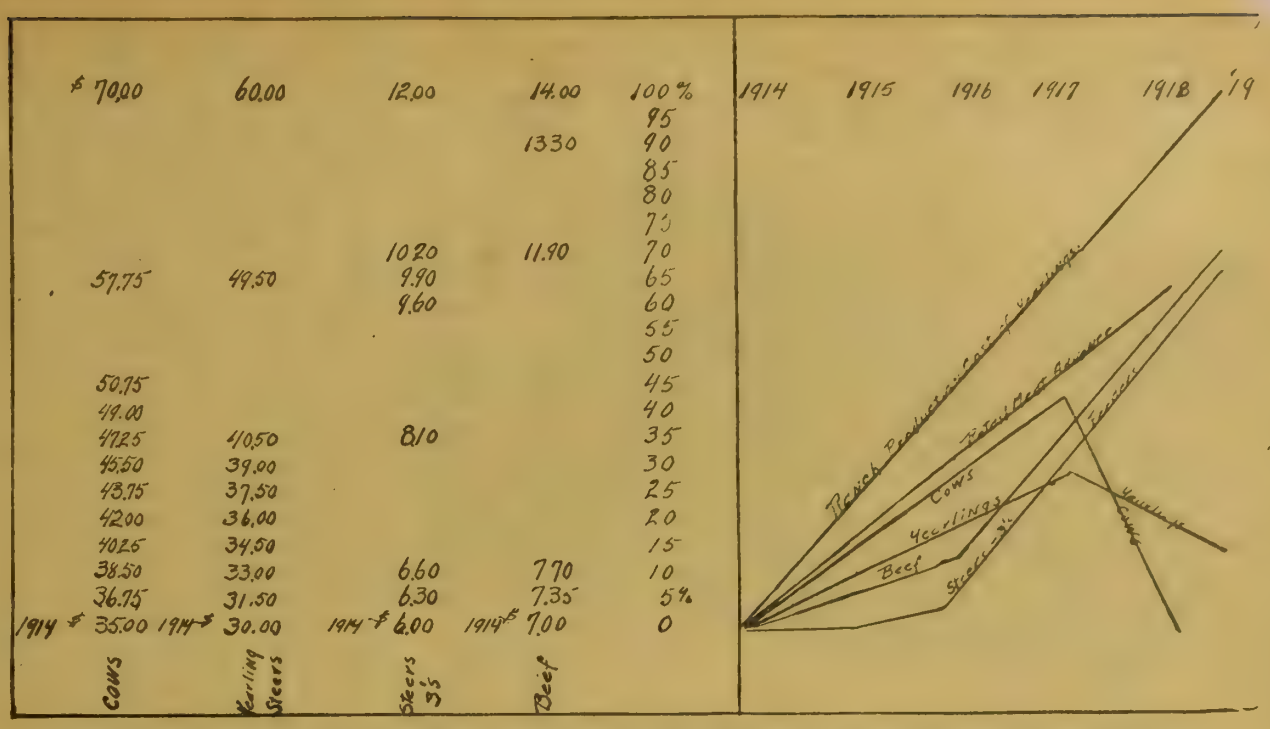


Chart Showing Production Cost, Meat Advance, and Trend of Prices on Cows, Yearlings, Beef and Steers

Production expense increase 1914-1919, 100 per cent. Price increase yearling steers 15 per cent. Three year feeders 60 per cent. Price decrease range cows shipped 1914-1919, 20 per cent. These figures can be approximately established as can production expenses by grazing fees and actual cost on ranches, including labor, etc. Meat advance is taken from printed resume of government report and beef advance from figures in advertisements. Feeder steer prices, yearling steer prices and cow prices are based on sales, shipments and purchases from 1914 to 1919 of over 100,000 cattle and approximated as closely as possible.

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Sale will be held under big tent

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Owing to large number sold, great opportunity is offered. Cotton growing in the Salt River Valley has made cattle cheaper than other sections, and Pacific Coast breeders and dairymen will do well to attend this sale, because cattle of splendid breeding will be sold.

Special Feature of Sale

Large Number of Heavy Milking Cows

Some of the Peaches and Cream of the state—include, a bull whose three nearest dams average 33.02 butter, seven days.

A bull whose seven nearest dams average 32.26 and who is a son of the famous sire, King Segis P. Alcartra.

A two year old son of the 27 pound two year old daughter of Johanna McKinley Segis.

175 Registered Holsteins



100 High Grade Holsteins

The Grand Champion Show Cow: Frontier Mona Korndyke, butter 22.78, milk 551, seven days.

Many other excellent show animals.
Many A. R. O. cows.
Many daughters of 36 pound bull.
Many daughters of 32 pound bull.
Many daughters of a bull who has 43 A. R. O. daughters.
Numerous daughters of two 30 pound sons of King Segis Pontiac.
Numerous daughters of a grandson of Aralia De Kol.
Nearly all females of breeding age are in calf, to a full brother of King Segis Pontiac Count, whose two nearest dams average 1146 pounds butter one year, or a son of King Segis Pontiac, and the 30 pound cow, Pear Ormsby Burke.

Blood lines of this entire sale are close to the greatest record cows and bulls of the breed. Cattle of this section are notably free from tuberculosis. and are tuberculin tested, by State Authorities.

As a special inducement, individuals whose purchases exceed 15 head will have freight paid to destination of purchaser.

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Auctioneer: Robert E. Haeger, Algonquin, Ill. Pedigree Expert: S. T. Wood, Syracuse, N.Y.

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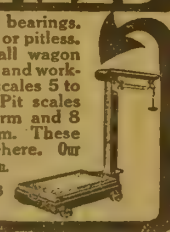
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IT MAKES THEM FAT

Hauser Packing Co. Los Angeles

world will become available during the next five years. To what extent cattle raising is possible in South Africa is open to conjecture. South America's temperate and semitropical zones are doubtless susceptible of successful exploitation. Venezuela, Paraguay, Brazil and even Columbia possessing vast areas of unutilized grass, and only the freak climate of Australia prevents that continent from adding materially to the world's supply.

"Russia is an unknown quantity, information concerning its cattle industry being contradictory; but the consensus of opinion suggests that years must elapse before it can become an exporter."

On the North American continent both Mexico and Canada are beef production prospects.

"But before domestic cattle production can become normal, the depleted breeding ground of the southwest must be restocked, and other drouth-devastated sections replenished, especially the steer pasture. Even the mountain regions where drouth has not necessitated liquidation have responded to the lure of prices, shipping cattle of all ages and both sexes, on the theory that taking a profit never invited bankruptcy. The domestic cattle industry has reached a stage where further decimation will spell serious beef shortage."

It is certain that the United States will be called on to supply the world's need of pork as this country is the only exporter of pork and pork products, but "that present volume can be maintained after Europe resumes pig growing is impossible.

"Pig culture in Europe will be speedily reinstated when feeds are imported, and it is possible that if the present volume is maintained by American farmers a period of relatively low prices will ensue. The South has been putting the hog on its map, and outside the cornbelt interest in swine in a commercial sense is not concealed, high prices being a logical stimulus. The impending shortage of beef will necessitate heavier pork consumption, and as it is the 'poor man's meat' industrial prosperity will work to its distinct advantage, while depression would not prove a serious handicap. It is axiomatic that the size of the hog crop is measured by that of the corn crop, the health of the species being also an important factor.

"Growers will realize, however, that the 1919 pig crop will in all probability go on an unprotected market with a possibility of contraction of export trade, and the certainty of the practical elimination of military consumption.

"War has not benefited the sheep grower except to the extent that wool participated in abnormal prices. No export outlet developed, and little mutton was used by the navy and none by the army. Had the excess range lamb production of 1918 been utilized for training camp purposes, the strain on an inadequate beef supply at that juncture would have been relieved, and much loss to growers averted. From the inception of America's entry into the war, when the eat no lamb propaganda demoralized the market, until now, the industry has encountered adversity. No prospect of an export outlet exists, and domestic consumption is centered in a few large urban centers, notably New York, Philadelphia and Boston. The danger of excessive production of lamb exists until a broader market has been developed, that task being a formidable one.

"Reference to prices will demonstrate that neither sheep nor lamb has the benefit of war demand, only a handful of heavy mutton being wanted.

"Western wool growers, marketing their clips in large packages, have derived full benefit from the government valuation system, but farmers with small flocks have not realized what was logically coming to them, as they marketed through the medium of dealers who in many cases ignored regulations as to profits. The war industries board proposes to enforce restitution, but this will not solace the farm flock owner whose account was too small to identify."

In concluding, Poole takes a broad view and says that "in common with other industries live stock must accept whatever penalties reconstruction imposes. War prices are naturally ephemeral, and readjustment in a downward direction can only be a matter of time. Labor may cherish the futile hope of retaining what it has gained, but cattle, hog and sheep raisers entertain no such fallacious ideas; in fact, there has been a disposition to take a pessimistic view of the outlook, as indicated by premature marketing during the armistice period. That both domestic and European requirements will be heavy for months to come is as indisputable as that government influence on prices will steadily wane, its purchasing power ultimately ceasing to exert an influence on values.

"With the profiteer in leash, industry not seriously impaired, labor fairly prosperous and the abnormalities of the war period with regard to prices and restricted consumption remedied, the position of the producer should continue satisfactory. The element of risk incidental to finishing operations is inseparable from the business, but unwise speculation may be avoided, and neither the present nor the immediate future is a period warranting biting off more than the operator can masticate. It is a time for conservatism, a policy that will doubtless be general.

"The history of the live stock business shows that while it does not present a short cut to opulence, those who consistently follow a system get reasonably satisfactory results, while the in and out element rarely hits the mark at which it shoots. Those who have stuck to cattle, hogs or sheep during depressions, conducting their business intelligently and keeping abreast of the times with respect to production economy, have averaged the same measure of success as the efficient element in other industries.

"For the immediate future it is a reasonable prediction that the supply of fed cattle during the next six months will be considerably less than in 1918, cottonseed products being scarce, a large section of the cornbelt short of feeders impatient to cash. Although the hog crop is 10 to 25 per cent in excess of last year, according to locality, it is being marketed at light weight, and will probably produce less tonnage than the last. The winter production of lamb and mutton promises to be 40 per cent less than last winter, Colorado being the principal delinquent.

"The possibilities are that England will steadily reduce beef purchases in the United States after the lapse of sixty to ninety days, when the Southern hemisphere accumulation becomes accessible, but will buy bacon in enormous quantities for at least a year, if not longer. Germany will take lard when the blockade is lifted, probably purchasing through the food administration. Belgium, Italy, Holland and the Scandinavian countries will need hog products and Russia may be included in the scope of distribution. That Europe will be under the necessity of securing breeding stock in the United States is highly probable, inquiry of that nature having already been made."

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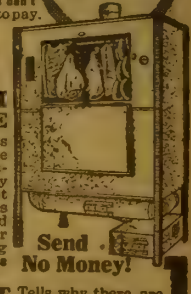
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PORK PRICES

MORE hearty spirit of cooperation between packer and producer could hardly be found than that expressed at the meeting in San Francisco last week between officials of the food administration, the California Swine Breeders' Association and the licensed packers of California.

Without any intimation as to what the Chicago minimum will be for the month of February the California packers readily acquiesced in the agreement which will make the California minimum one cent below Chicago next month. Beyond the month of February it is practically impossible to attempt to state the price of pork. It had not been planned to have the packers agree at this meeting to a minimum price for all pigs farrowed during 1919. Were there any positive guarantee that the federal food administration would be continued in office until this year's pig crop were disposed of such a guarantee might have been possible to arrange.

The food administration is keeping up the price of pigs in the Middle West by stimulating the market with higher prices for government orders than would ordinarily exist under the old rule of supply and demand. Were these government orders to cease the pig market in the Middle West would become demoralized and it would naturally affect the Pacific Coast. The food administration is paying these prices in order to keep faith with the hog men of the country who responded to the urgent call to produce more pigs.

California producers were commended by the packers for the better quality and finish of porkers that they are now sending to market and were told that it is possible to put up hams and bacons that are not to be excelled by even the fancy cured hams and bacons from the corn belt hogs. The country auction plan of selling pork hogs was endorsed by the leading California packers represented at the meeting.

While the greater part of the meeting was taken up with the discussion of the pork market, considerable time was devoted to a round table talk on the beef situation. The encouragement given the pork producers for putting a more finished article on the market was practically just the opposite from what was given the beef cattle men who were as much as informed that it made no difference whether they put a grass fed steer on the market or a grain finished bullock. They were given practically the same price for one as they were for the other.

This was explained by F. L. Washburn of the Western Meat Company and Mr. Scott of the Cudahy Packing Company of Los Angeles by the fact that the West has no market for real good beef. The top price of steers on the Chicago market represents the choice beef that goes to first class hotels throughout the East and Middle West, explained Washburn. Such stuff as that we cannot possibly sell on this coast at similar prices because our leading eating establishments will not pay the price for this sort of beef. Not until California and the West has a market recognizing quality can we afford to anywhere near reach the price offered for the Chicago tops.

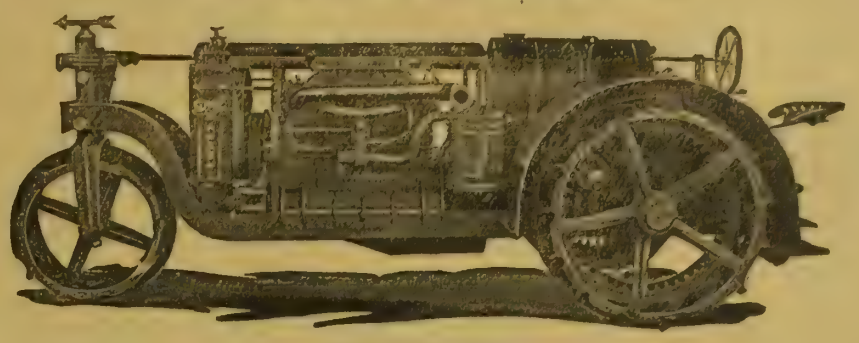
Scott explained that there had been a greater running of cows to market than of steers during the past several months, and that it was on the cows that the packers were able to make a little money, whereas, he asserted, they had not been able to better than break even on the steers. People will simply not pay the high price for meat, and through lack of discriminating knowledge will just as soon buy cow meat as steer meat. In fact, as Scott explained, one of the leading Los Angeles hotels, the cuisine of which has quite an enviable reputation, has been serving first class cow meat instead of steer meat.

While the packers attempted to discourage the cattle men from shipping their good steers out of the state, they had little or no solution to offer for absorbing the surplus run through the months of May to August. Several cattle men related their experiences in shipping train loads of stock to Kansas City, some of which efforts were disastrous while others were fortunate in loading their stock on a rising market and making money thereby.

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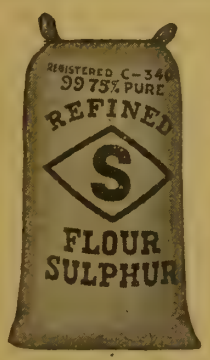
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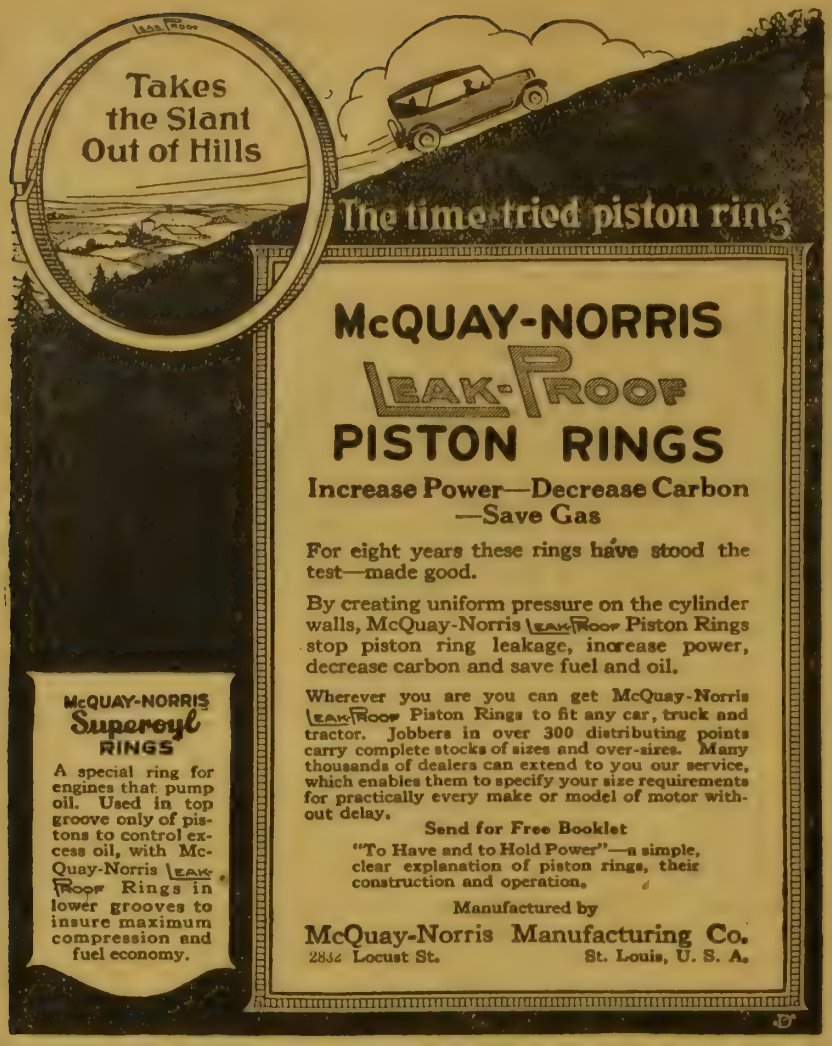
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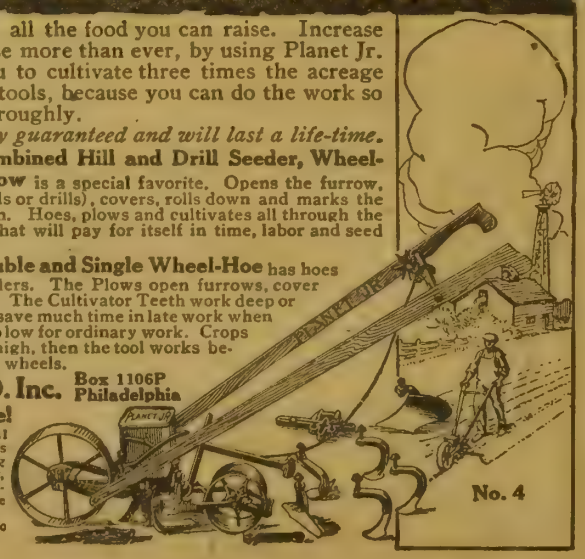
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EXPENSE OF SHEEP

We have an itemized statement from a firm of California woolgrowers showing in the minutest detail the cost of running a ewe in California. The total expense is $9.37 per year per ewe, but this does not include interest on investment in the ewe. Operating interest is included at seven and one-half cents per ewe, which is simply the interest on money borrowed to meet running expenses. So under this item interest is only charged on 90 cents of investment. An interesting point in this statement is the item of labor, which totals $3.69 per ewe which we imagine is not far from the cost in most well regulated establishments. The sales of mutton and lamb from this outfit were within $1000 of being equal. The actual cost of producing a pound of wood in this outfit was 52.7 cents. As we are personally acquainted with this firm we know it to be the most efficient for its size in the West and we doubt if any other sheep outfit makes as good a showing. The itemized costs per ewe were as follows:

Provisions	$ .774
Payroll	2.97
Road and travel expense	.144
Hay and grain for sheep	.336
Stock sale	.036
Shearing	.22
Taxes	.60
Administration and supt.	.72
Auto expense	.20
Bounty	.04
Breeding expense	.36
Equipment upkeep and depr'c't'n	.25
Feed and pasture	1.64
Freight	.25
General expense	.244
Horse feed	.26
Insurance	.11
Operating interest	.076
Livery and feed	.022
Office expense	.124
Total	$9.376

—National Woolgrower.

CATTLE OWNERS MAY BE INDEMNIFIED

The 1919 agricultural appropriation bill recently passed by Congress contains a provision for the payment of an indemnity to owners of cattle that are slaughtered because of tuberculosis.

The department of agriculture is to pay one-third of the difference between the appraised value of the cattle and the salvage value of the slaughtered animals, provided that the state, county or municipality in which the cattle are owned and kept is cooperating in the tuberculosis work and pays at least an equal amount to the owner. In no case is the federal government to pay more to the owner than is paid by the state, county or municipality. No payment by the federal government is to be more than $25 for any grade animal or more than $50 for any pure bred animal, and no payment is to be made unless the owner has complied with all quarantine regulations.

BULLETINS FOR HOG MEN

The following may be obtained free by addressing the Division of Publications, U. S. Department of Agriculture, Washington, D. C.:

"Swine Management," Farmers' Bulletin No. 874, 40 pages.

"Breeds of Swine," Farmers' Bulletin No. 765, 16 pages.

"Killing Hogs and Curing Pork," Farmers' Bulletin No. 913, 40 pages. Many recipes for curing meats, sausage, etc.

"Hog Cholera; Prevention and Treatment," Farmers' Bulletin No. 834, 32 pages.

"Hog Houses," Farmers' Bulletin No. 438, 24 pages.

"The Self Feeder for Hogs," Farmers' Bulletin No. 906, 12 pages.

"Castration of Young Pigs," Farm-

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We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

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Correspondence Invited

Anita M. Baldwin

Santa Anita - Calif.

W. H. Taylor, Supt.



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Butter making is the chief business of the Holland Dairymen, the originators of the Holstein-Friesian breed of cattle. Upwards of forty million pounds of butter per year is exported from that little country, which is more per cow, and more per acre, than does any other country export.

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ers' Bulletin No. 780, 8 pages.
"A Simple Hog Breeding Crate," Farmers' Bulletin No. 966, 4 pages.
"Boys' Pig Clubs," Farmers' Bulletin No. 566.
"Feeding Hogs in the South," Farmers' Bulletin No. 411
The following bulletins may be purchased from Superintendent of Documents, Government Printing Office, Washington, D. C.:
"Feeding Farm Animals," Farmers' Bulletin No. 22. Price 5 cents.
"Meats on the Farm; Butchering, Curing, Keeping," Farmers' Bulletin No. 183. Price 5 cents.
"Pig Management," Farmers' Bulletin No. 205. Price 5 cents.
"Pasture and Grain Crops in the Pacific Northwest," Farmers' Bullein No. 599. Price 5 cents.

A FOUR-COUNTY DAIRY COW CONTEST

The Sacramento Cow Testing Association, embracing Sacramento, San Joaquin, Yolo and Solano Counties, has arranged for a dairy cow contest modeled after the state dairy cow competition conducted by the university from 1916 to 1918.

The Sacramento Bee states that the following classes have been agreed upon:

Class A—Herds of from one to twenty cows.

Class B—Herds of from 21 to 50 cows.

Class C—Herds having more than 50 cows.

There will be a separate prize for each herd headed by a grade sire for each of the above named classes.

Two prizes will be offered for the highest cows under five years of age and two prizes for the highest cow more than five years of age making the highest record for the year. These classes will be open to all animals, registered or not.

For grade herds there will be a monthly prize offered for a group of five cows. Cows which have once won this prize are barred from further competition.

In addition to the above prizes there will be a cup offered for the best yearly record herd. The cup must be won three times before becoming the property of member.

Over $400 in prizes will be offered.

DAIRY LAW NEEDS AMENDING

Sam'l E. Watson, secretary of the California Dairy Association, is sending out a bulletin announcing that an effort will be made to have the legislature amend section 18 of the state dairy law so that it will be impossible for state institutions to serve oleo in place of butter.

It was thought that section 18, which reads, "No butter or cheese not made wholly from pure milk or cream, salt and harmless coloring matter, shall be used in any of the charitable or penal institutions that receive assistance from the state," covered the case in point, but in a recent decision by United States Attorney General Webb the opinion was expressed that oleomargarine was not controlled by that section.

As a consequence of that opinion the state purchasing agent on October 2, 1918, directed that all state institutions serve oleo instead of butter.

GEORGE JUNIOR REPUBLIC COWS ON TEST

R. A. Condee of the George Junior Republic, Chino, reports that several of their Holsteins now on semi-official test are going strong and some very creditable records are expected. Two cows, just completing the first three months of their test, have each produced over 7000 pounds milk and 220 pounds butter fat. The test cows are being handled by J. A. Bailey, a boy citizen of the Republic.

Mr. Condee states that the Duroc herd is developing nicely and that they expect to be out strong at the 1919 fairs.

SUBSTITUTING HIGH BRED FOR HYBRID

In a campaign to retire scrub bulls from the herds of the state, seven Wisconsin counties have made plans to follow the example of Fond du Lac County, which in one month placed 43 pure bred sires on farms, 38 going to herds that never before had had pure bred sires. The drive against scrub sires was started at the December conference of Wisconsin county agents, and is in charge of a "steering committee" representing the extension service, the state college of agriculture, leading stockmen, and officials of farmers' organizations. Breeders believe that the elimination of the scrub and grade sire will greatly improve their markets, and appreciate that out of state buyers visiting Wisconsin for dairy cows insist on stock sired by pure bred bulls.

PRESIDENT FAVORS RESUMPTION OF HIGHWAY CONSTRUCTION

President Wilson favors the earliest possible resumption and extension of highway construction under the federal aid road act and has written Secretary of Agriculture Houston to that effect. The secretary of war also has written the secretary of agriculture in favor of highway work.

Smilo Grass

For Ranges and Non-Irrigated Land

A forage plant especially suitable for hills and barren spots to increase the grazing value of the range. Will grow on semi-desert land or on dry hills among rocks and brush where no other grass will grow. Once established it seeds itself down and spreads rapidly.

Smilo Grass is a hardy perennial bunch grass, greatly relished by stock. Is not an experiment but a proven forage plant endorsed by leading stockmen and recommended by the University of California. Sow one-quarter pound per acre. Price 50 cents ounce, $1.00 quarter pound, $3.00 pound.

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Two High Class Jr. Boars, choice $65.00. Six Fall Boars, choice $50.00. Sired by Ames Rival.

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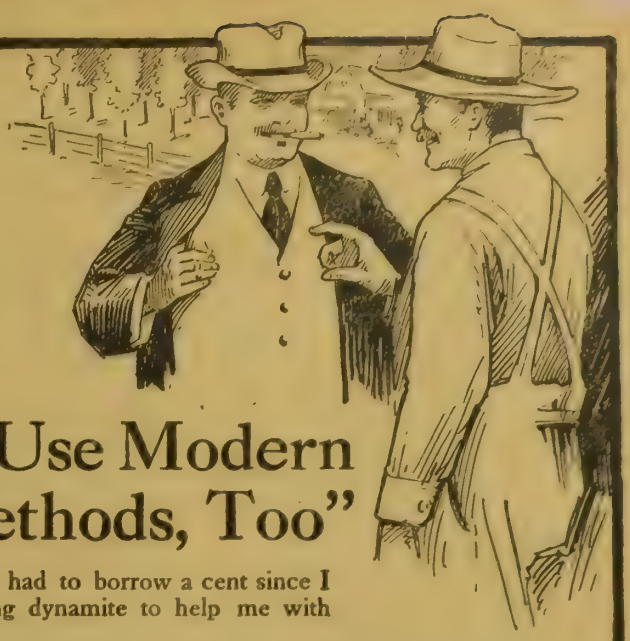
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I Will Have One or Two Tons of Sorghum seed, especially selected for syrup making qualities for sale as long as it lasts. Send for list of different varieties, with description, prices and instructions for planting to get best results. Can send seed by parcel post. MARION GRABER, Hawthorne, California.

Plants Grown on Contract. 20 years' experience; select seed, tomatoes, peppers, cabbage, sweet potatoes, egg plant. Any quantity, shipped to all points. Large quantities at reduced rates. L. C. Johnson, Pomona, California. Phone 2032.

Early Amber Sorghum Seed for Sale—Choicest sorghum seed on the market; 9c per pound. This seed selected from high producing fields that made 15 tons of heavily grained silage per acre. This plant produces more tons of silage of high feeding value than any other silage crop. It makes silage of the best quality, equal to Indian Corn silage and more tons per acre. The grain makes good poultry, hog or stock feed and the fodder makes excellent stock feed. Samples sent free. Order now for spring planting. Seed Dept. Elliott-Brant Rancho, Owensmouth, California.

For Sale—Strawberry Plants, four varieties. Write for prices on Cane seed, Watermelon, and home grown garden seed. Primma Vista Gardens, R. D. 4, Arlington, California.

Strawberry Plants—Try our strong rooted everbearers. Americus, Progressive, Superb. Americus, $1.50 per 100; $3.00 per 250. Send for catalog. F. L Moffet, Ellensburg, Washington.

Gigantic Climbing New Guinea Butter Bean. Thirty inches long. Delicious eating. Prolific bearers. Phota and full particulars. E. Harrison, Willows, Glenn County, California.

For Sale — 700 sacks Red Oats for seed $2.75 per hundred on car at Napa. Address C. S. George, Box 291, Napa, California.

For Sale—Florida Sour orange seed and California sweet seedling orange seed. Order early. Milo Hunt, Whittier, Phone 250.

Berry Plants—Blackberries, Raspberries, Strawberries, Currants and Gooseberries. M. J. Moniz, Berry Specialist, Sebastopol, California.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees. Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

Rhubarb Plants — Wagner's Giant Crimson Rhubarb plants, extra clean, 50 cents per dozen, $3.00 per hundred. Currier Bulb Co., Seabright, California.

For Sale—Avocado seeds by the hundred or thousand. Mrs. H. E. Lyman, Carpinteria, California.

Peruvian and Common Alfalfa Seed—Specialty. Write for prices and sample. Box 501 Fowler, California.

MISCELLANEOUS

Here Is What Counts—Mr. H. E. Gilley of Los Angeles, following my directions after I analyzed his soil had a 65 per cent crop of oranges last year, while the neighboring groves suffered so much from "drop" that they held only a 15 per cent crop. CAN'T YOU SEE THE VALUE OF SOIL ANALYSIS? R. R. Snowden, Agricultural Chemist, 320 Stimson Building, Los Angeles, California. Phones: Office Pico 843; Res. West 702.

Pure and unadulterated leaf tobacco. Comes to you exactly as it leaves the farmer's hands. Hand picked 60 cents pound prepaid parcel post, 10 pounds $5.50. Order today. Duke Bros., Dresden, Tennessee.

For Sale or Exchange for real estate of about the same value, Ford with Trackford attachment, all in good condition. Price $600. No use to submit real estate with inflated value. E. S. Robinson, San Dimas, California.

Long Distance Hauling. Anything, Anywhere, Anytime. Household movables a specialty. Write, what, where from and where to. Wagner's Transfer & Storage, 551 Main St., Watsonville, California.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

RABBITS

For Sale — New Zealand rabbits. None better, with litters or without, always in stock. Los Angeles Route 9, Box 485 Vermont Heights, West Athens. Burlingame Rabbitry.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

GOATS

Largest Herd Swiss Toggenbergs on the Coast. 100 grade does bred to my $1000 Buck, Captain No. 256, A. M. G. R. Association, due to kid in February and March, $40.00 each, lots to suit. Crating $2.00 extra. Stamp. Rae P. Williams, Oakland, California.

FOR EXCHANGE

Exchange—Beautiful home in Berkeley for country realty. Address 5809 Ocean View Drive, Oakland.

TREES

MY "TOP NOTCH"
GRAFTED WALNUT
ORANGES and
LEMON
TREES
now ready for you. Write, phone or call. William Pollard, 1831 S. El Molino Ave., South Pasadena, California. Colorado 1613.

Santa Rosa Plum—J. H. Hale Peach, New Early Red Nectarine, Apec Plumcot also Bartlett Pears on Japan root and a general collection of best varieties deciduous fruit trees, thrifty, well rooted true to name, grown under expert supervision. Los Nietos Valley Nursery, Downey, California. Phone 692.

Grafted Walnut Trees—Placentia Perfection and Eureka on northern black roots. Citrus stock one year old from selected fruit bud wood. Also all the leading varieties of fruit and avocado trees. Order your trees early and get the first choice. Geo. M. Ketscher, 702 Orange Ave., Santa Ana. Phone Sunset 229W.

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Budded Avocados, Fuerte, Sharpless, Lyon, Dickinson, Blakeman, Puebla, Spinks, Taft, Linda, Rey, Queen, Knight, and others. A fine stock of field grown trees, $2.50 for one, $2.00 each by the 100, 25c per tree for packing. Newbery-Sherlock, 2202 East Colorado St., Pasadena, California.

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Buy Almond Trees from an almond specialist. Have a large stock on bitter almond roots. Get my prices before buying. Wholesale price to the trade. W. T. Hohenshall, LeGrand Nurseries, LeGrand, California.

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Apricots, Peaches and Olives. Good thrifty stock and carefully grown. C. E. MOYER, Hemet, Riverside County, California.

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No War Prices.
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Giant Bronze Turkeys — Gold Nugget strain. Prove their superiority by winning Gold Special Sweepstakes for best turkeys at the following great shows: Arizona State Fair, 1916; Texas State Fair, 1917; California State Fair, 1917-1918; Los Angeles Show, 1917-1918; Pacific Coast Land and Industrial Exposition, Oakland, 1918. An unequaled record. Large turkeys can be raised at practically the same cost as small ones. Toms for sale that will increase size and improve any flock. I am the originator of the Gold Nugget Strain. J. Will Blackman, 607 East Third St., Los Angeles, California.

Bronze Turkeys—Mammoth Bronze Toms and hens for sale. Place orders now before prices advance. Also Collie dogs for herding. John G. Mee, St. Helena

For Sale—Golden Bronze Turkeys.—Big boned breeding Toms of America's best strain. Eggs in season. M. M. Reiman, Planada, California.

Mammoth Bronze Toms and hens for sale. Large and well marked, satisfaction or money back. Albert M. Hart, Clements, California.

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GRAPE WILD FARMS
A few fall boars left by Royal Superbus —also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
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The San Francisco Fair being called off allows me to offer some of the stock I had intended showing. This offering will consist of 3 boars and 8 bred sows and gilts. These will be priced right; also have a few weaned fall pigs left. Every animal is cholera immune. C. B. Cunningham, Mills, California.

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Durocs, Orion C. King Blood. Very typy boars ready for service. O. C. K. and Col blood. Some boars and gilts 4 mos. old from 800 pound junior yearling sows, same blood. Something worth while. Prices reasonable. Garden City Sanitarium, San Jose, California.

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Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

Castleview Berkshires are the typey, modern, quick-growing kind, choicest blood lines. Prices reasonable. Castleview Ranch, Berkshires exclusively, Santa Rosa.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

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Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

Carruther's Farm Berkshire Hogs — Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Live Oak, California.

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For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California.

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REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLITS, CALIF.

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One or Two horses, cheap! Cash, part cash and White Leghorns or pigs. Rio Hondo Rancho, Downey, California.

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Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially Interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

Thoroughbred Barred Plymouth Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Limited number settings December and January $2.50 for 15 eggs, chicks March, April and May 30c each. Call mornings. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California. Phone 5599.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Silver Campines—The hens that lay the large white eggs and lots of them; we have as good a strain as can be had at $3.00 per setting of 15 eggs; also day old chicks from heavy laying strain of White Leghorns at $12.50 per 100. Oak Knoll Ranch, T. E. Blake, Prop., Santa Cruz, California.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain White Leghorns, carefully culled and Hoganized for heavy egg production, shipped on approval, $10 per 100, special price in lots of 500 or more. Sonoma Valley Hatchery & Poultry Yards, R. 2, Box 48, Sonoma, California. Write for booklet.

Baby Chicks—Ready in January. Order early and get the date you want. White and Brown Leghorns, Black Minorcas, R. I. Reds, Barred Rocks. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch and Hatchery, Palo Alto, California.

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Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale, also first class breeding cockerels. Our prices are right. W. C. Smith, Prop., Corning, California.

BABY CHIX R. I. REDS
MY SPECIALTY.
Bred for eggs, size, color. Hens on free range means strong chix. 17 cents each; 16 cents in 1000 lots. Denton Poultry Yards, Campbell, California, Box 3.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. JANUARY Chicks. Eggs, cockerels. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

White Leghorn Chicks, $13.00 per hundred in February from stock bred for fifteen years for vigor and winter egg production. A. P. Ward & Son, Calistoga, California.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Hatching eggs from heaviest laying scientifically line bred (Hoganized) White Leghorns on the coast. Interesting circular free. Waldeck Ranch, Burbank, California.

For Sale—Two 400 egg Cyphers Incubators, latest model, used two seasons, $30 each. One 240 egg Cyphers, $20. All in good condition. J. H. Goodier, Paradise, California.

Spring Chix—Rocks, Reds, Orpingtons, Minorcas, Brown and White Leghorns. Satisfaction and safe delivery guaranteed, Tobener Hatchery, Washington Ave., San Jose.

Sly's Rhode Island Reds, some of California's best. Six grand pens mated. Send for catalogue. Albert Sly, 1642 Middleton Place, Los Angeles.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Schellville, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

We Have the Large heavy laying S. C. White Leghorns. Order now for early chicks. Tupman Poultry Farm, Ceres, California.

Heavy Laying S. C. Reds, Cockerels descended from winners at National shows, $10 C. O. D. W. M. Marquam, Bishop, California.

Choice White Wyandotte breeding cockerels $5.00, eggs $3.00 and $5.00 per 15. R. W. Stawetski, Route B, San Jose, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, Cal.

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White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Setting Eggs from the Sunny Slope Poultry Ranch is sufficient to warrant quality of production. We will sell setting eggs only during 1919. If you want birds that will produce quality and quantity, place your orders with us. You will then ever be a satisfied customer. Sunny Slope Poultry Ranch, Longden Ave., Box 789, San Gabriel, California.

Baby Chicks, Anconas, Barred Rocks, R. I. Reds, Black Minorcas, White Minorcas, Buff, Brown, and White Leghorns (Macfarlane Strain) hatching each week. Write for circular. SPECIAL PRICES if ordered this month. Poultrymen's Co-operative Hatchery, D. E. Doke, Mgr., 732 So. Spring, Los Angeles.

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Baby Chicks from our first class White Leghorn stock. Prices on application. J. L. Russell, Gardena, California.

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Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Registered Shorthorns (beef) calves and yearlings for sale. Both sexes, reds and roans. Choice goods breeding. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Guernseys for sale. P. J. Weisel, Santa Fe Springs, California.

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WE SELL FOR LESS. CALL AND SEE.
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REDWOOD TANKS:
New and used, all sizes.
NEW GALV. TANKS: 1000 gal., $39; 2000, $53. Used galv. tanks 4500 gal., $90; 6000, $135; 7000, $145.
RANCH TOOLS: 10-ft. Hoosier Drill, $95; mowers, $45; Fresno, $16; beet drills, $35; broadcast seeder $18.50. Fine 2-gang disc plow $75; Avery tractor only used month $450, runs like new. Deere 14-in. riding plow $35; 4-gang Fosmir Stockton $35; brand new P. & O. tractor plow $230; 3-gang disc $85; 3-4-gang disc plows $120 to $150; spike harrows $10 to $18; cable 10c; Aspinwall potato planter, $75; Planet Jr. new potato digger $20; new Planet Jr. two horse riding cultivator, never unpacked, $95; 2-row Killifer bean cult. $25 to $45; weeder $8.75; 500 ft. 2-in. galv. pipe 27c; bone grinders, cheese cutter, wire stretchers, shears, discs for plows, sundries.
PUMPS: Double acting Ames $145; Bulldozer pump jack $49; large size $98; No. 6 horiz. Gould centrifugal $95; No. 4 two-step $150; No. 7 vert. cent. $150, many others, also rods, pipe fittings. Also buy good serviceable material. DEMMITT CO. Upstairs, 120 No. Main. Yard 816 Yale, Los Angeles.

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale—30 H. P. Best Tractor. All track model and 6 disc Saunders engine plow, also Clark 8 foot double Cutaway disc harrow. H. J. Warr, Perris, California.

A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D. Co. California.

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Wanted—Salesmen and Agents. Exclusive territory granted. Powerene is equal to gasoline at 5c a gallon. Is guaranteed to be harmless, to remove and prevent carbon, doubling the life of all gasoline motors, saving repairs, adding snap, speed and power. An amount equal to 20 gallons of gasoline will be sent to any address in the U. S. for $1.00. W. Porter Barnes, Santa Rosa, California. Dept. A-11.

Wanted position as foreman by man of long experience in the managing and developing of citrus groves and nurseries. I thoroughly understand irrigating, pruning and general care of groves also the installing and operating of gas or electric pumping plants and can handle successfully all classes of labor. Best references. Address 556 Alexander St., San Fernando, California. Phone Green 82.

Wanted—Thoroughly capable and experienced citrus grove man. Must understand irrigation and pruning. Man with wife who would be willing to board one or more men as required. Good house supplied. Address giving references and stating salary required, Box 97, Ducor, Tulare County, California.

Wanted—Buyer for Modern Dairy. Sixty cows and heifers, 3 horses, wagons, two auto deliveries, and all necessary equipment and implements. Three year lease on modern house, barns, silo and forty acres of alfalfa. Income $2,000.00 per month. Owner retires. Headen Park Dairy, San Jose, California.

Wanted—Experienced man to take charge of herd of Registered Holstein cows on shares, good buildings, plenty of water, 40 acres in alfalfa, 30 acres in grain, 20 acres corn land or will sell on easy terms. Address P. O. Box 907, San Diego, California.

Wanted—Cherries and Cots. Quote best price on 225 Royal and 200 Blenheim Cots on Myrobolan and 100 each Bing and Royal Ann and 25 Black Tartarian Cherries on Mazzard, all 4 to 6. Reply Box 18, California Cultivator.

Wanted—Position as Ranch Manager U. S. or Mexico; experienced executive in general farming, cattle, hogs, irrigation and development work; speak Spanish. References. Address R. G. P., care of California Cultivator.

Wanted—To hear from owner of good farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minnesota.

Want to Hear From Owner of Farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minnesota.

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

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Several New and Slightly Used Engines, ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

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30 Acres ½ mile from State Highway, ¾ mile from point where local trains stop, and 3½ miles from Arbuckle. This place partially improved. 11 acres 6 year old almonds, 1 acre 6 year old fruit and 5 acres 1 year old Thompson Seedless. 13 acres to be planted to almonds this spring. Fine location. Will make a dandy home. Write us.
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For Sale—Ranch at Bakersfield, 40 acres, improved and equipped for dairy purposes. Price $10,000 cash, immediate sale; including the farming implements. An adjoining 40 can be had for $6000 on long easy terms, also an additional 80 if desired. For particulars address Brandenburg, Wesley Roberts Building, Los Angeles.

For Sale—Choice Yucaipa Valley, 6 acres apple orchard, 5-room house, garage. Price $6800, terms. Ten acres apple orchard, 5-room house with garage, price $750 an acre—terms to suit. R. D. 2, Box 4, Yucaipa.

Wanted To Sell, trade or exchange 80 acres of alfalfa land in Imperial Valley, for a dairy having 60 to 80 cows, together with lease on place to keep them. Address Frank C. Dias, Holtville, California.

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"TESTED" and "GUARANTEED" **Screw pipe, casing, valves and fittings.** Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.
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McNeely's Mammoth geese; the kind that pay. Eggs 25c each any amount. Fancy breeding stock ready to ship. Chas. McNeely, Alpaugh, California.

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A Cultivator field man, Mr Niles, says:

W. P. Wallace near Escondido has a chicken ranch with 3000 laying hens, has 35 houses and yards. He does all the work of feeding and attending them although totally blind. When incubators are running he has to have someone read the thermomstat; otherwise he attends all baby chicks. He has wires stretched from pen to pen and gets around by means of them. "If a blind man can do that and make money why can't a man with two good eyes?" he asks.

MR. PLANTER:

The coming season promises to be the most favorable in many years for orchard planting. With such a season and

First Class Trees

a successful start for a profitable orchard is assured. WE GUARANTEE OUR STOCK — BETTER CANNOT BE HAD ANYWHERE AT ANY PRICE.



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FRENCH PRUNES on all roots grown from carefully selected bearing trees unsurpassed for size and quantity of fruit.

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JAPANESE PERSIMMONS "Made in America." These home-grown trees live as readily as other fruit trees and are true to name; of the imported trees the few which live are usually untrue.

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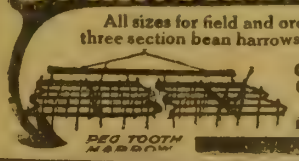
of all that is best in Fruit, Nut and Ornamental Trees, Vines and Plants; and our prices are very low as compared with other commodities. Write for our Price List; free.

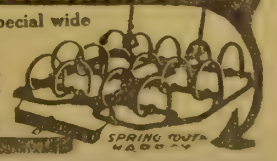
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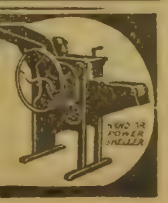
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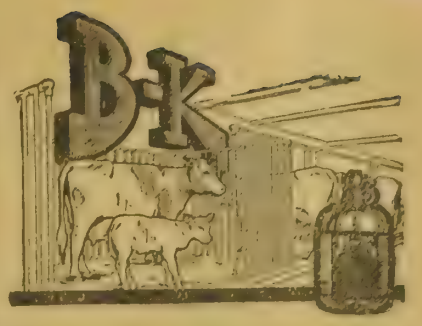
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Flush Cows After Calving

Protect your herd against Contagious Abortion and Barrenness.

Barrenness or Sterility, like Abortion, Retention of After-birth and Premature Birth, is nearly always caused by infection of the reproductive organs by the germs of Contagious Abortion. Unless this infection is promptly overcome by the use of a powerful but safe antiseptic, it may permanently affect the reproductive organs so that the cow will continually fail to stick.

Every time a cow drops a calf—whether alive or dead—by premature birth or aborting, whether the after-birth is retained or not, her reproductive organs should be flushed out, because that is where the infection is developing.

B-K, the powerful non-poisonous antiseptic, is scientifically correct for this work Used as a douche for the uterus, it quickly brings the after-birth, dissolves the slimy albuminous matter, kills the germs, stops discharges and controls the infection. B-K does not cause straining, but is soothing and heals the tissues.

Send for "evidence" and free Bulletin No. 52 "Contagious Abortion." If your dealer does not have B-K send us his name

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Your Veterinarian can stamp them out with **Cutter's** Anti-Calf Scour Serum and **Cutter's Germ Free** Blackleg Filtrate and Aggressin, or **Cutter's** Blackleg Pills.

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Registered young bulls from best families.

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Old methods of shearing leave too much wool on the sheep. Shear the modern way with a good machine. The Stewart No. 9 Ball Bearing Shearing Machine works wonders with flocks up to 300 head. Saves time and money—shears 15 per cent more wool. Does away with second cuts. Sharp jaws for profit. You can get it by sending $2.00—balance on arrival. Or write for catalog.

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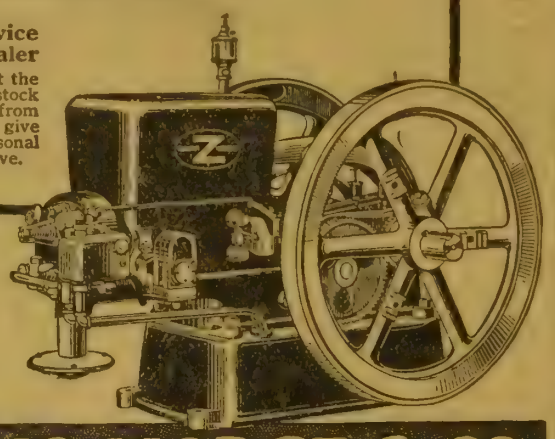
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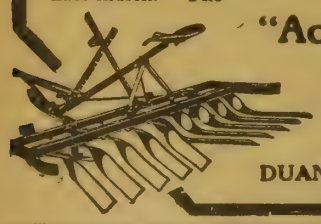
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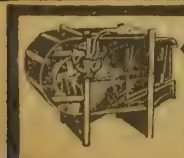
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Our Fanning Mills are reliable and best makes. Guaranteed to clean beans, peas, all grains. Three sizes, with and without bagger. Write us today for interesting information and prices.

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Successful Cooperation

SUCCESSFUL cooperative organization does not necessarily receive universal approval. While we are not naturally pessimistic, it is hard for most of us to conceive of paradise without some earthborn creature who will do some kicking. In fact, we are not certain but a little knocking on the outside is proof of the worth of some of our cooperative organizations. Primarily the objector to any honestly managed cooperative organization does his kicking because of lack of fullest appreciation of all the facts. There is no successful cooperative organization whose membership is not intelligent enough to take all the facts in the case and do some common sense thinking.

The Poultry Producers of Southern California, Inc. is such an organization, and knowing the disposition of its members and their determination to know the inside facts, it has issued statements to give such inside information. One of the latest of these is a "questionnaire."

It consists of a series of questions and answers somewhat along the line of the old-time catechism. The first answer gives reply to the question as to what is the Poultry Producers of Southern California, Inc.?—

An organization of Southern California poultrymen, incorporated under the laws of California, and conducted along cooperative lines by the poultrymen themselves, with the endorsement and cooperation of the state of California, extended through the state market director, the Hon. Harris Weinstock, whose representative serves upon its board of directors and executive committee.

Its purpose?—To enable the poultryman to obtain for his product a reasonable return for his labor and investment, and a price reasonably proportionate to the cost of production.

Other facts brought out by the questions and their answers, greatly condensed are:

As to price of eggs: Prices of any product are fixed by the law of supply and demand in the markets of the world. If the price drops below the cost of production, production necessarily is curtailed until prices are readjusted to give the producer a reasonable return on his labor and investment. If too high, either the public ceases to buy, or others undertake to produce until prices are likewise readjusted.

If prices of eggs are established under a fixed law of supply and demand, then why cannot the individual poultryman always realize the fair market price?

1. Ability to Market:—The individual producer cannot take advantage of the world markets, but must market his eggs close to his own poultry ranch.

2. Storage of Eggs:—A surplus of eggs for the home market is produced during certain seasons of the year, and must be carried in storage to supply the public during periods of limited production. This, the individual poultryman cannot do to advantage.

3. Speculation in Eggs:—The price of eggs in the home market is naturally depressed during the period of over production. A dealer or speculator will always endeavor to procure eggs at the lowest price and sell at the highest. To accomplish this purpose, the quotations in a given locality will be artificially inflated or depressed to an extent which will enable the dealer and speculator, individually or collectively, to control the market in which he deals. Everyone has heard of the various attempts to corner wheat and other food products. The same thing is being done in the local markets on a lesser scale every year.

How can the individual poultryman always secure the fair market price of his eggs? Only through cooperation.

The advantages of a cooperative organization are: — Extension of Markets:—Made possible by an increased volume of business. Those engaged in marketing on a large scale are thereby enabled to seek the world's best markets. This, the individual producer cannot do but his organization can, and can thereby compete in the world's markets with the dealer and speculator, the only difference being that the cooperative organization does not artificially manipulate markets, and returns all of the profit to the producer, while the dealer or speculator retains all that he can for himself.

2. Storage of Eggs:—Your organization purchases all of the eggs produced by its members during all seasons of the year. It pays the market price, but in addition thereto, you also, as stockholders, receive all the storage profits. Did a dealer or speculator ever offer to return to the producers all of the profits on storage eggs? If so, when?

3. Elimination of Speculation:—The large volume handled by the producers' organization takes away from the speculator the ability to control the local markets and artificially manipulate prices, thereby benefiting all poultrymen, whether members of the organization or not.

Why should I join and lose two cents deducted for operating cost?

1. Because you should do your share in supporting the local market for your product, and should not dispose of your eggs where they can be made use of to manipulate the local market for the benefit of the speculator, and to the detriment of all producers. It makes little difference what premium you receive above the local market if that market is below your cost of production, as was the case for years before the formation of this organization.

2. Assuming that certain dealers pay a premium on "Extras," still a member of this association is "ahead of the game" when he considers the return for off grades, storage profits, and the advantages which are sure to come in the buying of feed and supplies.

3. The marketing of broilers can be made to bring the poultryman a profit, instead of a loss, provided you enable your organization to handle broilers, in sufficient quantities to ship to foreign markets, and this can be done only by cooperation in large numbers.

4. The changing conditions which all productive industries are soon to face will call for a thorough study of marketing methods, and possibly some legislation as to imports, etc., and only by means of a large and strong organization can we hope to compete with producers of other products who are boosting for themselves.

Is it not a fact that you can make a better showing by devoting your entire energies to increasing the average of your flock, and leaving the large question of better marketing to a strong organization that can and will secure the best possible results by constant attention to the many details which make for success?

If it is your desire that this organization may succeed in its efforts to secure for every producer that return to which he is entitled, and if you wish to "do your bit" in making that success certain, join hands with your fellow-producers in an association organized by poultrymen for the benefit of poultrymen.

Membership in the Poultry Producers may be secured by subscribing for one share of stock costing $10 for each thousand hens owned. The stockholder must also agree to the deduction of a cent per dozen eggs delivered for purchase of additional stock should such reduction appear advisable by the directors. The member must also sign sale agreement and contribute from eggs delivered sufficient to pay for handling the business of the organization. Payments are made weekly.

Naturally, there are some drawbacks to such an organization, hence, why become a member?

DECEMBER REPORT OF EIGHTH NATIONAL EGG LAYING CONTEST

By T. W. Noland, Director

Mountain Grove, Missouri. — All previous records for the month of December were beaten this year. The pullets averaged 12.54 eggs each, the highest former December average being ten eggs each.

The two highest pens for December, as well as the high hen, were Buff Orpingtons. A station pen No. 36, Buff Orpingtons, made the highest record by laying 120 eggs, but as they do not compete for the prizes, Pen No. 35

owned by Wm. C. McGlasson of Springfield, Missouri, wins the cup with a record of 115 eggs. This pen also won the cup for November.

A Buff Orpington pullet, No. 33-1, owned by Miss S. C. Fellows of Springfield, Missouri, made a perfect record for December by laying 31 eggs in 31 days.

Six pens out of the 15 breeds and varieties laid 100 eggs each during the month.

R. I. Whites made the highest average for the month, the 20 pullets averaging 1855 eggs—sales value 93 cents or $19.55 for the 20 pullets. This does not include feed.

Our feed has been changed from the war-time ration by adding 50 per cent wheat to our grain ration instead of feeding straight cracked corn as a grain feed, and by feeding moistened mash twice each day—in the morning and the early afternoon. Feed at night all the grain the birds will clean up and feed the grain early enough in the evening that the birds will have time to eat before roosting time.

The Contest

Following are the leading pens for each variety for December: Buff Orpingtons, Missouri, 120 eggs; Black Langshans, Missouri, 112; R. I. Whites, Missouri, 110; White Wyandottes, Illinois, 109 R. C. White Leghorns, Missouri, 103; Silver Wyandottes, Missouri, 101; Buff Leghorns, Michigan, 90; Barred Rocks, Missouri, 89; R. C. Reds, Missouri, 87; Anconas, Missouri, 78; S. C. White Leghorns, Missouri, 75; White Rocks, Missouri, 74; S. C. Reds, Missouri, 71; Brown Leghorns, Kansas, 71; Buff Wyandottes, Vermont, 57.

The ten leading pens to date are as follows: R. I. Whites, Missouri 216 eggs; Buff Orpingtons, Missouri, 207; Silver Wyandottes, Missouri, 204; Buff Orpingtons, Missouri, 186; Buff Leghorns, Michigan, 167; R. C. White Leghorns, Missouri, 163; R. C White Leghorns, Missouri, 163; White Wyandottes, Missouri, 161; Barred Rocks, Missouri, 158; Black Langshans, Missouri, 158.

STORRS EGG LAYING CONTEST

Storrs, Conn., Dec. 27, 1918.—Report for the eighth week ending December 26:

Although the laying contest at Storrs has been running for eight weeks there are still three pens, containing a total of 30 birds, that have failed to produce any eggs. In addition to these, there were nine other pens which failed to lay any eggs during the eighth week. The total production for all pens amounted to 1603 eggs, which is a gain of 119 over the previous week and represents a production of 22.9 per cent. Only one individual was able to make a perfect score for the week. This bird was a Barred Plymouth Rock belonging to Jules F. Francais of Westhampton Beach, L. I.

The winning pen for the week was a group of White Wyandottes belonging to Laurel Hill Farm, Bridgeton, R. I. Their total yield amounted to 45 eggs. A pen of Barred Plymouth Rocks belonging to Jules F. Francais won second place with a yield of 41 eggs, and they were closely followed by Obed G. Knight's White Wyandottes from Bridgeton, R. I., with a yield of 40 eggs.

The following table presents a few of the outstanding facts regarding the White Leghorns entered in the seventh contest which closed about two months ago. Corresponding figures for the leading pen of White Leghorns in the same year are given below for comparison.

Breed summary—1917-1918 — White Leghorns:

	Average Per Pen.	Winning Pen.
Egg yield	1624	2043
Mash consumed (lbs.)	494	644
Grain consumed (lbs.)	402	423
Value of eggs	$73.50	$95.18
Cost of feed	$28.24	$33.16
Difference	$45.26	$62.02
Weight of eggs per doz (oz.)	24.1	23.9
Value of eggs per doz (cents)	54.3	55.9

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Samuel M. Monks, 212; Rock Rose Farm, 160; Jules F. Francais, 151.

White Wyandottes

Obed G. Knight, 280; Laurel Hill Farm, 256; Patrick F. Sullivan, 170.

Rhode Island Reds

Laurel Hill Farm, 212; Deer Brook Poultry Farm, 159; Jacob E. Jansen, 144.

White Leghorns

D. Tancred, 257; L. E. Ingoldsby, 234; Hilltop Poultry Yards, 215.

Miscellaneous

S. Bradford Allyn (White Rocks), 105; H. A. Wilson (White Rocks), 107; H. P. Cloyes (Buff Wyandottes), 71.

LATE AND EARLY MOLTERS

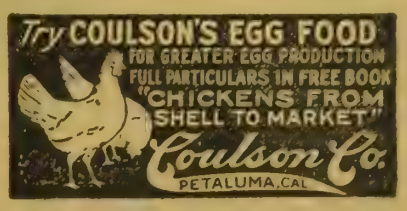
By Jean A. Koethen

A reader who is evidently trying to work out her own poultry problems writes: "I have read several times the statement that the early molter is a late layer; the late molter the first to lay. It has not proven so in my experience. I have some fine hens that are not through molting and are not laying. After about six weeks' idleness my hens that are through with their molt are laying."

Such a statement as that quoted is misleading and must have been very carelessly made. Naturally, the hen that molts first will resume laying first. The rule pretty generally accepted by experiment stations and careful breeders is that the late molter is almost certain to be a better layer than the early molter. The latter quits laying in July or August and goes into the molt because she is not a persistent layer. The late molter lays on into October or November or even into December because she is a persistent layer and is not easily turned aside from her chief purpose in life, which is to lay eggs. The early molter may begin to lay about the time the late molter goes into the molt, but she did not lay as many eggs before she molted and will most likely not lay so many afterward.

The late molter, observation has proved, spends less time molting than her more frivolous sister. If she goes into the molt in November she may not infrequently be found laying again in January. This is because she is a real, honest to goodness layer, and cannot take time to prink. The early molter may begin laying in November, but she probably lays fewer eggs in a week than her more serious sister, and is sidetracked by changes in the weather or her diet. There are hens that molt and lay at the same time, but they are not so common as one could wish.

It is because the late molter has been so often found to be the best layer that the color test is recommended. By the first of November the hen that has been laying steadily all summer and fall will have pale shanks, pale vent and earlobes and beak, and her feathers will be faded and rough. The hen that laid off and went into the molt in July or August, on the other hand, has by this time completed her fall dressmaking, and is bright and glossy in plumage, and yellow in the shanks, while the natural creamy yellow color has returned to the vent and earlobes. This test, however, seems to be reliable only when applied to the yellow shanked birds of the Mediterranean and American breeds. In a flock of White Leghorns it is quite easy to separate the hens into three or four different groups, the best layers being those with the least color, and the poorest those whose shanks, vent and earlobes are a fairly bright yellow. Such a test can, of course, be made only in the fall or in



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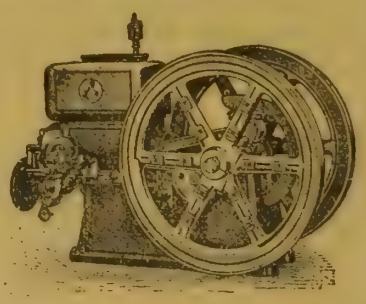


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late summer, when the early molters are ready to lay again.

Professor Dougherty considers June, July and August the best time for culling by color. This is before molting has really begun, and the hens showing yellow shanks at this time are the hens that have not laid diligently enough to diminish the amount of color pigment in their bodies, while the faded hens are those that have laid steadily all winter and spring. In this case late or early molting is not a factor.

FINE RABBIT SHOWING

Written for California Cultivator
By W. D. White

RABBITS red, rabbits white, rabbits black and rabbits blue, in fact so many rabbits I hardly knew what to do." Standing in one end of the long room filled with rows of cages and viewing the fourth annual pet stock show of the Southern California Rabbit and Pet Stock Association held at Los Angeles this week, thus did the writer express himself. So many rabbits were shown, there being nearly 300 entries, that the chicken men almost got jealous and no doubt many of them vowed they would keep some rabbits in their back yard the coming year. Rabbits valued at from $25 to $50 were common there. Rabbits with pedigrees of six to eight generations were on every hand. Rabbits that had won ribbons and cups in many shows were there and gazed contentedly at you while you admired them. The fur rabbits of all colors were there, and just across the aisle were show cases filled with furs made from the skins of their relatives.

Rabbits that made the children laugh ("Ain't they cute?") and rabbits that made you hungry as you thought of them properly dressed and cooked and on your dinner table; rabbits so dainty they could nestle down in a lady's hands and rabbits so heavy she could hardly lift them; Uncle Sam's aviators could see rabbits there that some day might be killed, their skins tanned and made into garments for their protection as they skim the clouds. The working man could see does that at small cost and with a little care daily would produce for him in a year 90 pounds of the best of meat. In passing let us say that the rabbit exchanges in Los Angeles handle over 5000 rabbits daily for market purposes and many of the exhibitors said that they could not supply their local trade.

It was hard work to get the ladies (and men too) past the exhibition of the Coney Fur Club. Fifty pens of live stock and showcases with over $1500 worth of furs, ranging in price from $5.00 for a child's set of furs to coatees for the ladies of $150.

Many fine specimens of rabbits were there, such as a pair of White Polish, the only pair known in this section; some beautiful White Flemish only eight months old and weighing 12½ pounds; a Checkered Giant doe of 16 pounds weight, the largest Checker ever shown in Los Angeles.

It took two cages for "Country Gentleman," a stately steel gray Flemish buck, 17 pounds official weight. He is a grandson of Major Domo and is quite proud of his ancestry.

As usual the New Zealands and Gray Flemish predominated. These were the two largest classes in the show.

Judge Gibson was detained two days by snowdrifts in the Rockies, so could not give the awards at the first of the show.

THE POULTRY BREEDER SHOW

Continued from Page 67

be the advantages of caponizing, it certainly does not improve the appearance of the bird.

The room back of the large show room was occupied by Andalusian, R. C. Red and White Wyandotte breeding yards, and by an interesting assortment of turkeys, ducks and geese. There were Bronze and White Holland turkeys, Rouen and Pencilled Runner Ducks and a choice bunch of Toulouse geese. Four Pearl guineas occupied coops in Bantam Alley, which was well filled.

The bantam exhibit is always interesting, and the progress which is being made in bantamizing, if one may coin the word, the large breeds, merits careful study. Buff Cochin and Silver Seabright are among the oldest of the bantams; Black Minorca, Partridge Orpington, Golden Pencilled and Silver Spangled Hamburg among the newest. Black Breasted Red Game, Rose Comb Black, Rose Comb White, White Polish are standard varieties that have graced many a show room. Patriots and ravens are the creation of a local fancier.

For the most part the exhibitors were Los Angeles County fanciers, but there were turkeys from National City, Minorcas from Santa Rosa, Dark Cornish from Reedley, Fresno County, Barred Rocks from Point Loma, Rhode Island Reds from San Bernardino and some other outside exhibits.

Considerable interest centered in the government exhibit of coops, brooders and pictures of standard bred poultry. Such suggestive mottoes as "Hatch Early," "Raise More Poultry," "Preserve Eggs," "Keep two hens for Each Member of the Family," etc. served to point a moral and adorn a tale, and a large placard announced that much helpful literature could be had at the public library. Such practical suggestions can hardly fail to be of real educational value.

The rabbit department on the second floor was the center of much enthusiastic interest. Here were rabbits of all sizes and breeds and colors, Himalayas, Flemish, New Zealand, Blue, Black, Red, White, Gray, Spotted, young and old, little and big, fur bearing and meat breeds.

Officers of the Poultry Breeders' Association are: W. J. Stewart, president; Harold Walthew, first vice president; H. L. Gill, second vice president; Walter M. Ross, secretary-treasurer; H. D. Armstrong, auditor.

Judges of the mid-winter show were: W. S. Russell, colored Plymouth Rocks, Andalusians, Minorcas, Cornish, Sussex, Asiatics.

C. H. Burnett, Jr., Rhode Island Reds, Wyandottes, Orpingtons, Clean Legged Bantams.

Lieut. E. B. Smiley, White Rocks, Anconas, Leghorns, Turkeys, Feather Legged Bantams.

Charles S. Graham: Rabbits and Cavies.

Judge Russell is from Concord, California; Judge Burnett from Seattle; Lieut. Smiley from Marsh Field; Judge Gibson from Detroit, Michigan.

THE POULTRYMAN'S CALENDAR FOR JANUARY, MONTH OF BEGINNINGS

Mate the breeding pens that are not already mated, and begin after two weeks to save hatching eggs.

If you have to purchase eggs or chicks, order them immediately. The Cultivator is always glad to give information as to reliable breeders.

Start the incubator as soon as you have eggs. Never mind if it is not full, better a few early chicks than none at all.

Mate the breeding ducks and start incubation this month, green ducks must be early if they are to be profitable.

Clean up the brooders and brood coops. Crude carbolic acid is a good disinfectant; so are the cresol preparations. After the coops are cleaned and disinfected, let them stand in the sun till the sunshine has reached every corner.

Every vacant run should be spaded and planted this month. Plant barley, wheat, oats, if the chicks are to run on it; kale, chard, beets, cabbage, if it is to be fed by hand.

Try to get the first lot of chicks out by the first of February. The early pullet is the dependable one.

If there is a vacant patch of ground available, plant it to alfalfa. There's nothing like alfalfa for chicks and poults.

Plan for a few turkeys later on. They will come handy about Thanksgiving. Look up reliable breeders and place your orders.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Bad Faith

A and B agree to trade properties; pending the clearing of a cloud on the property of A, deeds are placed in escrow. A clears the title, deeds his property to third parties, who immediately record the deed, unknown to B, while papers are in escrow, thereby depriving B of the property. In executing two deeds to different parties for the same land would A commit a crime or would the remedy be a civil action for damages from B? — Subscriber, Tulare.

The property of B not having passed to A in the above case no crime was committed by A, although it presents an apparent case of bad faith. B would be entitled to recover damages which would be the expenses properly incurred in examining the title and preparing the necessary papers, with interest thereon, and in addition thereto the difference wherein the property of A exceeded the value of the property of B and the expenses B properly incurred in preparing to enter upon the land.

Title

At the time of marriage Mrs. A. owned a farm; two years thereafter Mr. A. bought an adjoining farm, borrowing the money from his mother. To secure the payment of this money Mr. and Mrs. A. gave the mother a mortgage on both pieces of land and paid interest thereon. The mother loaned the money from the estate of the deceased father of A. After two years this estate was distributed and Mr. A.'s share was the amount of the mortgage, the cancellation of which he received as his full share. Is this farm purchased community property or the separate property of A? Could A dispose of or mortgage it without the signature of Mrs. A? Could she dispose of her farm, owned prior to marriage, without his consent?—Subscriber.

The above question presents quite a knotty problem and the opinion given upon the facts as stated might be very different upon a more thorough investigation of the various acts and declarations of the parties. One authority holds that where property is borrowed upon the credit of the separate property of the wife and property purchased with the borrowed money, even though the husband joins in the mortgage, the property purchased is the separate property of the wife; in conjunction with another authority the cancellation of the mortgage would relieve the property of the lien which the husband might have retained by way of presumption of gift of the wife. If the title to the new property was taken in the name of husband and wife, under the circumstances it might be presumed that each have an undivided one-half interest as separate property. From the statement it does not seem to be community property nor does it seem to be the separate property of A entirely. Therefore, it would be necessary for the wife to join in any mortgage or transfer of the new property. The farm owned prior to marriage by the wife is her separate property and it is not legally necessary for the wife to obtain the consent of her husband to any conveyance thereof, although careful title companies usually require it.

Completing Contract

A owns real estate and sells to B on contract payments, agreeing to give B deed when final payment is made. A dies before final payment and deed have been made. What course should be followed by B or by the heirs of A?—Subscriber.

It would be necessary to have an administration upon the estate of A. After the administrator is appointed a verified petition is presented to the court, either by the administrator or by B setting forth the facts as above stated, notice of the date of hearing said petition is given both by personal service on the administrator and by publication. If the court finds that B is entitled to his deed and makes his payments or has made them, it is ordered that the administrator carry out the contract and deliver the deed in accordance with its terms. If the heirs of A refuse to petition for the administrator, it would be competent for B to do so and then the costs and fees would be offset against the balance due on the contract or other estate of A.

SAN FERNANDO VALLEY LIVE STOCK MEN

Assistant Farm Adviser Scribner of Los Angeles County will have charge of the farm bureau meeting of live stock men at the Elliot-Brant Rancho, Owensmouth, January 23-30. Advisor Scribner announces: "Various topics of current interest to live stock men will be brought up for discussion, including the value of the pure bred sire, dairy conformation, good points in the hog, as well as others. All live stock men are invited."

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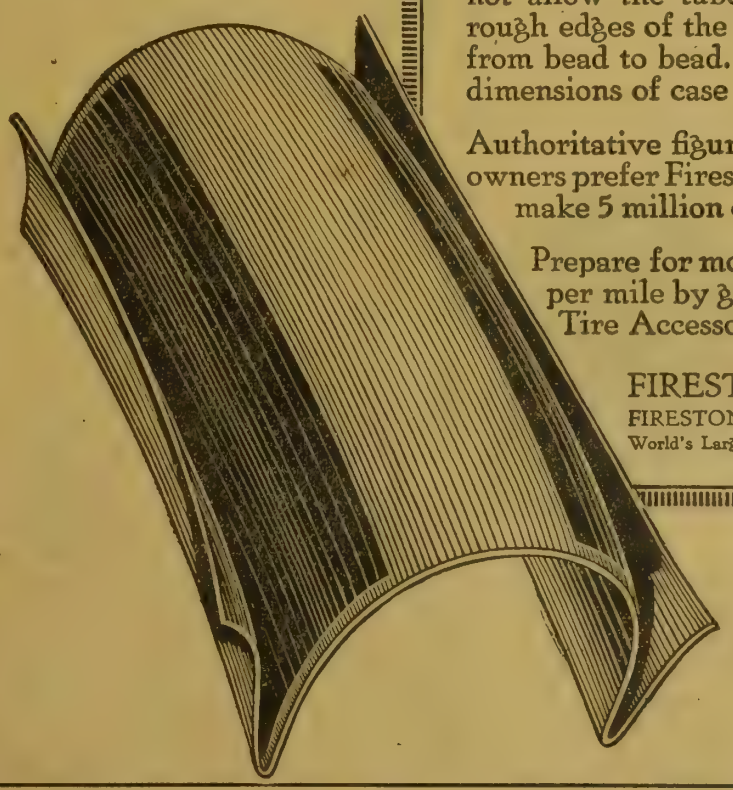
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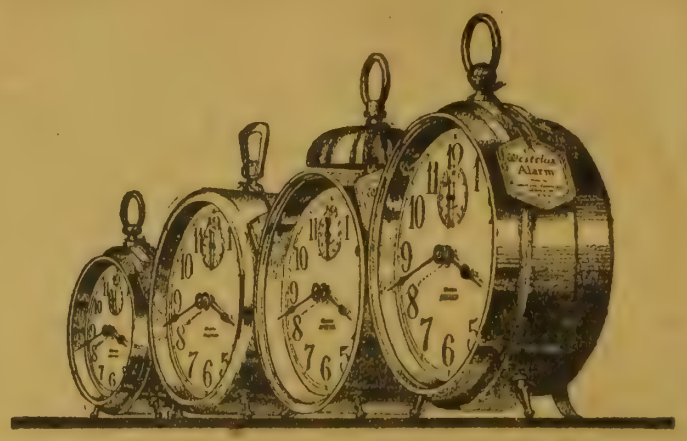


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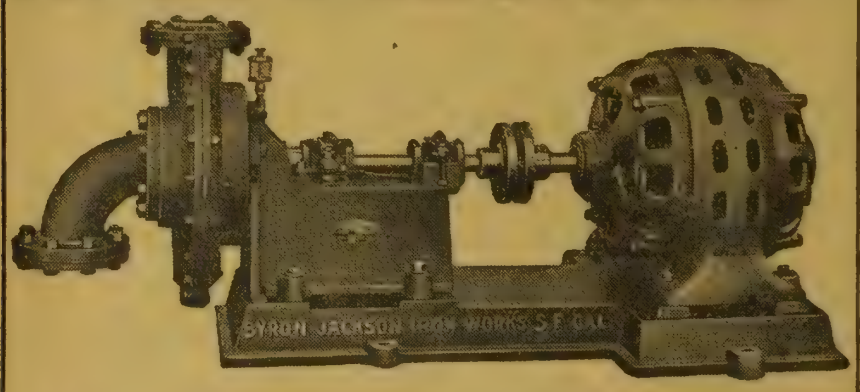
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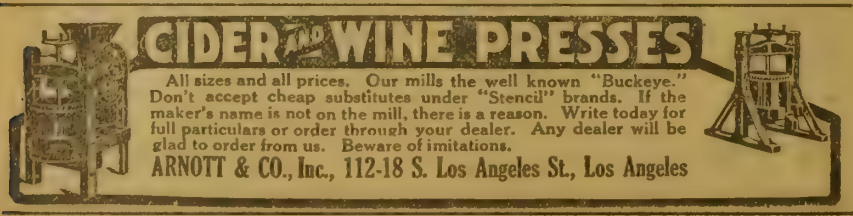
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Household Department

THE BEST OF BIRDS

Let the others raise their ditties to the sparrows in the cities,
Let them prate about the peacock if they will;
Let them talk about the robin or the mournin' dove a-sobbin',
Or the blackbird as it whistles on the hill;
Let them sing about the jay bird, givin' praises unto that gay bird;
Let them boast about the linnet or the wren;
But I'm proud to say my charmer is the comfort of the farmer,
And I'll raise my little ditty to the hen.

If you're only out for beauty, it is probably your duty
To descant upon the bulbul in the tree;
Or, if wisdom's what you're after then the owl upon the rafter
Quite the true and proper caper's said to be;
But it's usefulness I'm praisin', and my ditty I am raisin'
To the best and truest feathered friend of men;
And so here's to that great blessin', may her shadow never lessen,
Just the humble and hard-workin' barnyard hen.

BEING A CHICKEN WOMAN

BEING desirous of making my own spending money, I decided to engage in the poultry business. A friend told me that her mother had fine Buff Rocks and that she would send me a setting of eggs.

They arrived in due time and to my great joy hatched two roosters and five pullets. Ote and Dick, the two roosters, developed into fine specimens of game, Rhode Island Reds and some other mixture. They were beauties, but fight they would, until one May morning they concealed themselves in the hen house and fought to a finish. Ote came out victorious, leaving Dick on the battlefield for the pall bearers.

Somehow, their offspring must have inherited fighting propensities, for before they were feathered out they would congregate into groups of four or five and fight until their little heads were picked to the brain.

Then it was that my woes began. I tied these chicks together, laying them about the yard, or separated them in coops, but all to no avail. As soon as released they were at it again. Well, what could I do but sell the whole lot, feeling that if these red fighters were buff Rocks I'd try brown Leghorns!

I invested my money in Leghorn eggs and to my dismay hatched one pullet and one rooster out of figteen eggs. They looked like quails and flew like sparrows, so these pure breds were served for quail on toast to an invalid.

My heart was still set on Buff Rocks—real ones! I read all the advertisements in the farm papers and poultry journals hunting for what I wanted.

In the meantime I was told by a poultry judge to buy only the best. He recommended a certain breeder, so when my husband gave me $25 for Christmas, I decided to send to the breeder and get a good one. He wrote me that he could send me a fine "bird" (then it was I learned that a chicken is a "bird" when spoken of by a fancier), scoring 93½, who "would take first prize in any of the big shows." He said that it would have red eyes, yellow legs, full breast, etc., all for the small sum of $25.

After gazing tenderly at the prized Christmas gift, my mind turned to the first prize money and the fame of having the finest bird in the show.

The money was hastily sent for the much coveted prize. In a few days the expressman drove up with the anxiously expected cockerel — and $1.60 express added. (I had also learned that if I was going into the show business I must say "cockerel" instead of "rooster".)

He was a hollow breasted, high stepper, with white speck on wings. The "standard of perfection" I found out later, said "full breast and wings free from white." You see I had never been to a poultry show nor had I ever seen a real buff Rock.

He was shipped to the show and in my imagination I could see the blue ribbon floating in the breeze in front of my coop. But, lo and behold! he did not get even second place—scoring only 87½ points. I argued with the judge, telling him I had paid $25 for that show bird from one of the biggest breeders in the West, but all to no avail. He pointed out the defects, which I afterward learned were true.

Woes! Woes! But surely the breeder would take him back and return my Christmas present, as the cockerel was not as recommended. Not so, I had kept him over the three days' time limit. Another woe, but something learned.

Poor cockerel! His disappointment was so keen that he failed to distinguish between his throat and his windpipe and several grains of kaffir corn caused him to be laid beside fighting Dick.

Now, in the meantime I had patronized a home concern and bought a setting of eggs which hatched some fine pullets, but what good were pullets alone as breeders? I must have a male and a good one, as he is half the flock.

I read and reread all the Buff Rock advertisements I could find and decided to try an Eastern breeder for a change. After much correspondence I procured another "bird" for the mere pittance of $25. He was a fine fellow, all but his comb which was too thick. I entered him in a big show, getting second prize and lots of experience. After keeping him a year I sold him for $5 on credit.

I purchased a setting of eggs, 15 for $10, getting two pullets and one fine cockerel. From this time on I began to line breed. Blue ribbons were no longer a dream but a fond reality and I had, through my woes, learned that it pays to buy good stock.

Did my troubles end there? No! They only began! The pens must be properly mated, the chicks hatched and reared. I purchased an incubator and set it in February. Oh! the sleepless nights of sitting up with that inanimate hen!

But in due time the eggs began to slowly hatch. Some said wring cloths out of hot water and cover eggs, some to sprinkle, some one thing and some another. I tried them all and three days over time a bunch of little golden weaklings come off, which I considered it my duty to keep warm, and I did till their little bodies became thinner and thinner and their "peep, peep" fainter and fainter.

But even incubator troubles can be overcome by common sense and experience. Weaklings can be changed into strong vigorous chicks, by a good home made brooder and plenty of clabber milk to prevent bowel trouble. Out of 115 hatched this year we lost but one.

Oh, I must keep to woes! What must I do for the many ills which poultry is heir to? Open a drug store, of course!

So I did, and labeled all the bottles and boxes.

Then I began to watch for symptoms. If a chicken had a cold he must have a dose of oil and his throat swabbed with the carbolized vaseline. If sore combs and wattles caused from mosquito bites, the same remedy applied to affected parts. If sluggish and poor appetite a little epsom salts mixed with moistened bran, to help the liver along.

These woes are past. Now, the winter layers, the conquered incubators, the sensible brooder, the good old clabber milk (nature's remedy for bowel trouble), the early friers, the fine cockerels and pullets, have all put a new song in my mouth—that they who persevere shall be abundantly rewarded, in sleep, time, and money, with a poultry ranch of pure breeds, equal to any of the East or West. For pluck, work and common sense will win!

CONCERNING BLEACH AND DYE POTS

Written for California Cultivator
By Margaretta A. Walker

We have often found that the beautiful daintily colored voiles and summer goods do not stand either the California sun nor the washing. If the colors withstand the sun until the dress is ready for the wash I find it pays to put it through a solution of sugar of lead to set the color before washing. Sometimes if I am particularly desirous of retaining the color I immerse the goods in this solution before making up. This serves both to set the color and shrink the goods.

In case the color does not hold but fades from sun or washing I send the dress to the laundry with the request

that they put it through their bleaching bath. The result gives a new pure white dress already made. One striped seed voile in black and tan was unfortunate in having ink spilled over the front breadth. This was sent to the laundry to be bleached. The dress was much prettier than before the accident. Old dresses can be made new in this way with very little expense.

After the peach season when the small boy's suits were hopelessly faded and stained I mended all torn and worn places, then removed the stains, and incidentally much color, with javelle water. After this was done I colored the lighter suits pink for afternoon wear while I dyed the heavy ones dark blue. This nearly doubled the wearing quality of his clothes, as they now look respectable instead of being all stained and faded with bright patches showing. Now the mended places are not noticeable.

When dyeing the more delicate colors I make a practice of saving a bottle of strong solution of the dye which may be used on the article during subsequent washings.

Sugar sacks dyed a golden brown make excellent summer shirts for the boy to wear with khaki trousers. Other sugar sacks I dyed in a weak solution of dark brown dye and made a fine shade of light tan for the linings of comforts. Being soft and firm they answered this purpose splendidly.

I took three heavier sacks, I believe they were either seed or meat meal sacks, and colored them golden brown. From them I made a pair of full bloomers with a bib waist which can easily be slipped on over my afternoon dress and the skirt kept safe from dirt if I find it necessary to run out to feed the chickens or milk the cow. This is really an indispensable garment on the ranch.

Another economy of the dye pot, and a really "nifty" one too, is to hem a bias piece of white cotton poplin or pongee and color it and a pair of small socks, which can be obtained for ten cents. The small lad can then wear matched ties and stockings and really, this, by varying the colors makes even an old white suit take on a new appearance.

SOME ECONOMICAL RECIPES

Written for California Cultivator
By Mrs. N. Peacock

One Egg Cake

Two and a half cups flour, one-half cup cornstarch, one and a half cups sugar, two heaping teaspoons baking powder, one-half teaspoon salt. Sift dry ingredients together and moisten with two cups milk into which the yolk of an egg has been beaten. Melt one-half cup lard and stir into mixture. After beating thoroughly fold in white of egg and bake in moderate oven until cake leaves side of pan.

Bacon Stew

Fry one-fourth pound fat bacon until grease is out and add five large, finely sliced onions, let fry until onions are yellow. Pour in one and a half quarts boiling water or stock. Add seven large potatoes cut into cubes. Season with salt, pepper and chili powder to taste and cook until potatoes are done.

Onion Pie

Peel, slice fine and fry in butter or lard eight or nine large onions until just before they turn yellow. Salt to taste. Line pie plate with rich biscuit dough rolled thin and fill with the onions. Pour one-half cup thick cream over pie and bake until crust is done. If you like onions try this recipe.

Meatless Mince Pie Filling

Cook together two quarts apple sauce or four pounds peeled and sliced tart apples, one pound raisins, one-half pound currants or seedless raisins, one teaspoon each of cinnamon, cloves, allspice and nutmeg. Add one-half cup strong vinegar, one cup sugar and one heaping teaspoon salt. Boil 30 minutes, being careful it doesn't burn.

Cookies

Cream one cup butter or lard and one cup sugar. Add one well beaten egg and one cup milk. Sift together two teaspoons baking powder, one-half teaspoon salt and about one and a half cups flour or enough to make a soft dough that can be handled easily. Roll thin, cut and bake in quick oven.

Plain Plum Pudding

One-half cup lard, one-half cup sugar, one cup seeded raisins, one-half cup currants or seedless raisins, two cups flour, two teaspoons baking powder, one teaspoon mixed spices, one-half teaspoon salt, three-fourths cup milk, one egg.

Clean currants and add them to raisins and suet. Sift flour with the spices, baking powder and salt, add to fruit with sugar, moisten with the egg and milk and turn into greased pudding mould. Steam three hours and serve with hard or lemon sauce.

Creamed Fowl or Rabbit

Cook a young fowl or rabbit until very tender and season to taste. Then place meat in baking dish and pour over enough sour cream to cover. Place thin layer of moistened bread crumbs on top and brown in oven.

BRINE CURE FOR HAMS, SHOULDERS AND BACON

For a very good brine cure take for each 100 pounds of meat, five gallons boiled water, ten pounds of salt, two ounces of saltpeter, three pounds of sugar. Slowly dissolve all ingredients in the bottom of the container, then place the meat in it very snugly, cover with board or earthen cover, weighting it with something that will not rust (use stones, don't use iron), then pour the brine in. This is especially recommended for hot climates as the meat is easily protected from insects and vermin.

Leave the meat in the brine four days to each pound, that is 40 days for a ten-pound ham. Every week take all the meat out of the barrel then the brine. Place the meat back with that which was on the top on the bottom, then put the brine back. When the meat has been long enough in the cure take the meat out of the brine and soak it in water for an hour, then wash it in warm water and hang it in the smoke house over not too hot a fire, 120 degrees, until the required color is obtained. Forty-eight to sixty hours is usually adequate.

Watch the pickle and if it becomes ropy take out all the meat and wash it in warm water. Boil the pickle or make new, wash the container and put the meat and brine back.

The home curing of pork is a good practice and should be extensively adopted. Try it. — W. E. Schneider, Swine Specialist, University of Arizona.

For I do know
God's patient love perceives
Not what we did
But what we tried to do.

Home is home, though it be ever so homely.—Clarke.

I've made it a practice to put all my worries down in the bottom of my heart, then set on the lid an' smile.—Mrs. Wiggs.

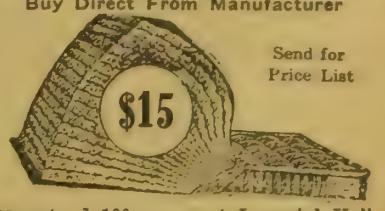


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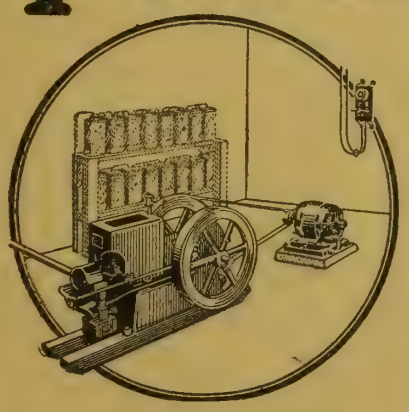
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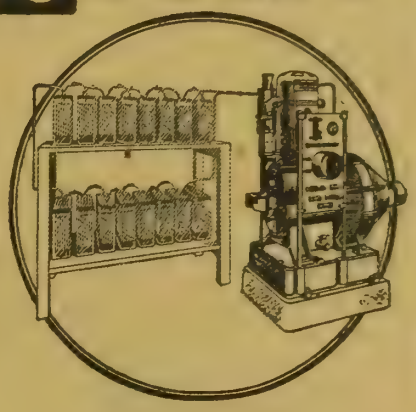
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Send me full information about your "After-The-War" tractor proposition without obligation on my part.
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See the Bean Tractor at either of our branch houses, 131 N. Los Angeles St., Dept. D-1, Los Angeles, or J Street, Fresno.

Los Angeles Market

Los Angeles, Jan. 15, 1919.

BUTTER

Produce Exc. Quotations.
Prices to trade 1½ to 2½c higher.
Cal. Extra Creamery 65

CHEESE

Brokers' prices:
California fresh, lb. 32

EGGS

Exchange quotations. Price to retailers 2 to 3 cents higher.

Fresh extras 55
Case Count 54
Pullets 53

POULTRY

Hens; heavy, 30@32; light, 30; colored, 32; broilers, 40@43; fryers, 35; roasters, 30; old cocks, 20.

Ducks, 30; ducklings, 32; geese, 28; turkeys, 34@35; squabs, 40-43; Belgian hares, 20.

LIVESTOCK

The market for all grades of steers continues active at firm prices. Cows are in good demand and those showing good flesh, demand strong prices. Local packers do not get as many cows as their trade demands. Hogs are a little easier and the supply is more plentiful. Adequate supplies of lambs with no noticeable increase in the demand for them has resulted in a weakened tendency to this market especially on the poorer grades.

Wethers continue very scarce and the market for them is strong and active. Ewes are a slow sale and local killers are reluctant to increase their present supply on a market so weak as it is at present.

Report of live stock conditions on the Los Angeles market as compiled by the United States Department of Agriculture, Bureau of Markets, through the local office. The following are live stock prices on the Los Angeles market f. o. b. packers' yards. Prices at country points are $1.00 to $1.50 per cwt. less than these quoted:

Good Steers .....13.00@14.00
Common .....11.50@12.00
Good Cows .....10.50@11.00
Medium Cows .....8.00@9.00
Common and canners .....6.00@7.00

Prices quoted below are for carload shipments f. o. b. slaughterers' pens. Driven-in, or truck hogs sell for ½ cent less.

Hogs—
No. 1 hogs, 150-225 lbs. .....16.50@17.50
No. 2 hogs, 250-350 lbs. .....16.00@16.50
Sheep—
Lambs, 65-80 lbs. .....15.00@16.00
Wethers .....11.00@12.00
Ewes .....8.50@10.50

POTATOES

Wholesale selling prices:

Burbanks .....2.35@2.85
Sweet, lug .....85@1.00
Idaho Russets .....2.40@2.50

Seed stock, Oregon, White Rose, sacked per 100 pounds 2.75@3.00; Red Rose, 2.75@3.00; Homegrowns, White Rose, 2.75@3.00.

ONIONS

Wholesale selling price, cwt.

Demand and movement moderate, little change in prices; Stockton, sacked, 100 pounds, Browns and Yellow Danvers, best, 1.75; poorer, 1.50@1.65; Lompoc, 2.00.

VEGETABLES

Wholesale prices:

Beans—String 15
Limas, lb. .....9@10
Cabbage, cr. .....1.25@1.50
Carrots, doz. 45
Cauliflower, cabbage, cr. .....2.75@3.00
Celery, cr.: Homegrowns, best, 6.00@7.50; poorer, 4.00@5.00. Northern, best, 8.00@ 8.50.
Lettuce, cabbage cr. .....2.40@2.55
Parsley, doz. 15
Peas, Tel. lb. .....15@17
Peppers, Chili, lb., 17@18; Beli, lb..16@18
Pumpkins, lb., best .....1@1½
Radishes .....15@20
Rhubarb, Strawberry, bx. 2.00
Spinach, doz. 35
Squash—Hubbard, best, lb. .....1½@2
Turnips, doz. 30

FRUITS

Apples—Bellfleurs, bx. .....1.90@2.25
Yucaipa Delicious .....2.25@2.50
Pearmains .....1.75@1.85
Newtons .....1.90@2.00
Pears: Winter Nellis, lb. .....5@6

CITRUS

Lemons: Fancy packed, 4.50@5.00; local pack, 4.00@4.25; loose, some tree ripe, 2.50.

Oranges: Navels, medium and large size, fy., 4.50@5.00; local pack, 3.00@4.00; loose, 2.50@3.25; Tangerines, 6@6½ lb.; some small, 4 lb.

Grapefruit: No carlot arrivals. Tulare County, Seedless, medium and large size, fy., 2.75@3.00. Arizona, Seedless, 3.00@3.25 packed bx. Imperial Valley, Seedless, 3.00@3.25.

HONEY

Supplies very light. Exchange now controls large share of honey remaining in producers hands. Demand slow, little change in prices. Cash to producer on farm extracted light amber alfalfa 19@20 per pound. Light amber sage 20½@21½c per pound. Comb light, No. 1, $5.00@6.00 case; beeswax, 36@38c per pound.

BEANS

Practically no demand. None being sold. Growers offering freely anxious to sell, warehouse cash to growers: Choice recleaned Limas sacked per 100 pounds, 9.75@10.00, mostly $10.00. Small Whites, sacked per 100 pounds, best 8.25@8.50. Large Whites, sacked per 100 pounds, 8.00@8.25 mostly 8.25. Henderson Bush, best 9.25@9.50. Pinks sacked per 100 pounds, best 6.50@6.75. Some showing the effect of rain as low as 6.25. Blackeye, sacked per 100 pounds, 4.75@5.00, mostly 4.75. Tepary, sacked per 100 pounds, 4.00@4.25.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....21.00@26.00
Barley .....19.00@24.00
Alfalfa .....17.00@21.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:

Choice dairy hay .....25.00@26.00
Choice alfalfa .....24.00@25.00
No. 1 dairy .....23.00@24.00
Standard dairy .....22.00@23.00
Standard alfalfa .....20.00@21.0

San Francisco Markets

San Francisco, Jan. 14, 1919.

BUTTER

There was an upward trend in the butter market the past week and active trading was reported on all markets.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½c to 2½c; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:
Extras 65½

CHEESE

Dairy Exchange quotations:

Cal. Flats .....32@34
Ore. Triplets 40
Jack, full cream 30
Cal. Young Amer. 20

EGGS

Dairy Exchange quotations:

Extras 66½
Extra Pullets 66

POULTRY

We quote to producers, lb.:

Hens, 40@41; broilers, 45@50; fryers, 40@45; old roosters, 21@25; young roosters, 37@39.

Ducks, 30-32; geese, 30@32.
Belgian hares, live, 20@22.
Jack Rabbits, doz. .....3.50@4.00
Squabs, doz., 3.00@4.00.
Turkeys, dr., 40@43; live, 35@37.

LIVESTOCK

Prices gross weight:

Cattle: The following prices are for grass fed stock. Hay fed brings ½ to ¾c more.

No. 1 steers, weighing 950 to 1100 lbs. alive, 12¾@13; 1200 to 1400 lbs., 13@13¼; second quality, 11½@12; thin steers, 9@10; No. 1, 9@9½; second quality, 8@8½; common to thin, 6@6½; calves, 10½@11½.

Sheep — Lb. gross weight: Wethers, 11¼@12; ewes, 8¼@9¼; lambs, 14; yearlings, 12½.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 16¼; 150 to 250 lbs., 16¾; 250 to 300 lbs., 16¼; 300 to 400, 16.

POTATOES

Wholesale selling prices at wharf, cwt.:

Deltas, 2.00@2.15; Red Shima, 2.35; Oregon Burbanks, 1.85@2.15; Gems, 1.85@2.25; British Queens, 1.75@1.90; sweet, per 100 lbs., 3.60@3.85; new potatoes, 5@7 lb.

ONIONS

Wholesale selling price on wharf, cwt.:
Australian, Brown and Yellow..1.00@1.60

VEGETABLES

Wholesale selling price:

Artichokes, doz. .....35@1.50
Beans, String, lb. .....20@25
Wax .....20@25
Limas .....15@17½
Beets .....1.25@1.50
Brussels Sprouts, lb. .....5@10
Cabbage, lb .....¾
Carrots, sk. .....1.00@1.25
Cauliflower, doz. .....75@1.00
Celery, cr. .....4.50@7.00
Cucumbers, hothouse, bx. of 30..2.25@2.50
L. A., lug .....2.50@3.00
Egg Plant, lb., Southern .....10@15
Lettuce, doz. .....20@40
Southern Iced, cr. .....2.50@3.00
Egg Plant, lb. .....5@10
Peppers, Chili, lb., 7@10; Bell ....10@12½
Peas .....15@22
Pumpkins, sk. .....1.00@1.25
Rhubarb, bx. .....2.25@2.50
Squash—Cream .....75@1.00
Hubbard, sk. .....1.50@2.00
Marrowfat .....1.00@1.25
Summer, cr. .....75@1.00
Tomatoes, cr., Southern .....2.00@2.50
Seconds .....75@1.00
Turnips, sk. .....75@1.25

FRESH FRUITS

Apples—Newton Pippins .....1.25@1.60
Pearmain .....1.25@1.65
Spitzenburg .....2.00@3.00
Rellefleur .....1.50@1.75
Avocados, doz. .....6.00@7.00
Bananas .....7@9
Olives, lb. .....10@12½
Pears—Beurre Hardy 1.50
Kieffer, ½ bx. .....1.50@1.75
Winter Nellis .....2.25@2.75
Bartlett .....2.50@3.00
Persimmons, bx. .....1.00@1.25
Quinces, bx. .....80@1.15

CITRUS

Box: Lemons, 2.50@4.50; lemonettes, 2.00@3.00; grapefruit, 2.00@3.50; limes, 1.25@1.50; Mandarins, 1.30@1.75; cr., 1.75@2.00; tangerines, bx., 1.25@1.50; half orange bx., 2.50@3.00; new Navel, 3.00@5.25.

BEANS

Per cental:

Limas 11.00
Large White .....8.00@8.25
Small White .....8.75@9.25
Blackeye .....5.25@5.50
Pink .....6.60@7.00
Bayou .....7.25@7.75
Red .....7.00@7.50
Cranberry .....7.50@8.00

HONEY

Supplies light. Demand and movement slow, no change in prices. Cash to producer at country loading points: Extracted water white, 20@23 lb.; Sage white 20@22; White alfalfa, 20@20½; light amber alfalfa, 19@20; dark amber, 16@17; beeswax, 36@37 lb. Nevada white, 24 section cases, 6.50; light amber, $5.50; dark amber 4.00@4.25.

GRAIN

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Cental
No. 1	$2.20	$3.62 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$3.63 1-3
No. 2	2.15	3.58½
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 ½

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Barley — Feed, 2.20@2.25 per cental for choice spot; shipping, 2.25@2.30 milling, nominal.

Oats — Red feed, 2.35@2.50 per cental; seed, do, 2.85@3.00, with recleaned at 3.15@3.20.

Corn — Egyptian, 2.75@3.00 per cental for choice white; Milo, 2.65@2.70. Cal. Yellow, 2.85@3.00; White, 2.65@2.85. Rye nominal.

HAY

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market. For prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.

Fancy Wheat Hay (light 5 wire bales)	24.00@26.00
No. 1 Wheat or Wheat and Oat Hay	22.00@24.00
No. 2 Wheat or Wheat and Oat Hay	16.00@20.00
Choice Tame Oat Hay	21.00@23.50
Other Tame Oat Hay	16.00@19.00
Wild Oat Hay	16.00@18.00
Barley Hay	16.00@18.00
Alfalfa	18.00@22.00
Stock Hay, in order	14.00@17.00
No. 1 Barley straw, bale	50@80

SEEDS

Flax	8@8½
Millet	5@5½
Rape	2½@5

Citrus Fruit Market

Los Angeles, Cal., Jan. 15, 1919.

Frost damage is still uncertain and the market is affected by fruit conditions. The agreement on the part of the shippers to hold off shipments has had good effect however. The state standardization law gives power to the commissioner to prevent any frosted fruit going forward.

The lemon market is in good condition with foreigns arriving freely.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 2723 cars, lemons 1275, total 3998. To same date last season; oranges 2467, lemons 602, total 3069. Central California this season; oranges 2863, lemons 259, total 3123. Last season to same date; oranges 1812, lemons 87, total 1899. Northern California; oranges 230, last year same date, 199.

AT THE AUCTIONS

January 8

New York: 10 oranges, 3 lem. Lower. Nav. 4.30-5.75, lem. 3.80-4.55.

Cleveland: 4 cars. Nav. 2.60-5.10.

St. Louis: 2 oranges, 2 lem. Nav. 2.95-3.90, lem. 2.20-3.20.

Philadelphia: 2 oranges, 2 lem. Nav. 4.15-4.65, lem. 3.45-4.05.

Boston: 7 oranges, 2 lem. Nav. 3.45-5.15, lem. 3.35-3.80.

January 9

New York: 12 oranges, 4 lem. Nav. 3.80-5.55, lem. 3.15-4.25.

Pittsburg: 4 oranges, 1 lem. Nav. 3.30-5.60, lem. 3.55-4.60.

Boston: 5 oranges, 2 lem. Nav. 4.20-5.50, lem. 2.05-4.15.

January 10

New York: No sales on account of strike.

Philadelphia: 2 oranges, 2 lem. Nav. 3.55-5.15, lem. 2.40-4.00.

Boston: 3 oranges, 2 lem. Nav. 4.35-5.40, lem. 2.55-4.15.

St. Louis: 2 oranges, 2 lem. Nav. 3.95-4.70, lem. 3.20-3.50.

January 14

New York: 17 oranges, 5 lem. Lower on oranges. Higher on lemons. Nav. 3.05-5.10. Arizona Nav. 3.70-3.95; Navelencias, 4.35-5.00, lem. 2.65-4.25.

MARKET NOTES

Arizona sheep men find that prospects are exceptionally bright as desert pasture is proving fine and prices promise to be phenomenal.

Thousands of range cattle will be taken from Southern Arizona early in the spring to graze on cut over lands of Michigan and Wisconsin.

Bureau of markets report fancy packed lemons around $4.50-5.00 a box in Los Angeles.

Watsonville Bellefleur from storage are now commanding around $1.90-2.25, Yellow Newtons, $1.90-2.00.

Tuesday's arrivals of potatoes in Los Angeles market totaled 15 cars from California, 3 from Oregon, 4 from Idaho with 42 cars on track unbroken. In addition 8 cars have been diverted to other markets. The demand is good and they are moving very rapidly. Sacked central prices ranging as high as $2.85 and even up to $3.00 for homegrown White Rose. Fair quality Idaho Russets selling around $2.40 and $2.50.

Imperial Valley is planting cantaloupes. Arizona is planning for the usual planting in the Glendale district. Planting there will not begin until early March.

PARTIAL LIST CALIFORNIA FRUIT AND VEGETABLE SHIPMENTS

From post card reports to the Los Angeles branch of the bureau of markets, report is made of the following shipment of cars of products from California for the week ending January 13: Apples, 84; cabbage, 35; cauliflower, 52; celery, 169; dried apples, 1; dried apricots, 2; dried beans, 37; dried peaches, 18; dried pears, 3; dried peas, 6; dried prunes, 29; lettuce, 32; mixed vegetables, 57; mixed fruit and vegetables, 40; mixed dried fruit, 38; olives, 6; onions, 4; peppers, 1; potatoes, 183; raisins, 255; spinach, 9; sweet potatoes, 10.

GOVERNMENT CONTRACTS AND THE CANNER

The Cultivator recently commented upon the rescinding of contracts by the war department in effect that there was possible injustice to producers and canners in the matter of holding these products for government acceptance, and then being compelled to dispose of them at prices lower than those for which they could have been sold at time contracts were made with the government. The department has ruled that the army will pay the difference between the price to which the individual packer may be entitled as ascertained according to the rules laid down in the United States Food Administration Bulletin No. 13, and a sum named for each zone.

The packer will receive strapping allowance and the expense of preparing the product for army use and carrying charges.

This basis of settlement is the only one which can be authorized by the director of purchase and storage, and in the event the packer is not willing to settle on this basis he will have to take his claim before the contract and settlement board.

CALIFORNIA SHEEP AND WOOLGROWERS ASSOCIATION

The eleventh annual meeting of the California Sheep and Woolgrowers Association will be held at University farm, Davis, Wednesday, January 22, 1919. Meeting called to order at 2 p. m. Among the most important questions for consideration are, "Plans for Reorganization, similar to those of the Cattlemen," "Methods of Selling our Wool in the Future," and "Legislative Matters of Importance."

Every sheepman should be present and make this a real meeting. Come prepared to answer the question, "Why is lamb cheaper on foot today on the Chicago market than either beef or pork, when it is so much more healthful?" Come prepared to remain all night, as we will not finish in one day. Roast lamb dinner will be served at 6 p. m. in the University dining hall. —Fred A. Ellenwood, President.

NATION REQUIRES MORE WINTER EGGS

According to the United States food administration:

An urgent necessity exists for a large output of eggs this winter.

Storage stocks are 21 per cent less than a year ago and are rapidly being consumed.

The United States must share its egg output and its storage eggs with Europe.

Importation of Chinese dried eggs stopped in February, 1918, and bakers are now using shell eggs, thus adding to demand.

Even with maximum production, conditions point to profitable returns for every fresh egg marketed.

WEATHER CONDITIONS

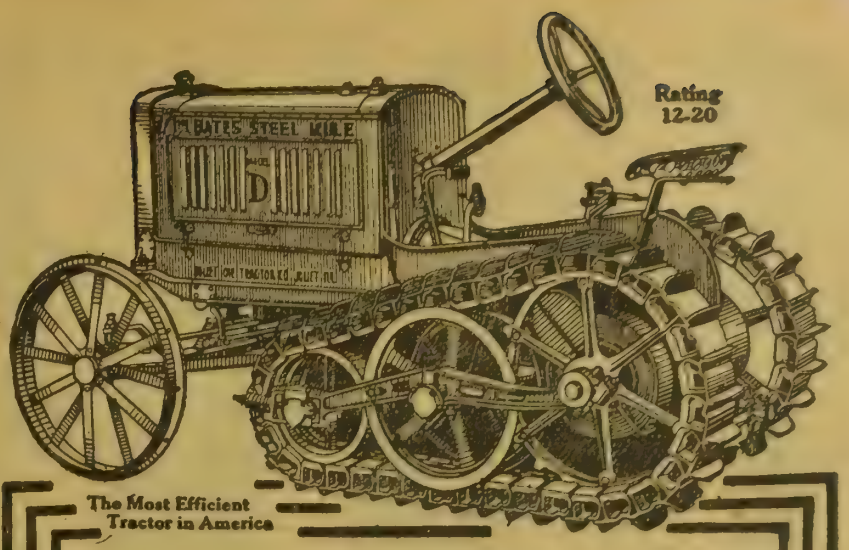
San Francisco, Cal., January 4, 1918.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.08	11.72	17.76	54	28
Red Bluff	.00	14.45	10.56	70	24
Sacramento	.00	7.39	7.48	52	28
San Francisco	.00	10.92	8.80	56	37
San Jose	.00	9.91	6.56	62	22
Fresno	.00	3.84	3.81	56	26
San Luis Obispo	.00	7.37	6.48	72	26
Los Angeles	.00	4.06	5.56	76	36
San Diego	.10	4.24	3.37	70	36

WEATHER CONDITIONS

San Francisco, Cal., January 11, 1919.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	1.18	12.90	19.10	70	38
Red Bluff	.84	15.29	11.31	70	26
Sacramento	.06	7.45	8.08	60	30
San Francisco	.17	11.09	9.50	61	42
San Jose	.10	10.10	6.97	66	28
Fresno	.02	3.86	4.13	66	32
San Luis Obispo	.10	7.47	7.53	78	32
Los Angeles	.00	4.06	6.00	78	52
San Diego	.00	4.24	3.79	76	46



The Most Efficient Tractor in America

No Side Draft

The Bates Steel Mule is built low, with a low center of gravity. And still it has nearly 14 inches' ground clearance.

The draft comes squarely in the center—cannot come from the side. So on hillsides there's no tendency to work down like in ordinary tractors.

Unit construction, Timken bearings, valve-in-head kerosene motor and long-life crawlers are a few of the other valuable features.

The STEEL MULE plants are working night and day filling orders. We have only been able to reserve a small number for early delivery. Better talk the matter over with us NOW.

THE ONLY CRAWLER TRACTOR ADAPTED TO BEET CULTIVATION WITHOUT MAKING CHANGES.

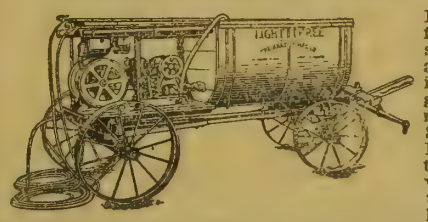
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High Pressure, Light Weight, Large Capacity, Powerful Engine, Perfect Agitation, Simple Construction.



HARDIE POWER SPRAYERS are the final word in sprayers. They represent not only years of experience, but also an accurate knowledge of spraying needs and the conditions that govern spraying. Where spraying is most difficult you will find HARDIE Sprayers in the majority.

HARDIE SPRAYERS are noted for their simplicity. No complicated devices to cause trouble when every minute counts. You can put any of the help to work with a HARDIE and get maximum results. Makes the work of spraying easier than ever before.

When you see a HARDIE SPRAYER you will readily understand its superiority. See how compact it is—the few working parts and how everyone of them is quickly accessible. There are 21 HARDIE features that make it the leading power sprayer. The HARDIE CATALOG tells all about them. A COPY is yours for the asking. Send today. You can see a HARDIE at your dealer's.

Hardie Orchard Gun $12.00

The latest HARDIE device made to improve spraying conditions, shoots a cloud of penetrating spray, covers the trees with a fog. Easy to handle. Takes a tiresome load off the arms and does the work in much less time. Fits any high pressure sprayer and increases its efficiency.

Order a Hardie ORCHARD GUN from your dealer or direct from us. Money back if not satisfactory.

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Disc Harrows


THE ARNOTT DOUBLE DISC HARROW

We have nine distinct styles of Disc Harrows. A Harrow for every use. 3 feet to 12 feet in width of cut. 14 to 20 inch discs, solid or cutaway. No assortment so complete. Call and see them or write for catalogue. We are headquarters.


FIELD HARROW 4 TO 12 FT WIDTH

ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

Please Send at Once for Our **New Catalogue**
It is Full of Valuable Information
Leonard Coates Nursery Co.
Morganhill, California.

Giant Winter **RHUBARB**
NOW BEST TIME TO PLANT
Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb or Berries, write J. B. WAGNER, Specialist, Pasadena, California

160 HENS—1500 EGGS

AS AMERICA'S foremost poultry expert I predict that eggs are going to retail for a dollar a dozen this winter. Right now the retail price is from 50c to 75c per dozen in some of the large cities. At a dollar a dozen poultry raisers are going to make tremendous egg profits. You, too, can make sure of a big egg yield by feeding your hens a few cents worth of "More Eggs" tonic.

This product has been tried, tested and proven. It is acknowledged the best and most successful egg producer on the market today. Every day that you don't use it means that you are losing money. Don't delay. Start with a few cents worth of "More Eggs" tonic now.

Got 117 Eggs Instead of 3

That's the experience of one poultry raiser who wrote me. A. P. Woodard of St. Cloud, Fla., writes: "I get from 40 to 50 eggs a day now. Before using 'More Eggs' I was getting only 8 or 9 eggs a day." Here are the experiences of a few others of the hundreds who write me:

"160 Hens—125 Dozen Eggs"

E. J. Reefer: Waverly, Mo.
I have fed two boxes of More Eggs Tonic to my hens and I think my hens have broken the record for eggs. I have 160 White Leghorns and from March 26 to April 15 I sold 125 dozen eggs. MRS. H. M. PATTON.

"15 Hens—310 Eggs"

E. J. Reefer: Turner Falls, Mass.
I used your More Egg Tonic and from December 1 to February 1, from 15 hens, I got 310 eggs. Your remedies are just what you claim them to be. MRS. C. R. STOUGHTON.

"More Than Doubled In Eggs"

E. J. Reefer: Mendon, Ill.
I am very much pleased with your "More Eggs" Tonic. My hens have more than doubled up in their eggs. L. D. NICHOLS.

126 Eggs In 5 Days

E. J. Reefer: Salina, Okla.
I wouldn't try to raise chickens without "More Eggs," which means more money. I use it right along. I have 33 hens and in 5 days have gotten 10½ dozen eggs or 126. MRS. J. O. OAKES.

Well Pleased With "More Eggs"

E. J. Reefer: Rochelle, Va.
I received my "More Eggs" Tonic about the 8th of January and am so well pleased with it I am mailing you $1.00 for another box. I have about 150 hens and get anywhere from 80 to 100 eggs daily, and one day over 100. MISS VERA BOWMAN.

"Selling Eggs Now"

E. J. Reefer: Hebo, Oregon
I was not getting an egg when I began the use of the "More Eggs" Tonic. Now I am selling eggs. MRS. J. F. BRINK.

"Gets Winter Eggs"

E. J. Reefer: Wilburton, Kan.
It is the first time I got so many eggs in winter. When I began using "More Eggs" I was only getting from 1 to 3 eggs per day and now I am getting 11 to 13 eggs per day. MRS. JULIA GOODEN.

18 Hens—12 Eggs a Day

E. J. Reefer: Luray, Va.
Six weeks ago I began giving "More Eggs" Tonic and I was not getting an egg from 18 hens, and now I am getting 10 to 12 every day. You can quote me as saying that it is the best chicken tonic in the world. R. L. REYNOLDS

"Layed All Winter"

Dear Mr. Reefer: Lackawana, N. Y.
I gave the tablets to my hens and in three weeks they began laying and layed all winter. I never saw anything like them in the world. Yours truly, MRS. ALBERT SMITH, Penna R. R. Ore Docks

"37 Eggs a Day"

E. J. Reefer: Elwood, Indiana
That More Eggs Tonic is simply grand. When I started using it they did not lay at all, now I get 37 eggs a day. Yours truly, EDGAR E. J. LINNIGER

"Increase from 2 to 45 Eggs a Day"

Reefer's Hatchery: Derby, Iowa
Since I began the use of your More Eggs Tonic 2 weeks ago I am getting 45 eggs a day, and before I was only getting 2 or 3 a day. Yours truly, DORA PHILLIPS.

"Doubles Egg Production"

E. J. Reefer: Paradise, Texas.
I have been using More Eggs Tonic 3 or 4 weeks and must say it is fine. My egg production has been doubled. J. C. KOENINGER.

"48 Dozen In One Week"

Dear Mr. Reefer: Woodburg, Tenn.
I can't express how much I have been benefitted by answering your ads. I've got more eggs than I ever did. I sold 42 1/2 dozen eggs last week, set 4 dozen, ate some and have 1/2 dozen left. From your friend, MRS. LENA McBROON

"Increase From 8 to 36 Eggs a Day"

E. J. Reefer: Shady Bend, Kansas.
I am well pleased with your More Eggs Tonic. I was only getting 8 or 9 eggs, now I am getting 3 dozen a day. Yours truly, WM. SCHMIDT.



A Million Dollar Guarantee

Absolute Satisfaction or Money Back

National Bank of the Republic

KANSAS CITY, MO.

TO WHOM IT MAY CONCERN:
I hereby guarantee that Mr. Reefer will carry out his agreement ★ ★ ★ and this bank further agrees to return to the customer the total amount of his remittance, if Mr. Reefer fails to do as he agrees.

Very truly yours,
W. Huttig
President.

More Eggs Makes Layers Out of Loafers

This is a concentrated tonic, not a food. It consists of every element that goes toward the making of more eggs. A perfect regulator, aids digestion, stimulates egg production and builds firm bones and strong muscles. The foremost authorities in America, and poultry raisers from every state endorse Reefer's "More Eggs" tonic.

Results Guaranteed!

Here is the facsimile of the guarantee of a million dollar bank that "More Eggs" will produce results. This million dollar bank guarantees to refund your money if you are not satisfied. You run no risk. So don't delay. Every day you wait you are losing money.

E. J. REEFER. 5601 Reefer Bldg., **Kansas City, Mo.**

Enclosed find $1.00 for one full size package of "More Eggs" Tonic. ☐
$2.25 for three full size $1.00 packages of "More Eggs" on special discount. ☐

(*Mark X in the square opposite order you want.*)

Send this with an absolute Bank Guarantee that you will refund my money if this tonic is not satisfactory to me in *every* way.

Name .....

Address .....

Poultry Book Free If you don't want to try this Bank Guaranteed Tonic at least mark X in the square for me to send you my valuable poultry book Free ☐

Order Today

Send a dollar today for a full-sized package of "More Eggs" tonic; or better yet send $2.25 at extra special discount and get three packages. Three packages is a full season's supply. Don't put it off. Order now and start your hens making money for you. Remember, you run no risk. A Million-Dollar Bank will refund instantly if you are not satisfied. [*Whether you order "More Eggs" now or not, at least mark the coupon for Mr. Reefer to send you absolutely free his valuable Poultry Book that tells the experience of a man who himself has made a fortune and is helping others to make money out of poultry.*] Act NOW. Don't wait. Pin a dollar bill to the coupon. Or send $2.25 which will guarantee your winter's egg supply. Send for this bank-guaranteed egg producer NOW. Today! It has helped thousands of others and will help you, too.

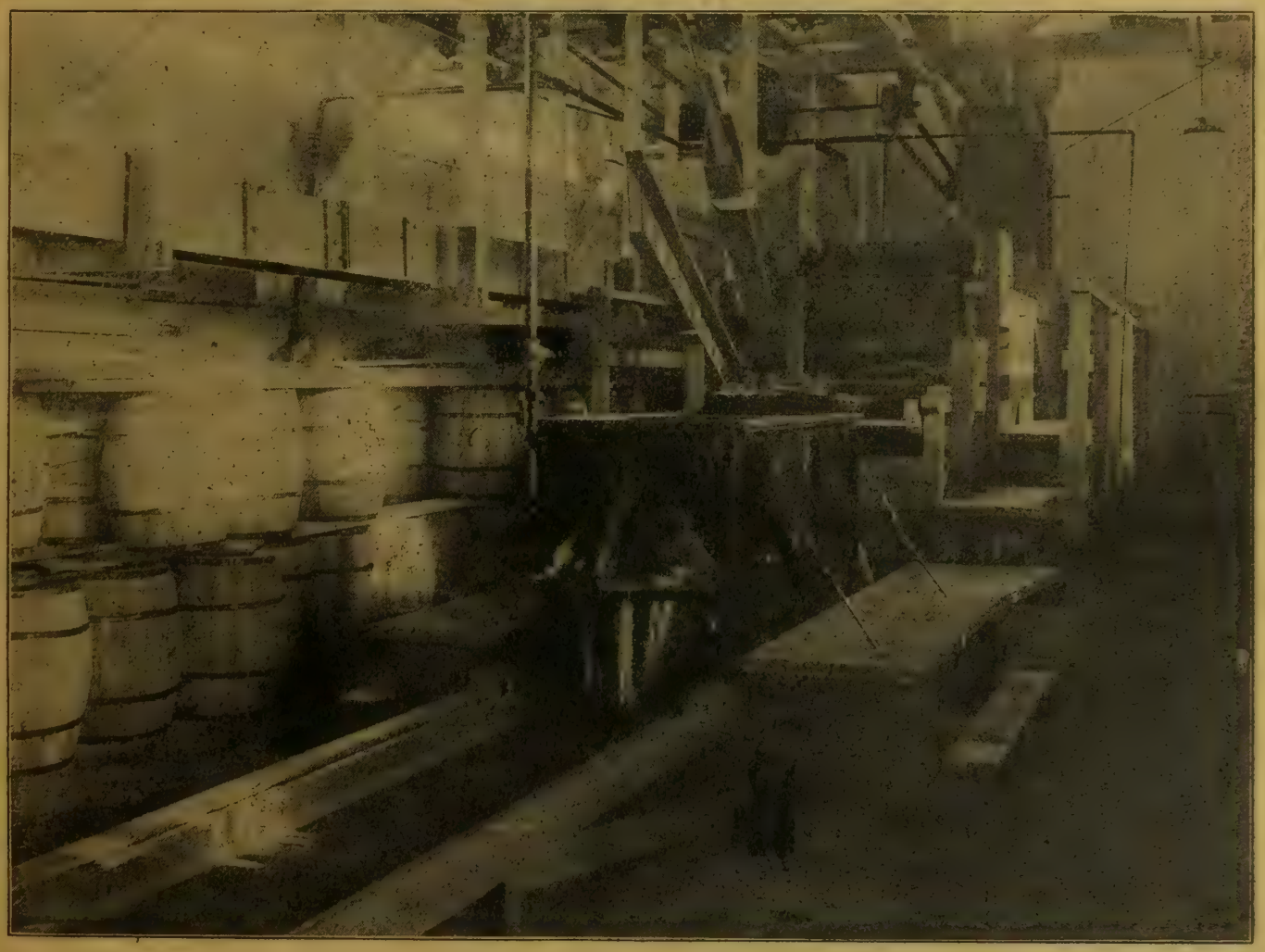
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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — January 25, 1919 — No. 4



Practical Peach Peeling Machine. See Article Third Page



Co-operative *economy* in grain handling

THE CALCO GRAIN LOADING STATION is the connecting link in the progressive bulk handling movement in California. Mills have invested thousands in bulk handling equipment. Harvester manufacturers are supplying bulk handling attachments at a low cost. A storage and shipping elevator at a convenient railroad siding is necessary—the Calco Loading Station meets that need at an unusually low cost per bushel capacity.

A Compact, Efficient Unit

This illustrated unit has a capacity of 25,000 bushels, or the average crop of 1000 acres of grain.

Operating at a speed of 440 feet per minute, its elevator belt has a capacity of 1000 bushels per hour. The grain is dumped from wagons or trucks into a receiving pit, capacity of 316 bushels, elevated to the tower where it is cleaned—all weed seed, cheat and other debris removed—automatically weighed and either turned into a storage bin or loaded directly into cars, through chutes, for shipment in bulk.

This loading station has a concrete base with four bins made of Armco galvanized iron and a tower constructed of corrugated iron—it is strong, fire and vermin-proof. Its four bins will care for 17 standard cars of grain, or the equivalent of 11,750 sacks.

Erected at a Low Cost per Bushel Capacity

This Calco Grain Loading Station is designed for erection at a railroad siding—either by individuals or a co-operative organization of grain growers.

It may be erected for between 28 and 30 cents per bushel of storage capacity. This is about one-half the cost of erecting a unit of similar capacity of concrete.

The Calco Loading Station is equipped with a 7 to 10 h. p. motor and 8 by 5 Minneapolis buckets on 12-inch centers.

It will easily care for the cut of the average combined harvester cutting from 30 to 50 acres per ten-hour day for a continuous period of 250 hours of operation.

The Calco Bins in this unit are 22 feet 1 inch in diameter by 21 feet 5 inches in height.

The illustrated Calco Grain Loading Station may be enlarged in capacity by simply erecting additional Calco Bins. One order is now being planned comprising 12 Calco Bins—giving the unit a storage capacity of 75,000 bushels of bulk grain. Write for details and blue prints of the Calco Grain Loading Station. Our engineers will gladly assist you in every way to adapt this unit to your own particular needs.

California Corrugated Culvert Company

LOS ANGELES
419 Leroy street

BERKELEY
408 Parker street

CALCO GRAIN LOADING STATION

California Cultivator

Vol. LII, No. 4 | Los Angeles: January 25, 1919 | One Dollar Yearly

Perfect Peach Products Building Big

IN 1914 George C. Roeding prepared for Cultivator readers an article on the peach and how to grow it, and, being a practical man and especially a practical planter of orchard trees, he devoted some little attention to planting, pruning and everyday steps in orchard management. But as we look back over this article at this time it appeals to us that the more important part of it had to do with the quality end of peaches rather than with their culture. Mr. Roeding wrote:

"If the man who consumes your stuff refuses to buy because its appearance is against it, what prospect is there for better returns? He is the man you have to reach. How are you going to do it? By offering an article of food which is not pleasing to the eye? Correct this one fault and you will be surprised to see how quickly the situation will change.

"Are you going to raise the level of your product by offering the same old article year after year or are you going to be the first one to deliver the punch, and how are you going to go about it?

"When a man is engaged in a commercial business, if he is going to stick he realizes that he must induce the fellow who has the money to buy to head his way. After he has a taste of the stuff he has to sell he employs every legitimate means at his command to cause him to call for more. There is nothing wrong with the peach business except that the word 'more' has been forgotten. Dried prunes and apricots are immense factors in the California fruit trade, why should peaches lag? What is wrong? The answer is, 'Nothing, except that fuzzy skin.' It is just that one thing that curtailed our trade with Europe. The greater part of our prunes and apricots are exported, and this same market and our own would take our peaches if you remove the fuzz.

"You believe it, and so do I, that when this market was being vigorously developed three years ago, and dried peaches reached the very remunerative prices of nine and ten cents per pound, Europe was buying freely of our stuff.

"What stopped it? Not hard times, but simply that fuzz, to which our European friends made such serious objection that exports became very small. How many people would eat canned peaches with the hide on? Then what is the use of expecting them to take them when there is no mitigating sweet syrup to neutralize this skin when the peaches are dried? In my opinion peeling of peaches will solve the problem of marketing. It is easily done. Even a small grower can do this work to good advantage.

"All that is really necessary in the way of appliances is an ordinary prune dipper, in which one pound of lye is dissolved in 15 gallons of water. The lye water should be maintained at boiling point and the peaches, after being halved, placed in this solution for about one minute. The fruit should then be dumped into a tank of cold, clear water, which should be changed occasionally, when the skins will immediately slough off. The sulphuring of the fruit should be carried on in the usual manner employed for peaches not so processed, but should not exceed four hours. The sulphur bath is of sufficient duration when the syrup collects in the cup of the fruit. One important point which should not be overlooked in order to have a first-class dried article is to have the trays clean."

The small grower may have at times endeavored to respond to such an appeal as the above, but real success did not come in a satisfactory product until cooperative effort gave power to far-seeing people and a method of work was devised which is resulting in a product which "tastes like more." The most important feature of this process is shown in the illustration on the cover of this issue.

That illustration shows the practical peach peeling machine. The method is entirely different from that referred to by Mr. Roeding. That is the old lye process still in use by canners, but the California Peach Growers have devised and patented a machine and method which is not only practical and economical but produces a product most attractive to the trade.

We have asked J. P. Kane of the department of standardization and inspection of the organization for information regarding the peeling process. Mr. Kane says:

"We would advise that this process is strictly a mechanical one, and no chemical is used in connection with it. The peaches are peeled after they have been dried by the farmers on the ranch, and this is the only process of which we know, by which peaches can be peeled in that condition.

"The exterior view of the peeling machine is the only one we were able to make, the interior showing the mechanical arrangement, being so dark as to make it impossible to photograph.

"The dried peaches are conveyed by means of belts to a vat, where they are subjected to a warm bath, and thence conveyed to a machine where the peeling is removed. After leaving the peeling machine, they are conveyed to a wire cloth screen, where the excess water is shaken off, and are then conveyed, by belts, to a hot air chamber for the further evaporation of moisture.

"The peaches are then dropped through a chute onto trays, and placed in a sulphur house for sulphuring. This process of sulphuring requires some two or three hours. It insures the fruit being preserved for a great period of time, and also assures its retaining its original color.

"After sulphuring, the peaches are conveyed, on trucks, to tables where the trays are dumped, and girls are employed in filling cartons with peaches. The filled cartons are then carried, by endless chain, to the sealing machines.

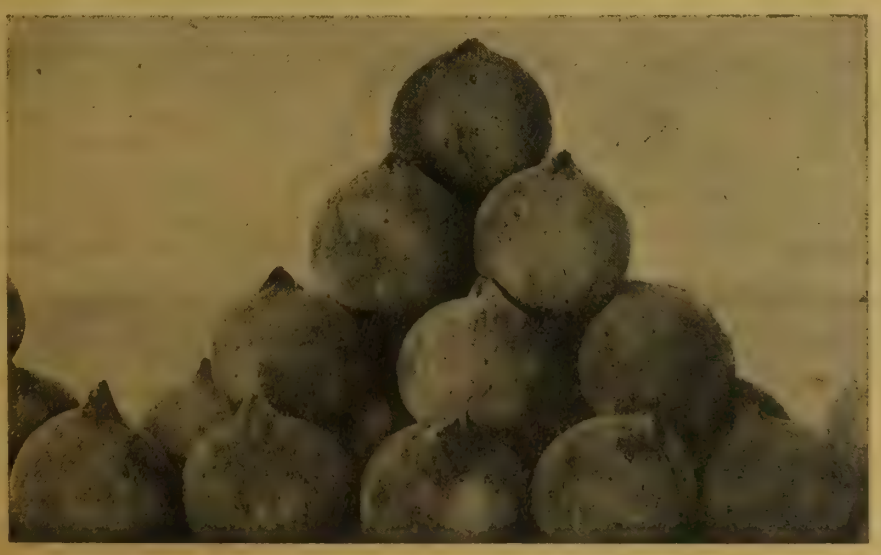
"By our peeling process we are able to remove 90 per cent of the fuzz and peeling from the dried peach, and this product packed in sealed sanitary cartons is fast taking a high rank among the fruit products of the world. The presence of the undesirable fuzz and peeling has always been a great handicap in marketing dried peaches, particularly in the better markets. The demand for practically peeled peaches is indeed encouraging and in fact the supply is not quite equal to the demand. With the outlook for marketing dried peaches in the peeled state so promising, there should be no hesitancy on the part of the prospective grower to plant peaches.

"Of the drying varieties of peaches, we recommend the Muir, as we have found that it is the peach that is best adapted to our peeling process. The Muir is also a prolific bearer, developing a high percentage of sugar, dries heavier than most varieties, retains its rich golden color for a long period of time, and is in greater demand by the buying public than all other dried peaches. The Muir is also being used more and more each year for canning purposes. Next in order we would recommend the Lovell, a variety similar to the Muir, somewhat darker in color and well adapted to peeling. This variety matures some two weeks later than the Muir and is a very desirable product."



Delivering the Finished Product

Cartons of peeled peaches being carried along a belt, where the girl in the checked skirt catches and places them in large shipping containers. Practically Peeled Peaches are packed in three sizes of cartons — eleven ounce, two-pound, and five-pound. The picture shows the handling of the eleven-ounce cartons. These are packed 48 to the case.



We believe the entire cost of perfecting this great organization is more than met in the advantages it has given to the California peach industry through the perfecting of this process. A vastly greater market has been developed, better sales and better prices are being secured because of the more edible product. While the prices of the past year may possibly not obtain indefinitely we do not believe there was ever a better outlook for the peach industry than there is today. The question now is not so much that of securing a market for a high grade product as of securing the high grade product for the market. There is no peach growing section of the world that can compete in the matter of quality with those from the sun kissed valleys of California.

There always seems to be a desire, especially on the part of the newcomer in the orchard business, to produce sub-tropicals or fruit comparatively rare. There is a general feeling that rarity must mean an assured market when the fruit can be produced, but when it comes to the money making fruits year in and year out staples hold the record, and amongst the staple fruits peaches are in the front ranks.

The 7000 members of this great corporation should be doubled. California's wealth should be increased. Peaches will do it if they are planted right, cared for and then either dried or canned so as to keep the true California quality.

Agricultural News Notes of the Pacific Coast

Northern California

All Sonoma County is wearing masks again.

California rice men are appealing for restoration of rice tariff.

W. J. Pleasants, a '49er of Solano County, has just passed away.

Directors meeting Glenn County farm bureau is being held at Willows today.

An irrigation district has been organized at Round Valley, Lassen County.

Farm Adviser Ralph D. Robertson of San Joaquin County, has died of influenza.

Special beekeepers demonstrations have been held in Glenn County the last week.

Montgomery Gates has been reelected county horticultural commissioner of Solano County.

The farm bureau center at Concord, Contra Costa County, is planning a poultry show, February 7 and 8.

A grass seed trap has been invented by a Glenn County man to remove seeds of all kinds from irrigation water.

One hundred and thirty-two men are taking the tractor course now being given at Elk Grove, Sacramento County.

Twenty thousand sheep belonging to the Miller & Lux Company have been shipped from Galt to pasture at Los Banos.

All farm bureau centers in Sacramento County have become community councils to act with the state council of defense.

The State Grange at its annual meeting in Ukiah went on record as endorsing the work of State Market Director Weinstock.

Butte County's best rice lands are now commanding $45 per acre per year rental; half cash in advance and balance on crop mortgage.

Sacramento Valley now irrigates 250,000 acres of land, and it is estimated that she has sufficient water, if all conserved, to irrigate ten times that amount.

The Pacific Rice Growers have sent a telegram to Food Administrator Merritt, who is now in Washington, protesting against the removal of embargo on Japanese rice.

At the meeting of the California Wool Growers held at Davis last Thursday, President Ellenwood gave report of the convention of the National Wool Growers which he attended recently at Denver.

The smaller cattlemen of Eldorado County are forming cooperative live stock associations for the purpose of uniting in securing grazing privileges in the national forests. One hundred and fifty cattle have been signed up.

It is announced that the capacity of the big rice mill of the California State Rice Milling Company at Sacramento is to be doubled. This will give California the largest rice mill in the country, which distinction has formerly been held by a mill at New Orleans.

County Horticultural Commissioner Mills of Butte County reports that county's output of almonds in 1918 as 400 tons as against 125 tons in 1917. The output of prunes was 2400 tons, but we note that only 40 per cent of prunes harvested were good, this on account of the early fall rains.

Central California

Fresno County wants more hogs to eat up waste products.

The California Peach Growers has just sent out a dividend.

Stanislaus County had 1300 acres in sweet potatoes, beans 17,000.

Cotton picking is going on in the cotton fields east of Kerman.

Santa Clara County is preparing to wage a fight against squirrels.

San Jose Grange has elected I. J. Church overseer to succeed Mrs. Alice Abbott.

The Stanislaus County board of supervisors has ordered the wearing of flu masks.

The Kerman farm bureau is making plans for a community auction sale, probably on February 18.

The Kings County Poultry Association called off its show which was to have been held January 17.

The Aromas farm center, San Benito County, has decided to merge with the community council.

The California Farm Bureau Marketing Association makes auction sales of live stock for members for one per cent of the gross proceeds.

The Turlock Merchants and Growers' Association is conducting its election of directors through the mails. Thirty directors are to be selected.

Grain farmers of the San Joaquin Valley are generally fitting themselves with bulk handling equipment which will mean great reduction in harvesting and storage costs.

The Associated Raisin Company finds that vastly better returns are secured by making known one brand or trademark than, as formerly, private brands.

H. J. Faulkner has been appointed manager of the Milk Producers' Association of Central California, succeeding Lowell Gum, who died recently of influenza.

Kern County farm bureau has 675 members. Of the local associations Kern Delta, McFarland and Wasco have the largest memberships, each having 107.

February 22 has been named as the date for the Seventh Semi-Annual Sale of the Kings County Poland-China Breeders' Association. Eighty head will be offered for sale.

An election is to be held at Turlock in the spring to decide on the admission of the site of the California Peach Growers' plant to the city. The plant now has the use of the city water and sewer systems.

The December report of the cow testing association of Stanislaus County shows 1924 cows tested. The record for best average herd was made by P. Hansen of Ingomar, with 1.88 pounds of butter fat per day.

Farm bureau meetings in Kern County will be held at Weed Patch, February, 3; Kern Delta, 5; McFarland, 7; Delano, 10; Wasco, 12; Rio Bravo, 13; Edison-Fairfax, 14; Pond, 19; Rosedale, 21; Shafter, 26; Arvin, 28.

The last report of State Veterinarian Keene maintains that the state dairy law providing for tuberculin testing has enabled the veterinarian to secure far better sanitary control. Dairies to the number of 9501 were tested.

Southern California

Talbert ranchers are planting beets.

Two new cotton gins are being erected in Palo Verde Valley.

The Imperial Valley Milk Producers' Association has 550 members.

Picking oranges began again in the Redlands district on Monday the 13th.

Holtville, Imperial County, hopes to have a new rural delivery route north of the Highline.

The tractor school is now in session at Hemet, Riverside County. It will end February 1.

The El Centro Pima cotton gin is turning out an average of nine bales of cotton a day.

The Ventura County farm bureau met at Ventura court house January 9 and planned work for 1919.

Alfalfa and milo growers of Brawley, Imperial County, are planning the formation of a marketing association.

Olive pruning demonstrations have been held in San Diego County the past week at El Cajon, Jamul, and Fallbrook.

The Elsinore cannery has finished its season's run on pumpkins and is closed until spinach is ready, probably in April.

The Central Lemon Association at Villa Park, Orange County, has secured net returns of $4.27 at the tree for the crop of 1917-18.

A movement is being started in Ventura County to ask the legislature to build a road through the Cuyama from Ventura to Bakersfield.

San Fernando Valley farmers who still have their beans stored in warehouses awaiting sale are planning to put in corn and milo next year.

The T. C. Dwire poultry ranch in Lankershim has been selected by the state university as one of its 12 experimental farms in Los Angeles County.

The Arlington Poultrymen's Association offers a $50 reward for evidence which will convict chicken thieves. C. R. Brown is president for the coming year.

Orange picking was stopped in the groves of members of the Covina Orange Growers' Association after the freeze to make sure that no frozen fruit was shipped East.

Market Director Weinstock is endeavoring to organize alfalfa and milo growers of Imperial Valley. The California Alfalfa Growers' Association is also endeavoring to secure more perfect cooperation in the valley.

Riverside County farm bureau meetings: Perris, Friday, January, 17; Corona, 20; Murietta, 22; Elsinore, 23; Jurupa, 24; Banning, 28; Coachella, 29; Blythe, 31. Monthly meeting of directors was held last Tuesday.

Growers of early grapes in the Coachella Valley have decided to ship the coming season in lug boxes instead of baskets. Some grapes were so packed last season and brought better returns than the basket packed. They cost less also to put in shape.

The Los Angeles County farm bureau is arranging meeting of live stock men at the Elliot Brant Ranch at Owensmouth for Thursday, January 23 at 1:30. The value of the pure bred sire will be one of the chief points discussed. The meeting will be in charge of Assistant Adviser Scribner.

The Coast and General

Recent freezes in Texas have seriously damaged truck crops.

Only certified seed potatoes can be shipped into Oklahoma for planting purposes.

Yakima Valley beet sugar growers are organizing a cooperative marketing association.

One hundred and forty thousand sheep are grazing on desert flats in eastern Elko County, Nevada.

A 200,000 acre ranch near Great Falls, Montana, has been sowed to wheat. This tract is Indian lands.

The Washington state legislature has been asked for $60,000 for permanent improvement of the state fair grounds.

Floods in northern Sonora have washed out road beds and prevented the marketing of winter tomatoes raised in Mexico.

A turkey raiser of Klamath Falls, Oregon, has fattened his turkeys successfully on mountain range where they get pine nuts.

Shipments of lettuce from the Salt River Valley of Arizona will begin about January 15. There will be a total of about 75 cars this year.

The Washington state highway commission plans a continuing bonding system which calls for a five million dollar improved road fund for a period of six years.

Governor Campbell has appointed Hon. Andrew Kimball of Thatcher and W. H. Robinson of Chandler members of the horticultural and agricultural commission of Arizona. The dean of the college of agriculture is the third member.

The food administration has announced that there will be no restriction on selling of hens the coming spring. This announcement is made to prevent the breaking of the market by rushing poultry on the market ahead of the anticipated order.

Milo is the most popular grain sorghum in the Salt River Valley of Arizona. One man who has carefully selected his seed for several years reports a yield this year of 4090 pounds of the seed per acre and another field yielded 4900 pounds to the acre.

Charles P. Punchard, landscape engineer of national parks, has recently visited different parts of Arizona, including the Grand Canyon. A bill is now before congress making the Grand Canyon a national park, and it is expected that the bill will soon become a law.

Cotton growers in the Salt River Valley of Arizona predict that the acreage in cotton next year will be about the same as this year, or approximately 70,000 acres. There is a noticeable tendency to rotate crops somewhat, and much land in cotton this year will be sown to alfalfa this spring, and a considerable acreage of land that has become badly infested with Bermuda will be planted to cotton.

Considerable damage has been done at times by the breaking of the Arizona canal, the largest canal in the Salt River Valley. The breaks are caused by flood waters of Cave Creek, which sweeps over the canal and overflows into the farming districts. The Water Users Association recently voted to move the canal a quarter of a mile north, which will, it is believed, remove the danger. The estimated cost is $35,000.

Caprifigs and Caprification

By I. J. Condit

CAPRIFICATION is the process of transferring pollen from the male or staminate flowers of the caprifig to the female or pistillate flowers of the edible fig. Whether this process is accomplished by means of a toothpick, a goose quill or glass tube, or by the female Blastophaga, the result is the same, namely, the pollination of the stigmas and the subsequent fertilization of the ovules. It is not definitely understood why some edible figs require the stimulus of pollination in order to set fruit while other figs do not require it. It is difficult to understand why the first crop of figs of the White San Pedro set without caprification while the second crop of figs drop off if not caprified. While these facts are at present unexplainable, the growers of Smyrna figs have long ago realized that the measure of their success depends to a considerable extent upon an abundant supply of capri figs and the effectiveness of the same when distributed in the orchard. It is not the purpose of this paper to describe the life history of the Blastophaga, the three crops of the capri fig, or the detailed methods of caprification used in the orchard. These subjects have been very satisfactorily handled by Mr. G. P. Rixford in his recent bulletin on "Smyrna Fig Culture" and by other writers. I wish, however, to emphasize a few points which I believe some growers have entirely or in part overlooked.



True Commercial Smyrna Fig

Tree with man standing by it is the Smyrna, or as Mr. Roeding would say, Calimyrna type of fig. Other trees are White Adriatics. These were all planted the same year. Note difference in vigor and bearing surface.

Planting Caprifig Trees

It is now generally agreed by planters of Smyrna figs that 4 or 5 per cent of standard varieties of capri trees is sufficient. A common practice has been to set the trees in a group on the northwest corner of the orchard or on the side from which the prevailing wind blows in June so that the insects will be carried into the orchard. Theoretically there should be very few insects lost as the capri figs are picked just before or just after the first female Blastophagas issue and are then carried to the Smyrna trees. Practically, however, most growers are finding it difficult if not impossible to keep the mature capri figs picked closely, and literally millions of insects escape, swarm among the capri trees, and perish without having had a chance to enter a Smyrna fig. Planting on the windward side therefore has its advantages.

The late Mr. Markarian advocated strongly the planting of capri trees in a row through the orchard. On a twenty acre tract he would have planted two rows each way, alternating a capri tree with a Smyrna tree so as to have about the right proportion of four or five per cent of capri trees. In this sort of planting the maximum vlaue of the capris and the issuing Blastophagas would be gained with a minimum of effort. The Smyrna figs next to the capri trees would become caprified naturally during the time insects were issuing from that variety of vapri. The difficulty would be in getting an even distribution of capri figs throughout the orchard. The capri trees in this as in many other plans for planting occupy valuable orchard space which should be producing a profitable food crop. It must be borne in mind that there is no waste space in an Adriatic fig orchard. Every tree which is in a thrifty condition is an income producer. In a ten acre Smyrna fig orchard with the trees 33 by 33 feet, there would be approximately 400 trees, 380 Smyrna trees and 20 capri trees. The 20 capri trees are maintained as absolute non producers of food in order to make it possible for the remaining Smyrna trees to bear an edible and remunerative product. For this reason I believe that capri fig trees should be planted wherever possible in groups by themselves near buildings, along ditch banks, on rocky hillsides, in fact on any tract of ground where edible figs can not be so profitably grown. However, where there is no waste land available for planting capri trees they must be set according to the best plan available. I believe the plan of establishing orchards of capri figs in each community on land otherwise of little value should be encouraged so that valuable orchard land can be devoted to the production of a marketable food.



A Roeding Caprifig Tree

Cost of Caprification

During the past few years the substance of the following statement has appeared in various publications, including the recent bulletin by the department of agriculture: The cost of caprification does not exceed two cents per tree or from $1.00 to $1.25 per acre. Since I have had no definite figures to compare with those given, I have accepted them as approximately correct. I believe, however, they are very misleading in not representing all the facts in the case. In a farm management estimate of the cost of producing any given crop it is necessary to include the value of all the items used in the production of that crop whether the material is bought in the market or produced on the farm itself. Thus if a farmer applies on an acre of garden truck, five tons of manure from his own barnyard, he should logically charge himself with the market value of the manure as entering into the cost of production of the truck crop. Similarly the value of the capri figs themselves should be considered when estimating the cost of production.

Capri figs certainly have a market value. Mamme figs to colonize capri trees in April are sold at prices ranging from one cent to even ten cents each. Profichi figs were quoted and sold in 1918 at $5.00 to $10 per thousands. It is common practice throughout the San Joaquin Valley to buy early capris from some warmer section in order to caprify the first of the Smyrna figs. Many growers are accustomed to supplement their own supply of capri figs with figs purchased from neighbors, from the crop of trees contracted in advance, or from some distant locality. Newspaper reports which have since been verified stated that the Merced district during 1918 shipped in 325,000 capri figs. Of this number 50,000 were obtained from Reedley at $10 a thousand and the remainder from Ceres at $6.00 a thousand, the total cost being therefore $2150 for the season. One grower used 80,000 capri figs on 12 acres. Had he been compelled to purchase these at the prevailing market price, the cost of the capri figs alone would have been $480, or $48 per acre. I wish it distinctly understood, however, that I am not presenting these figures to discourage the growing or the planting of Smyrna figs. What I do want to emphasize strongly is the extreme importance of providing a more plentiful supply of capri figs so that the market demand and consequent price will not be so high. Furthermore, if a community capri fig orchard can not be established, the individual grower should make adequate provision on his own or neighboring place for an abundant supply of capris in order to avoid the difficulty and expense of securing them elsewhere.

Efficiency or Value of Capri Figs

The efficiency or value of a capri fig depends upon several tihngs which we shall enumerate and describe as follows:

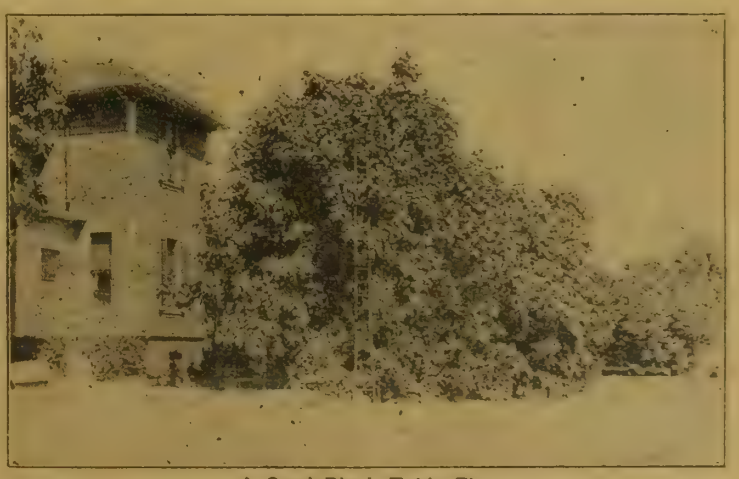
1. The number of female insects developed from the galls and the number of galls. Records of the number of insects actually issuing from capri figs include the following:

	Females.	Males.
Roeding No. 3	955	21
Milco	856	104
Roeding No. 1	825	42
Roeding No. 2	781	51
Markarian No. 2	778	70
Markarian No. 1	772	81
Stanford	756	43
Roeding No. 4	733	7

The highest number of galls found in any capri fig so far studied by the writer was 2272 in a seedling fig. A Roeding No. 3 fig contained 1614 galls; a Markarian No. 2, 1326 galls; a Roeding No. 2, 1278 galls; a Milco, 1375 galls; Maslin 147, 1533 galls. G. P. Rixford states that good Milco profichi figs have been found to contain 1200 to 1600 galls.

2. The amount of viable pollen produced. The female Blastophagas are absolutely of no value unless they are dusted with viable pollen. We have no evidence to lead us to believe that the viability of the pollen grains in the different varieties differs to any extent. We do believe that the via-

Continued on Page 105



A Good Black Table Fig

The above represents a Black Mission tree on the place of Mr. Chadwick near Pasadena. This tree has a record of close up to half a ton during the year. It is 30 feet high and 40 feet in diameter.

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The big bunty looking machine illustrated on the cover this week is really a whole lot more imposing than it looks. We believe we are entirely correct in saying that it means millions to the prosperity of California. It's a peach peeler though it does not peel peaches according to the generally accepted idea of peeling, but it does remove the fuzz and even the skin from the dried peach before it is sent to the market. Most interesting information is given regarding the process on third page of this issue. The advantages of this process are not only in the fact that an individual product is raised in quality and there is secured for the grower and for the state a slight increase in the pound price, but in the additional fact that this increase in quality will mean greater demand.

We have tried "practically peeled," and they are not only practically, but perfectly, satisfactory.

BULK THE GRAIN

With sacks at 32 cents a great impetus has been given to labor saving bulk handling of grain. There have been sufficient arguments in favor of its introduction for many years, but the impetus of these prohibitive sack prices and the war needs has been required to bring it into actual operation in all parts of the state sufficiently to show its working advantages. We believe all the larger grain handling sections will soon be using successfully this method.

FUEL REGULATIONS

Restrictions under war measures and the stringent regulations made by the federal fuel administrator for California will pass on February 1. This particular measure has been of little interest to California because of the slight demand excepting in the manufacturing sections. The removal of restrictions has to do with use and price regulations on coke and coal; also with wholesale margins and purchasing commissions.

CITRUS INSTITUTE

The management of the ninth annual National Orange Show which will be held in San Bernardino, February 14-23, announces a citrus institute under direction of Dr. H. J. Webber. A two-day program has been arranged, and various topics of interest to citrus growers will be discussed.

It has been the custom of these citrus fairs to include in their programs discussion of citrus matters, and while conditions are not always the best it is a favorable time for talking over some citrus methods.

THE WEATHER

We are beginning to feel somewhat concerned over the activities, or rather lack of activity, of the weather man. He seems to have made an honest effort during the past week, however, and up at Eureka, where they don't need any rain, there was precipitated over four and a half inches. But south of San Francisco not sufficient has fallen to thoroughly lay the dust. At Red Bluff, up to Saturday night, .55 inch was precipitated and at Sacramento one-fourth inch. Southern California rainfall still leaves the grain fields yellowing and the hillsides petitioning for more. Compared with last year at the same date, this season is vastly better in its performance. Still the time is come when we want a liberal precipitation.

PURE FEEDS

California has its pure food bill, its pure insecticide bill; likewise fertilizers are protected, but seeds and feeds are left so as to give the farmer the pleasure of a gamble as to what he is getting. The live stock men are getting tired of their end of the game and are demanding a pure feed bill, and they are demanding it with that energy that indicates success. Hogs is hogs these days and yet their H. C. of L. causes the farmer to make every turn possible to bring them across and leave a bit besides paying for the feed. The recent San Francisco meeting gave impetus to the movement before the state legislature, and President Cunningham of the Swine Breeders and others who are pushing for this bill are to be congratulated on the campaign they are making.

NITRATES A-PLENTY

Regarding statement by a contributor to this paper in which "approaching exhaustion" of nitrate beds of Chile is referred to, we may say that such a statement need give little concern to producers who find it necessary to use nitrate of soda to secure greatest returns from their land. We are informed that rather than being exhausted within the next quarter or half century the nitrate beds of Chile will be producing for 300 years to come. Expressed in tons, it is even stated that there are now known and surveyed beds in which are deposits of 720,000,000 tons. The principal concern at this moment is to secure distribution of the few thousands of tons which shipping facilities will permit bringing to this country. Fortunately, the slowing up of demand for nitrates in the manufacture of war munitions and the diversion of much transatlantic shipping to the South American trade is permitting larger quantities to be delivered for farm use. The small quanity of nitrates on the Pacific Coast is being distributed at prices which are not excessive and we believe another few months will see nitrates a-plenty for all demands.

PLANT FIGS

The department of agriculture recently issued a bulletin calling attention to the fact that this country is now importing 16,000,000 pounds of figs annually. These imports will ultimately be supplanted by the home-grown product.

"The area in the Southwestern states and in California is equally adapted to the fig industry, the bulletin adds, as is the Meander Valley of Asia Minor, and is more than extensive enough to produce many times the quantity imported into this country. The annual production of Smyrna figs in California, which is almost the total yield of this country, is not far from 2000 tons, but within a few years the production likely will be greatly increased, for it is estimated that since the importations were cut off as a result of the war, 10,000 acres of Smyrna figs have been planted in the central San Joaquin Valley. When these large plantings come into bearing this country will be independent of importations of this most wholesome, sugar saving fruit, and, it is believed, dried figs by the carload will be as evident in commercial movements as raisins are at the present time."

California's planting this year will probably be one of the largest yet made and shows that California will answer the country's call to produce the country's needs at home.

USE THE STATE FARM

There seems to be a tendency on the part of the live stock interests to center their activities around the University Farm at Davis, and it appears to us that every encouragement should be given to such a policy.

There are a great many very excellent reasons for advocating the University Farm for a center. The location is as accessible as any; the equipment is admirable; and the atmosphere about the institution is so charged with enthusiasm for better stock that no one can visit the farm and fail to catch the inspiration of good blood and better methods. Another point in favor of the farm, and one so full of possibilities that it should not be overlooked, is the fact that among the hundreds of students there are a great many who will enter the live stock business, and who probably have not made a definite selection of the breed they will handle, and who will make their decision from what they see of these sales and meetings, and are therefore prospective buyers.

Again, every department of the University is carrying on experiments and demonstrations that are of vital interest to breeders and farmers. Together with instruction for the youth of California, the institution exists for the purpose of rendering service to agricultural activities of all kinds, and live stock meetings and sales will tend to bring the University and the individual closer together and a better understanding of what is going on and what is needed will result. And in this connection we would like to point out that the men in the various departments, and the students, need your kindly advice, criticism and suggestions, about as badly as you need some of the things they have to offer.

WHY BECOME A MEMBER?

On Page 88 of the last issue of the Cultivator, January 18, we referred to Successful Cooperation of the Poultry Producers of Southern California, Inc., in an article intended to show the advantages of cooperating, and especially giving good reasons for cooperating in that particular organization. After discussing the advantages of that cooperative organization under the heads of "Extension of Markets", "Storage of Eggs", "Elimination of Speculation", we referred to the requirements of membership in this particular association and then said: "Naturally there are some drawbacks to such an organization, hence, why become a member?" This was followed by four specific answers to the question—but here steps in Fate and rearranges (not to our liking), the paragraphs, placing the answers first, and ending with the question, for the last two paragraphs as the article appeared in the paper were intended to be placed immediately after paragraph "2" in the same column and immediately before the two line paragraph, "Why should I join—" Both of these questions are then answered explicitly and on the positive side, with the final request: "Do your bit in making that success certain."

Appearing as it did, the quotation given above makes one subscriber think the Cultivator does not believe in joining the association. We ask the subscriber to reread the article arranged as we have suggested.

FIRST VICTORY LOAN

The treasury department is having one long question to handle in the matter of the first victory loan. The war is over; the boys have, some of them, come home and thousands of others are on the way, but the trucks and the tanks and the guns and ammunition which were manufactured in quantities never before dreamed of are still to be paid for. It was not only the good fighting of the boys in France that ended the war, but it was this vast accumulation of supplies behind them which convinced the Germans that the Allies were in deadly earnest. In any case the billions invested by America were well invested. Now we must pay the bill.

The urge of patriotic fervor is to an extent gone and the treasury department is beginning to consider how it may secure fullest support of all America for the first victory loan. A higher rate of interest may appeal to some and at the same time unsettle financial matters along commercial lines. Making of the income absolutely tax exempt, with the higher rate of interest, will probably sell the bonds in any quantity offered, but the effect of such a move on the first three and a half per cents is a matter for discussion. So that many details are yet to be announced, but here are a few facts already given out.

The first victory loan will be a short term loan, probably not more than five years. It will be sold under the same organization and in the same general way as the former loans. Payments may be extended over a longer period of time. The drive will be held in the month of April.

The government has made good and the war is ended. Let's all be 100 per cent Americans.

Meantime, here is a fact of some little interest to all of us: Germany is now digging up good gold coin and has already paid over to the American forces in excess of $3,000,000 as a portion of her bill for the expenses of the American army of occupation. This has been delivered by special trains to General Joe Dickman at Coblenz. If American money had not been available for "an American tank for every 75 feet of fighting front and other supplies in proportion", it may be that special trains might have been running from San Francisco to New York carrying the gold to bear the expenses of a German army of occupation.

Holding Back Oranges

THE period through which various Southern California fruit growers and shippers had agreed to hold back their shipping of citrus fruits ended January 14. Shipping was not generally resumed at that time, however, for many, with fullest confidence in their fruit holding up till later when assurance may be felt by the Eastern market and all fruit command higher prices, have deferred all shipments.

Horticultural commissioners and inspectors in citrus shipping districts have been interested in studying into fruit conditions and holding back injured fruit. This has resulted in some friction, and the three forces that are at work to protect the consumer and the name of California fruit—the food and drug inspection of the bureau of chemistry, United States department of agriculture, the state horticultural commission, and the county horticultural commissions—called a meeting of fruit growers and inspectors and shippers in citrus counties in Los Angeles on Thursday of last week. R. W. Hilts, chief of the western district food and drug inspection, Mr. Mackie of the state horticultural commission, and many county horticultural commissioners and inspectors, as well as growers and shippers attended.

There were shippers present who endeavored to turn the meeting into a court of final resort or into a protest against California legislation but were finally convinced that the only effort of the meeting was to protect California's good name and secure the sending out of a dependable product.

Mr. Hilts of the federal department had a conference with Commissioner Hecke, also with various county officials. The county and state officials are working under the state law, the principal clause of which was given in the Cultivator of January 11. This law does not permit the holding up of shipments, neither confiscations nor any very drastic action other than that it empowers arrest and fine or imprisonment of anyone shipping fruit "which will injure the reputation of California fruit." The officers of the food and drug inspection, however, have power of confiscation providing "adulterated" fruit is sent. As to what constitutes adulterated oranges Mr. Hilts quoted from Ruling 150 issued January 28, 1913, or soon after the former big freeze. A ruling from Washington confirming the former ruling as still in effect, with the additional provision that "if it will in the future show marked drying in 20 per cent or more of the exposed pulp" then action may be taken was read. The entire ruling is as follows:

"It has come to the attention of the board of food and drug inspection that, as a result of a recent freeze, citrus fruit that has been badly damaged by frost is being placed on the market.

"Citrus fruit is injured in flavor by freezing and soon becomes dry and unfit for food. The damage is evidenced at first by a more or less bitter flavor, followed by a marked decrease in sugar, and especially in acid content. Fruit which has been materially damaged by freezing is inferior and decomposed within the meaning of the food and drugs act.

"For the guidance of those engaged in shipping citrus fruit, it is announced that, pending further investigation, the following principles will be observed in enforcing the food and drugs act:

"Citrus fruit will be deemed adulterated within the meaning of the food and drugs act if the contents of any package found in interstate commerce contains 15 per cent or more of citrus fruit which, on a transverse section through the center, shows a marked drying in 20 per cent or more of the exposed pulp."

It is too early in the season for the full drying out to have taken place and the judgment of inspectors will be the only criterion as to amount of drying which may occur in the future.

In order to inspect the shipments as soon as possible and save embarrassment the county officials will interfere as little as is consistent with their duties but will report car numbers and destinations to food inspectors in the East. This permits a car to go forward, and where the shipper has entire confidence in his goods leaves him out of danger of interference. If he has erred in judgment, however, and sent forward a car of damaged fruit, future prosecution is possible.

Shippers feel that there is injustice in this ruling, to this extent at least, that there is no power now given to anyone to make inspection and give certificate. This point, however, was referred to Mr. Warner of the bureau of markets, and he stated that the bureau is now constituted so as to give report by Eastern inspectors of conditions of fruit on its arrival and he hoped that plans now under way would be perfected whereby inspection would be made at both ends. Then fruit going forward may still be protected and not cause financial loss to the consignors.

CITRUS THRIPS

The matter of citrus thrips does not concern citrus growers of California as much as it did at one time for it has been comparatively easy to control this pest by spraying with lime-sulphur. We have asked County Horticultural Commissioner Collins of Tulare for the best formula and he refers to Bulletin 616. This bulletin was written by J. R. Norton and we doubt not may be had by writing to the Department of Agriculture, Washington, D. C. However, Mr. Collins suggests:

"The formula recommended is plain lime-sulfur solution used 1 to 50 and the first application should be made when most of the petals have fallen from the bloom. The second application about two weeks later, and a third three or four weeks after the second, applied liberally at good pressure should control these pests. In severe cases a fourth spray not later than September 1 is advisable.

"The old formula recommended the addition of a small amount of Black Leaf "40" but it has been conclusively proven that this spray is just as effective on thrips without this material, which of course adds considerable to the expense as Black Leaf is expensive at the present time."

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Tommy: "About forty." — Toledo Blade.

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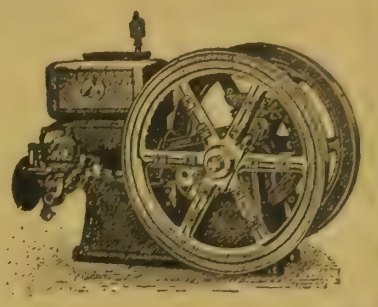
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The Recognition of Frozen Oranges and Lemons

By H. J. Webber

AFTER the freeze of 1913 members of the staff of the citrus experiment station made a careful study of the problems resulting from the freeze and some of the information obtained in their study is summarized in the following catechism:

Effects of Freezing on Fruits and Trees

Question: What are the external indications of frost damage on fruit?

Answer: Frosted fruit cannot always be recognized from its external appearance because the inside of the fruit may be injured without causing any change in the appearance of the skin. When the injury has been severe, however, the skin of oranges, lemons and grapefruit becomes spotted. These spots are apparent a few days after the freeze and are most abundant on the outside fruit on the north side of the tree. Frozen oranges in sunny places on the tree become pale in color and sometimes flat on the exposed side. This flattening is also common in frozen lemons. Lemons which have been badly frozen have clear watery patches on the skin. These patches soon become black through the growth of fungi.

Question: What are the internal indications of fruit showing frost damage?

Answer: One of the earliest internal indications of frost damage in citrus fruits is the formation of white spots or crystals of hesperidin. In oranges, lemons, and grapefruit, these are found on the membranes between the segments. In tangerines where they are very conspicuous they are scattered throughout the pulp. These white spots can be found a few days after the freezing and can best be seen by cutting the fruit transversely and tearing the segments apart.

When frozen oranges are cut transversely they often show a pale area part way between the center of the fruit and the skin. The pulp in frozen lemons is somewhat more opaque than in uninjured fruit. In all varieties the pulp cells of frosted fruit tear apart more easily when cut across than is the case with unfrozen fruit.

A month or so after the freezing, the segments of fruit begin to pull apart because of the drying of the frozen tissue. This condition is best seen in cross section. It shows first in fruit which was exposed to the morning sun where it may appear ten days after the freezing. Sometimes, especially with fruit inside of the tree, this breaking down may not begin for three months.

Question: Can injury to fruit be judged by injury of foliage?

Answer: If the foliage is damaged there is sure to be some fruit injury. If mature foliage shows damage, most of the fruit has been rendered worthless. On the other hand, tender new growth may be frozen without ruining the crop.

The absence of foliage damage does not indicate that the fruit has remained untouched. The entire crop of fruit can be frozen without any foliage damage being apparent.

Question: How can extent of fruit injury be determined?

Answer: Spotting of the skin is a fair early indicator of the amount of damage done to oranges. If none of the fruit is spotted there may be injury, as will be shown by the white hesperidian spots within, but there will be good, marketable fruit in the grove.

If the spotting of north side oranges is general, most of the fruit will show deterioration within three months. The spotted fruit is worthless.

If the fruit in all parts of the tree is spotted the crop is unmarketable.

After four or six weeks have passed, sometimes earlier than this, the best way to judge the amount of damage is by cutting fruit from different parts of the tree and from different parts of the grove. Fruit from locations which shows spaces between the septa should be considered worthless. Sometimes the drying out, resulting in the formation of these spaces, is much slower than at other times. Some fruit may remain solid for three months and then begin to break down.

Another means of recognizing frost injured fruit is to pick soon after the freeze a quantity of the fruit that it is desired to test and store in a warm dry place where the temperature is kept continuously at from 80 degrees to 100 degrees Fahrenheit. Sound good fruit increases in specific gravity by the drying out of the skin, and decreases in volume without much loss from the interior. Frozen fruit, however, rapidly decreases in specific gravity as the interior juices pass out through the skin readily and are evaporated without producing much change in volume. Within from four to six days, therefore, poor fruit can be recognized by the rapid decrease in specific gravity.

Question: Does frozen fruit ever recover?

Answer: No cases of the commercial recovery of fruit have been found. Individual fruits have been found in most of the citrus varieties which have shown a development of new pulp cells, but this is not general enough to be of commercial importance. Instead of recovering, frozen fruit steadily deteriorates.

Thorough attempts to assist the recovery of frozen fruit by frequent and abundant irrigation showed that the effort was without avail. Neither did special fertilization give beneficial results.

NITRATES

Again the government announces it will sell nitrates at cost to the farmer. Presumably, as before, it will be necessary for Pacific Coast users of nitrate of soda to "pay local freight from Atlantic ports," which means no "at cost" Pacific Coast produced nitrate of soda for Pacific Coast users. But in addition, regarding the exhaustion of the nitrate beds we have the following from W. Lambert Myers of Berkeley. He asserts that there are plenty of nitrates in Chile and adds:

First of all, there is a vast amount of unsurveyed nitrate ground on the Chilean pampas that is, nevertheless, known to contain immense quantities of nitrate of soda.

Second, grounds already surveyed still contain enormous quantities of nitrate. There are probably, in round numbers, 720,000,000 tons of nitrate in the deposits of Chile and, without doubt, large supplies also exist on lands now but incompletely prospected. Even the surveyed and certified tonnage opened up at the present time ready for extracting is enormous.

The probable life of the deposits is

upwards of 300 years, even allowing for a steadily increasing annual rate of consumption. Moreover, there remains the interesting question as to whether by the end of the ensuing century we may not find that nature shall have by that time manufactured an immense additional amount of Chilean nitrate for the uses of the world. Sir William Crookes' prophesy that the world would starve for lack of bread as soon as the Chilean nitrate supplies were exhausted, has for some years led the chemical public to believe that a wheat famine was in sight, but that time is so far distant that no one living today need have any misgivings on the subject.

CAPRIFIGS AND CAPRIFICATION

Continued from Page 101

bility is affected by shipment of figs in closed containers to any distance requiring more than a day or night trip. For all practical purposes, caprifigs, which when opened show an abundance of pollen when dusted upon the open palm, are of value as far as pollen production is concerned.

3. The season of maturity. Early capris are most valuable since a large percentage of the Smyrna figs are receptive during the first week or so of the season of caprification. The Milco is an excellent capri fig but it is not favorably regarded at least in the Fresno district on account of its lateness.

4. The abundance of the profichi figs produced. In nearly every locality where Smyrna figs are grown certain caprifig trees are noted for the extra large crop of profichi figs which they produce. Such trees should be propagated if the capri figs themselves are of value.

5. The relative abundance of the mammoni and mamme figs. This is not of prime importance since a caprifig tree can readily be colonized in April from neighboring trees if it fails to carry a winter crop. Still a variety is more desirable and valuable if it carries a sufficient number of mammoni and mamme figs than another variety like Roeding No. 2 which carries practically no figs of either crop.

6. Size of the profichi figs. Small profichi figs are more expensive to harvest and contain fewer insects than large figs. The trees bearing small figs may, however, be more prolific than those bearing large figs. Whatever other good qualities may belong to the Pseudocarica caprifig, its small size is certainly not favorable to its success as a variety.

7. Hardiness of mamme figs. The following statement on this point is found in G. P. Rixford's recent bulletin No. 732, page 10: "Careful investigations extending over a period of several years indicate that the ability of a tree to support successfully the mamme crop through the winter is more a question of variety than of climate." Experience seems to show that the Milco will carry a mamme crop through a cold winter if any variety will, and for that reason the Milco is a good variety to insure the so called "carry over" of the Blastophaga.

8. The pulpiness or meatiness of the profichi figs. Some capri figs are said to be "wet," as they contain considerable white meat which prevents them from drying out rapidly. Others are said to be "dry" as the white meat is thin and lacking in moisture so that the figs dry out rapidly. I do not believe, however, that the drying out of the figs is such a detriment as some growers have believed. The scales at the eye of a capri fig open out and stand erect when the fruit matures, leaving the eye open so that all the insects can escape whether the fig is dry or not. It may be that the so-called "wet" figs allow the insects to issue over a longer period than the "dry" figs on account of the greater freshness of the former.

9. Percentage of defective figs. Growers in various sections have condemned Roeding No. 1 on account of the large percentage of "runts" or "punkies" in the profichi crop. These figs contain only a few insects, are light and pulpy, and are of very little value. The Stanford trees at the Markarian Fig Gardens, Fresno, produced in 1918 large numbers of "dummies" and small figs with a mass of flowers protruding through the eye. Markarian No. 1 has a serious defect in the form of peculiar spots or blemishes which appear on the smaller fruits, probably causing them to ripen prematurely.

PRUNING DEMONSTRATIONS

Demonstrations of modern pruning methods, for the benefit of deciduous fruit growers, are being arranged for in the various California counties by county farm advisers and horticultural commissioners. Members of the staff of the division of pomology of the state university are conducting the demonstrations, explaining new ideas in pruning, especially in the pruning of young trees, developed after four years' experimentation at the university farm at Davis. Demonstrations have been given by Dr. J. C. Whitten in Fresno, Kings, Los Angeles and Riverside Counties; by Professors R. H. Taylor and E .L. Overholzer in Sonoma County; by Professor G. L. Philip in Sutter County, and by Professor W. P. Tufts in Yolo, Sacramento and San Joaquin Counties. Demonstrations have been arranged for in Monterey and Santa Clara Counties.

PROF. WOODWORTH HOME FROM CHINA

Prof. C. W. Woodworth of the University of California, who has been for a year in China, has returned to Berkeley. This, his sabbatical year, was passed as a member of the faculty of Nanking University.

A little planning and adjustment makes it possible to change our minds about the "indispensability" of many things.

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Thus is again shown the popularity of the Super-Six. Its white triangle has become the symbol of super-quality and super-performance throughout the world.

Hudson production will be resumed as rapidly as possible. But it will be months before we can meet the usual demand. An interruption of at least three months in the output of open models is inevitable.

Everyone knows the completeness of the Hudson Super-Six line. There were nine different types. Recently we added the Coupe, a beautiful four-passenger model, and a new series of the Touring Limousine.

They Are Pattern Cars

Every Hudson model has been admired, envied and copied by other makers. But under our plan there is constant development and so any Super-Six you get today is months ahead of similar types of other makes.

You can probably get a Hudson Super-Six today—perhaps the very model you prefer. In view of the situation, don't you think it best to see what models your Hudson dealer can supply? There is no certainty as to what you can get next spring.

Need you be reminded of Super-Six value. It is the recognized standard of motordom. For three years its leadership among fine cars has been undisputed. Today it carries the added endorsement of thousands who have learned to know its absolute reliability through all the months when automobile service attention was so hard to obtain.

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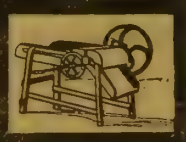
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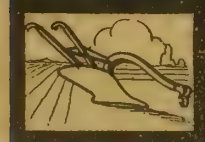
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Agrarian Political Party

WE NOTE that a writer, E. A. Bryan, formerly president of the state college of Washington, takes the position that the time has come for the formation of a political party of farmers. He first refers to a former communication of his in the columns of the Washington Farmer, Spokane. This appeared March 29, 1917. The two years have plainly modified somewhat Mr. Bryan's ideas as to the political party, for a recent communication in the same paper refers less to a separate political organization than to an organization which will represent agrarian interests—possibly not all parties. However, here is Mr. Bryan's first suggestion:

"The time is fast approaching when the formation of a national agrarian political party will be worthy of careful consideration. It does not require a close observer to perceive that economic questions are becoming the determining factor in political alignments. The wage earning, labor union faction of society has become pretty thoroughly organized, and already places the aspirations of the group above any past political connections or predilections. Though the farmers and the laborers in the various industries have some things in common, particularly the fact of physical labor, they have many interests which are not in common and which are diametrically opposed.

"The Patrons of Husbandry (the grange) and the Farmers Cooperative and Educational Union, by the terms of their organization are nonpolitical, and, as a matter of fact, their membership belong to all political parties. They are chiefly educational and social, and confine their political activity chiefly to propaganda for certain specific economic ends, such as rural delivery or parcels post. Such organizations must continue their usefulness, but do not quite meet the requirement of a national agrarian party, always with a large congressional representation, the party always aligning itself for offensive or defensive legislation in the interests of its class."

We would certainly take issue with the suggestion which the writer made two years ago, because we do not believe it would accomplish anything for the best interests of the farmer. We have only to refer to the prohibition question. As long as the older ones of us can remember there has been a prohibition party endeavoring to accomplish good for the human race through a separate political party. Its one great aim was the destruction of the liquor traffic, yet its convictions along that line were not strong enough to hold it together when other interests conflicted. For instance, the protective tariff and free trade often provided within its ranks opportunity for discussion. When the free silver question came up it separated the party into two distinct organizations, the "free silver wing" and the "sound money wing." But in time a nonpartisan organization with only one object was perfected and, using the balance of power which often comes to the minority, it has succeeded in sweeping the entire country.

The farmers may center on some feature of their industry which will bring them all together. It may be marketing; it may be through securing an outlet for their products through their own great cooperative factories or packing houses; or it may be along financial lines, but if a political party with all its side issues, including tariff, finance, and everything else is contemplated, only confusion will result. At least that is our candid opinion, and it rather appears from a communication by the same author in the same paper that his opinions have been materially modified. He now writes:

"We have been, for a long time, so accustomed to two great parties with an occasional offshoot of some wild-eyed demagogue that we can hardly conceive of 'groups' which act with solidarity on certain matters while usually acting in harmony with one or the other of the great political divisions. Yet in England and every European country such subgroups are the common thing. It is now evident that we shall have a large group which will throw its weight with one or the other party. I think an agrarian group is inevitable and the sooner it comes the better, if it may not be led by demagogues and socialists. The hope of the agrarian states (west and south chiefly) lies in the United States senate and the dual system. That is to say, for a centuary at least, if the agrarian group were class conscious it could control the senate and the electoral college. A man might either be a republican or a democrat and yet be an agrarian and on industrial lines vote accordingly. The agrarians form the largest single group of people and yet have the least political power. The best section of the agricultural press ought to organize and outline a policy of public education along these lines."

Without question there is need of farmers organizing more efficiently than they now are. There are many organizations with specific work before them but no one organization of organizations. There are two movements on foot today looking toward such an organization of all agricultural interests, but neither of these seems to desire to affiliate; each is insisting that its particular plan is to be preferred. The one great hindrance to getting agricultural interests to unite in any movement is this jealousy or fear that other interests may secure undue advantage.

When we acquire a more enlightened selfishness, then we will get together and stand as one and secure equity.

BEET SUGAR INDUSTRY

A review of the beet sugar conditions in the United States is given in "The Beet Sugar Industry in the United States," by C. O. Townsend, pathologist in charge of sugar plant investigations. This is Bulletin No. 721, a 56 page book which may be had by sending 15 cents to Superintendent of Documents, Department of Agriculture, Washington, D. C. It touches upon beet sugar mills, soil, subsoil, topography, climate and many conditions required for producing beet sugar crops and ends with a list of other publications of the United States department of agriculture relating to sugar and beet sugar production.

GROSS FAVORITISM

"Talk 'bout railroads bein' a blessin'," said Brother Dickey, "des look at de loads an' loads er watermelons deys haulin' outa de state, ter dem folks 'way up North what never done nuthin' ter deserve sich a dispensation!"—Atlanta Constitution.

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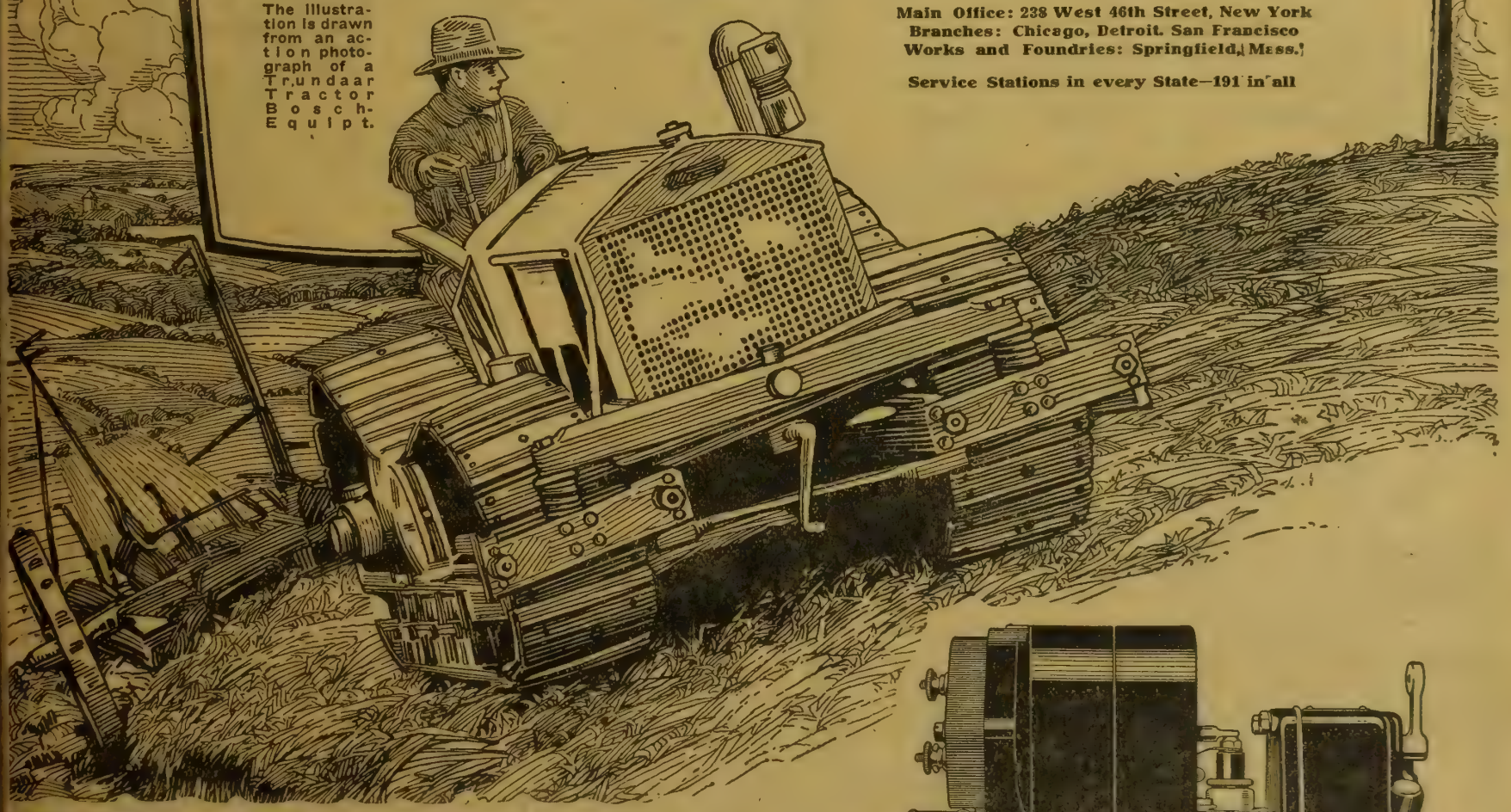
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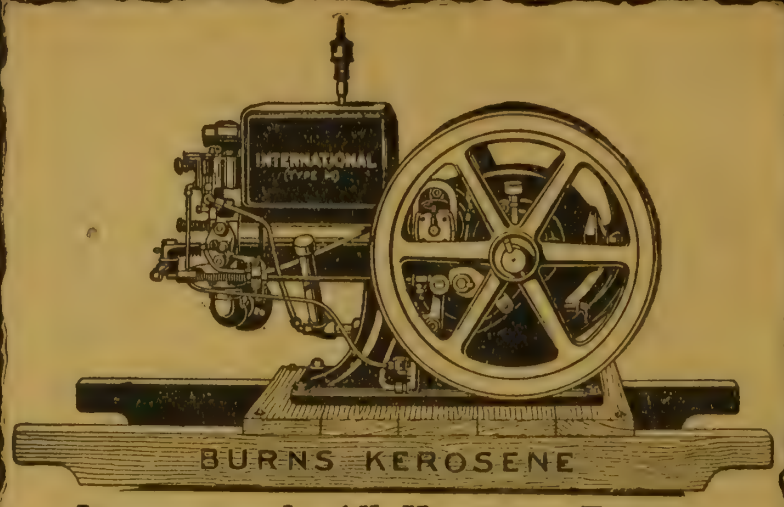
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The Illustration is drawn from an action photograph of a Trundaar Tractor Bosch-Equipt.



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Internationals All Kerosene Engines

EVERY engine in the International line, from the smallest to the largest, operates on common coal oil. Every International engine will develop its full rated horse power, at all times and under all kinds of loads within its capacity, using kerosene for fuel.

In these days of high prices for gasoline, and none too plentiful supply, there is both safety and economy in using kerosene engines.

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We have all sizes, from 1 to 15-H. P. Here is a line of real farm engines that no farmer can afford to overlook when he is in the market for an engine. See your local dealer or write to us for complete details about our engines or any other farm machines in the list below.

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Pickers
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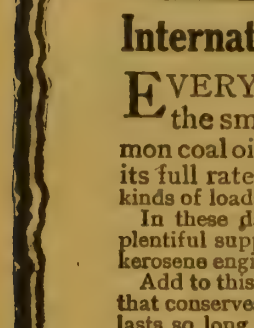
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THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with



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Makes new ditches; cleans old ones; grades roads; builds dykes and terraces. Cuts alfalfa, Bermuda grass or sweet clover roots from ditch banks, without plowing. Does more work and better work than 100 men with old methods.

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All steel. Reversible. Adjustable. No wheels, cogs or levers. More MARTINS now in actual use than all other farm ditchers combined. Warehouses and distributing points in nearly all Western States. Write for free descriptive catalog and nearest distributing point, together with list of MARTIN users near you.

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When writing advertisers, mention The Cultivator.

Gardening in California

Written for California Cultivator By Ernest Braunton

TO GARDEN or not to garden is just as much of a problem in California as it is elsewhere. I have gardened for profit both in California and in northern Iowa and the problem is less complex in the latter state. The gentle spring and summer rains seldom failed and the soil did not bake as it does in California. It was far easier and therefore cheaper to grow flowers and vegetables there than here and the prices there today for such products are much less than in California. Our chief advantage is that we may garden every month in the year. One other is the length of seasons from frost to frost and the hardiness of many plants here that cannot stand freezing weather.

In the states east of the Rockies nearly all plants that bear showy flowers are grown as annuals, for there is no choice in the matter. The beginning of winter sends all but the hardiest trees and shrubs to their final resting place. No soft wooded or herbaceous plant survives even the mildest winters. In this limitation there is a suggestion as to what we should grow. Why should we bother with annuals when we may grow perennials which will endure from year to year, or spring up from roots each spring, roots too tender to pass unharmed through an Eastern winter. When planting larkspurs, phlox, and many others of their class do not sow or plant the annual species, but grow perennials only. Why should we plant anew each year when we may plant for permanence. Every period of three or five years we should divide the plants and dig up and enrich the soil before replanting the divided roots.

But there is a compensation in our gardening that cannot be reaped by soil tillers in lands of ice and snow. We may plant out the young of tender beautiful things and follow them from little tots to maturity of years, stature and crop production. We may associate with our plant pets throughout the year. No period of plant hibernation or semi-hibernation of humans comes to interrupt the loving care we may each day bestow on worthy, reciprocal plants. The growing of fuchsias and others of the class until they cover one side of the house from root to roof endears the plant to the owner so that he feels proud to show them to his visitors. Some such plants have been watched over for a score or more of years, until they become as dear to every member of the family as the favorite family horse in days of yore. When we consider the great blessings incident to our climate we cannot but congratulate ourselves that we live in California rather than any other state in the Union. In the East one is quite suddenly released from restraint of winter and enters upon gardening with an enthusiasm and energy that is not abated until the garden is planted. All is hustle and bustle. Here we do not need to get excited for we may garden deliberately at all times. Yet we are not less enthusiastic than the Easterner. On the contrary, our gardens hold our deep interest throughout the year. Why not, then, make the most of this great gift and garden nobly? California gardens should be the finest, most interesting of all.

Economic Shade Trees

The war has taught us some splendid lessons in economy, but I am afraid we shall soon lapse into our olden habits of wastefulness. Surely the next generation will have forgotten the lessons taught by the war ere they shall be old enough to take their part in the world's battles. But we may still do much that is dictated by experience without barring pre-war claims to favor.

I would not advocate the planting of any but the most beautiful trees for street and garden, but why not choose those also useful as crop producers. One of our best trees, in sections free from heavy frosts, is the carob or St. John's Bread. Few trees are more beautiful and the splendid crop of pods, borne by the better trees, has a heavy value for stock food and incidentally has many uses in the preparation of foods for humans. Aside from liability to damage from frost the tree is very hardy.

Gardens for All

Gardening in California is no class privilege, for he who wills may at all times garden, be his purse ever so slender. No one who is able either to own or rent a piece of ground but may afford the small expenditure necessary to purchase seeds for both vegetable and flower garden. The small investment for flower seeds may be made to cover many years' production. Chosen with good judgment a dollar's worth of seeds will yield good and sufficient flower crops for several years. Those blossoms grown and gathered by one's own hands are



(1)

FOOD PRODUCTION MUST BE INCREASED

The horse is a vital factor in such accomplishment. His efficiency is measured by the degree of fitness for constant use.

Stuffed Collar Pads

Are the only guarantee against bruised, galled and chafed shoulders. They are better than other kinds, being soft, springy and absorbent. They make possible the continued use of a horse collar long after its worn condition would otherwise compel its discontinuance.

New Patented Hook Attachment
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Consists of wire staple with felt washer. It gives hook a firmer hold and prevents pulling off, even though fabric is weakened by long usage. The greatest improvement since we invented the hook. Ask your dealer for Tapatco Booklet.

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SOLD BY DEALERS EVERYWHERE
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doubly valuable for he who buys flowers does so to give them away. The bulk of the flowers lovingly tended and refreshed from day to day are grown in the home garden. Floral gifts, unless of unusual excellence, are admired for a moment and soon forgot.

Gardens and Rooms

In the building of small gardens women usually surpass men in artistic arrangement. Too many men will clutter the whole place up with all manner of plants, while woman disposes them in a more orderly arrangement. Seeking a reason for this we find within the house all arrangements are orderly. Piano, bookcase, couch, chairs are placed against th walls, leaving the center open so that one may get about easily and without interference, and every article of furniture is seen to the best advantage and the whole may be seen at a glance, nothing obstructs the several views across each room. As sensibly does she garden, preserving open lawn centers or plot centers and placing the array of tall plants, trees and shrubs, against the fences, making a tasteful display.

Dates and Cocoanuts

A San Francisco reader of the Cultivator wishes to know if dates and cocoanuts grow in Los Angeles or Southern California. Doubtless most of our readers know that large quantities of the finest dates are grown in Imperial County, second to none in the world. No commercial dates are grown in Los Angeles but within a few miles of the city I have gathered dates from the palm that were good to eat and of undoubted marketable value. I fully believe hardy sorts will yet be introduced that will give us good dates in the Los Angeles district, though not, perhaps, of the highest grade. Commercial cocoanuts will never be grown in California. I am certain the palms may be grown out doors in a few sections near the coast, but no nuts will grow on them, or if any fruits set they will not mature. So that when cocoanut palms are grown around False Bay, San Diego, or elsewhere, they will be for ornament only.

Winter Fruits

In spots that are practically frostless there occasionally is a freak plant or two that holds out the hope that we may some day have fresh fruits in midwinter. Fruit trees, vines, etc., that have been kept dry during the latter part of summer have had all the rest or hibernation they need. After the soil has been dry for so long the early winter's rains start life into these dormant plants and they spring into blossom. It must be that such plants are not only vigorous but capable of standing much more cold than we have here. In practically frostless spots these should ripen a fruit crop in very early spring. I am now watching some such precocious plants to see if fruits will follow the blossoms now open. It may be a cold snap will come and chill the blossoms so they will drop before fruits set.

Commercial Floriculture

Every year some one writes to ask how to start in the business of growing flowers and plants for profit. Such a letter is before me now. Such a question cannot be answered within the limits of a farm journal. If anyone knows so little of the practical side of the business that a short article in these columns could enlighten him, he knows too little to engage in the business. Every year there is a greater demand for flowers and plants, but every year many more enter the field. Therefore competition is so keen that only the best informed, most skillful growers will succeed. One wishing to start in the business should first seek employment with some successful grower in order to learn at least the rudiments of the business. If one wishes to study the matter from a large view he should buy "The Principles of Floriculture," by Prof. E. A. White, of Cornell University.

TRACTOR SHORT COURSE

A short course in the management of gasoline tractors will be held at the citrus experiment station, Riverside, February 24 to March 1, 1919.

War time conditions have placed upon the farmer not only the burden of producing foodstuffs for our own people but a surplus must also be provided to be shipped abroad. To produce more it has been necessary to change our methods of farming and today we find the tractor doing its part in this campaign for increased production.

To train tractor operators the University of California plans to give this course in tractor management, duplicating the course given for several years at the university farm, Davis, and also at Riverside last year when over 200 students were enrolled. Shop and tractor work will be offered on such fundamental questions as lubrication, care and adjustment of bearings and carburetors, grinding of valves, repairs and replacements. Several of the leading makes of tractors will be available for demonstrations and practice work.

A registration fee of $1.00 constitutes the only charge for the course. Any one may register. Applications should be sent to the Dean, Citrus Experiment Station, Riverside.

OREGON IRRIGATION PROJECTS

Five separate irrigation projects are now being organized in Baker County by Henry E. Tweed, county agricultural agent of Baker, Oregon. The county agent is cooperating with John H. Lewis, state engineer, in having the projects organized under the Oregon irrigation district law. The projects that are now in the process of organization are the Sparta irrigation district which has 14,000 acres; Bridgeport-Durkee irrigation district, 6000 acres; North Fork irrigation district, 4000 acres; Unity irrigation district, 8000 acres; Medical Springs irrigation district, 4500 acres.

The Sparta project is located 35 miles east of Baker. This land has been taken up as homesteads within the past ten years. However, there are many old ranches that have been there for 30 or more years. Fifty years ago a mining canal was built into this territory when Sparta was known to be one of the big placer mining camps of eastern Oregon. At the present time all the farmers are practicing dry farming. Others of the district also have within their borders some of the older farming districts of the state.

LAWLESS CRIMINALS

We are facing many problems of reconstruction of which the Bolshevist movement is of special importance. While this disreputable organization is composed of hardly five per cent of the population of the Allied countries, nevertheless it is thoroughly organized, ready to leap into the saddle of authority and reap benefits out of the chaos if given an opportunity. It is an organization composed of the worst elements of humanity. Its foundation is greed, envy and malice, and it has nothing but utter contempt for the man who attains success through honest industry. It is the natural enemy of every business man, farmer and all things religious and bases its conduct on the supposed fact that it has been wronged by society and is therefore the natural enemy of society.—Bishop Johnston.



Top Dressing Talks

Early in the war we announced that Arcadian Sulphate of Ammonia had been conscripted for the manufacture of munitions. But now the war is over and with an honorable discharge from war duty, it is again available for use as a nitrogenous fertilizer.

The leading agricultural authorities and the successful growers of California have about come to the conclusion that nearly all soils and nearly all crops will benefit by an application of a readily available nitrogenous fertilizer. Indeed, the question is not whether or not to do it, but what to use and how.

There are half a dozen reasons why Sulphate of Ammonia is the best form of nitrogen to use. We will take them up in later talks.

Use Arcadian Sulphate of Ammonia As a Top-Dressing

Arcadian Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past, specially kiln-dried and ground to put it in splendid mechanical condition. Ammonia 25¼ per cent. Made in U.S.A.

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Agricultural Department

510 First National Bank Building, Berkeley Cal.

For the name of the nearest dealer or for directions for applying Arcadian Sulphate of Ammonia.

To Practical Planters!

Coates "Bred-up" French Prune

on Almond, Peach and Myrobolan

Almond

on Almond and Peach

Apricot

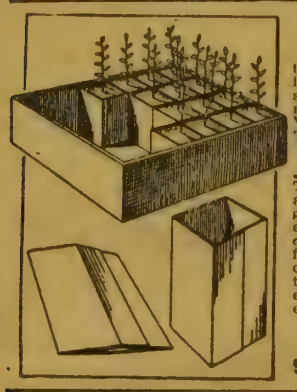
on Apricot, Peach and Myrobolan (including our pedigreed "Payne Blenheim)

All stock A No. 1; ready to ship, and grown at our Island Farm Nurseries, San Benito County.

Send orders at once, referring to this ad. Our trees have a well-deserved and enviable reputation. Prices no higher.

Leonard Coates Nursery Company

Morganhill, California



Perforated Tree Protectors

that will keep squirrels, rabbits and gophers from barking your trees and give perfect protection from the hot sun, sand storms, raking bark in cultivation, etc. We make a number of kinds of wraps, among these are the **Yucca which has the fastening wire entirely around it.** Tell us your pest and we will tell you what kind to use.



Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour. For starting early vegetables, such as tomatoes, cabbage, egg-plant, cauliflower, cucumbers, cantaloupes and squash. Also, for propagating rose cuttings, geraniums, eucalyptus or olive cuttings. It is the most practical pot on the market today for propagating work. Write us for samples of either pots or protectors. Tell us which you are interested in.

The Expan Co.

935 E. Central Ave. Redlands, Cal.

When writing advertisers, mention The Cultivator.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Balanced Grain Ration

Kindly advise me through the columns of your paper what you consider a balanced grain ration for Rhode Island Reds and Barred Rocks, also for White Leghorns. Chickens are kept in house and are given wet mash once a day and all the dry mash they care to eat, also two feedings of greens. In addition to this how much grain per chicken per day should be fed and when is the best time to feed it?—Subscriber, San Diego.

The scratch grain is usually fed at night, that is, toward evening when the hens have still time to fill their crops, and a quart of grain per day to 12 or 15 hens is considered sufficient at the experiment stations. Sometimes a small part of this quart a day is thrown in the litter in the morning; sometimes it is all given at night with the expectation that there will be some left in the litter for the hens to scratch out before their caretaker is up. On some commercial plants grain is thrown in the litter after the hens have gone to roost at night, then lights are turned on at 4 o'clock or 4:30 a. m., and the hens work while the caretaker takes his morning nap.

California poultrymen have relied mainly on barley and milo, Kafir or Egyptian corn for scratch grain the last two years, feeding equal parts of each, but sprouting part of the barley. Now that the price of wheat is no longer prohibitive equal parts wheat, barley and milo would be a good ration for Rocks and Reds. For Leghorns Indian corn might be substituted for milo. Equal parts wheat, oats and corn was the ideal scratch feed back East before the war. Here we have never used corn so largely. A. G. Philips of Purdue experiment station says in a recently published article: "In the grain growing regions corn and oats are found on most farms and should therefore compose the larger part, if not all, of the grain mixture. Kafir corn may take the place of corn. Barley is somewhere between corn and oats in feeding value." Some of our California poultrymen consider barley just as good as wheat for laying hens.—J. A. K.

Soil Analysis

Have just moved to Merced County and am anxious to know what crops my soil is best adapted to. Will soil analysis aid me, and where should I go to have my analysis made?—Subscriber, Winton.

Full analysis is expensive and of value only when explained by the chemist. There are agricultural chemists and physicists who advertise in the columns of the Cultivator whose business it is to make both chemical and physical examinations of the qualities of the soil. In addition the University of California located at Berkeley has specialists who will give advice in this matter. Again the farm adviser of your county is prepared to aid in this matter. Also general advice and a pair of open eyes which look freely about the neighborhood in which the land is located to see what crops are succeeding best will give practical information.

Furs

Will you please tell me if there is a market for coyote fur and fox fur? If so, will you tell me where?—Subscriber, Ramona.

There have been fur dealers who have advertised in the columns of the Cultivator and whose business it is to handle these furs. In the issue of December 21, 1918 there are two advertisers, one on page 642 and another on page 652.

Dehorning Young Goat

Is there any chemical which I can use to remove horns from young goat? The horns are about an inch long.—Subscriber, Los Angeles.

The only successful means of removing the horns, unless taken within a few days after birth, is with a sharp saw, cutting down under the skin so that in healing over skin will cover the spot where the horn grew. If a stub is left it will continue almost as much of a menace as the horns. Unless the youngsters are vicious with their horns we would not dehorn milch goats.

Horse Meat

Have read there are meat markets in San Francisco which deal in horse flesh. Please give names of such markets.—Subscriber, Tuolumne.

We know of no such markets though doubt not in large cities there may be trade in such products.

Poisoning Linnets

Can you tell me how to kill linnets? Thousands of them infest my orange and olive trees which are near an apricot grove.—Subscriber, Bloomington.

We always regret giving any suggestions regarding poisoning of bird pests for the reason that so many of the fruit growers best friends are killed by the same process. The most effective method is perhaps the using of powdered strychnine on small pieces of fruit. The trees which are attacked are often protected by the use of fluttering bits of paper, tin or glass suspended through the trees, or a boy with fine bird shot and a shotgun soon makes enough noise to frighten away the birds. The latter is much to be preferred if possible.

Slobbers

What causes slobbers in rabbits and what is the remedy? Rabbits of what age are affected by it? — Subscriber, Garden Grove.

Rabbits of all ages may be affected —cause is overeating of green food causing indigestion or eating some food not being properly digested. It is not considered contagious but it is best to separate those affected by it. Remedy is a pinch of alum in the mouth and a fast of eight to ten hours. Corrective feeding is necessary for such stock—feed some good rabbit tonic thus toning up the organs and preventing a recurrence of the disease.—W. D. W.

TREES

—with roots such as these

are grown only on our foothill soil and location. Hardy-of selected parentage-well-grown-absolutely reliable-and free from root-knot and diseases common to other localities.

We know we can meet your requirements. Our stock of trees is complete. Submit today a list of your wants for special quotations. Remember, behind each tree is our guarantee.

Those who wait will be disappointed. Write now—right now!

Why take chances on your trees when we have made it easy for you? Get the right start. Send for our book "California Fruits"—full of practical, dollar-making information. It is based on 30 years' experience as nurserymen and orchardists, for we operate 1000 acres of orchard of our own. Send for this book today—it's *free!*

J. E. Bergtholdt
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SILVA-BERGTHOLDT CO.

BOX J NEWCASTLE, CALIFORNIA

-the foundation of SUCCESS in your fruit growing

Live Stock News Notes

Sacramento Cow Testing Figures

D. L. Conant, assistant farm adviser for Sacramento County has issued a report covering the work of the Sacramento Cow Testing Association for the month of December. Twenty-three cows, most of them grades, produced over 46 pounds fat for the month, and two, grade Holsteins owned by A. W. Green of Hood, produced 106 and 104.7 pounds fat.

The following tables indicate the top cows and top herds:

High Cows

Owner	Breed	Test	Mo. fat
A. E. Greene, gr.	Holstein	5.0	106.0
A. E. Greene, gr.	Holstein	5.4	104.7
Edinger-Johnston, gr.	Holstein	6.2	75.6
F. W. Kiesel,, rg.	Holstein	3.7	74.4
F. W. Kiesel, rg.	Holstein	4.2	74.0
F. W. Kiesel, rg.	Holstein	4.2	70.6
F. W. Kiesel, rg.	Holstein	3.5	62.0
A. E. Greene, gr.	Holstein	4.6	61.3
Edinger-Johnston, gr	Holstein	4.6	59.5
A. E. Greene, gr.	Holstein	3.8	57.3
G. W. Snyder, gr.	Holstein	3.7	56.4
F. W. Kiesel, reg.	Holstein	4.4	56.1
G. W. Snyder, gr.	Holstein	4.2	54.8
A. E. Greene, gr.	Holstein	3.9	53.3
J. W. Schultz, gr.	Holstein	4.3	53.3
F. W. Kiesel, reg.	Holstein	4.6	50.5
A. Kloss, gr.	Holstein	4.6	49.2
J. Herzog, gr.	Holstein	3.1	48.6
Ambrogio Dairy, gr.	Durham	4.7	48.0
G. M. Plyman, gr.	Holstein	3.2	47.7
E. E. Bunnell, gr.	Holstein	3.9	47.7
R. J. Baker, gr.	Holstein	3.7	46.0
A. Kloss, gr.	Holstein	3.7	46.5

Herd Averages

Owner	No. Cows.	Mo. Milk.	Mo. Fat
A. E. Greene	15	1159	47.7
G. W. Snyder	30	759	29.7
J. N. Dimmick	12	449	29.1
R. J. Baker	14	728	28.8
G. M. Plyman	27	716	28.2
A. Kloss	18	713	27.5
Erickson & Greene	24	691	26.9
J. H. Sawyer	14	548	26.9
F. W. Kiesel	58	778	26.9
Markofer & Latta	29	771	26.3
C. D. Morgan	10	663	26.0
J. Herzog	67	762	26.0
A. A. Krull	5	530	26.0
H. L. Plyman	42	753	26.0
W. H. Nichols	39	750	25.1
Edinger-Johnston	69	601	24.8
W. F. H. Mohr	14	657	23.8
P. Jacobsen	3	703	23.2
J. W. Schultz	27	610	22.6
H. J. Schultz	16	455	21.7
E. E. Bunnell	48	561	21.3
C. R. Mabee	3	480	20.7
Johnston Bros.	18	502	20.1
S. S. Hinsdale	35	558	19.8
Hollister & Anderson	68	527	19.2
Villiborghi Dairy	19	480	18.9
Ambrogio Dairy	69	499	17.9
Andrew Johnson	31	573	17.3
Pasini Dairy	23	434	17.0
J. A. Gibson	26	468	15.5
Guy Foulkes	26	483	15.1

As We Go to Press

A wire from Sacramento informs us: "Roma Princess Alcartra, owned by J. S. Gibson Company, just made official record 30.06 butter seven days as senior four. She is sired by Prince Alcartra Korndyke, therefore granddaughter of Tilly Alcartra."

Arizona Cattle Growers Meet

The Arizona Cattle Growers Association has been called to meet in Phoenix February 11-14, especially to consider matters of legislation in conjunction with the legislature that then will be in session. An attendance of 500 is expected by President Mullen.

The cattlemen of southern Cochise County and of northern Sonora have formed an association that is to be made permanent at a meeting in Douglas January 20. D. A. Richardson is temporary president. Line riders have been employed to guard the border against straying stock and thievery.

Fifty miles of the southern boundary line of the Papago reservation in Pima County, along the international border, will be fenced this spring by the interior department.

Very general changes are being made in the personnel of the Arizona live stock inspectors, about 80 in number. E. G. Crabb of Flagstaff is the new president of the live stock sanitary board and E. W. Stephens of Prescott is secretary. R. J. Hight of Tempe is the state veterinarian.

Thousands of range cattle are being taken from southern Arizona ranges to northern Michigan and Wisconsin, to graze on cut over lands, where the grass is said to be sufficient in itself to prepare beeves for the block.

University Jersey Makes Record

Interested Jap's Santa, Register No. 296928 A. J. C. C., record cow for Jerseys in the university farm herd, is making a remarkable showing this lactation period, having produced over 600 pounds of butter fat in seven and a half months from calving. This is nearly 34 pounds higher than her production at the corresponding period last year, when she made the state record of 805.7 pounds.

The authorities at the farm are watching the cow with great interest, and expect she will considerably raise her former record.

E. J. De Pue Dead

Edgar J. De Pue died in San Francisco of pneumonia, following an attack of influenza, during the week. De Pue was president of the California International Live Stock Show. He was heavily interested in farm enterprises and in the warehouse business in the Sacramento Valley.

Shasta Hog Marketed by Auction

In the second sale of fat hogs held at Cottonwood by the farm bureau of Shasta County, 465 head were sold at prices netting the contributors two cents more per pound than had been offered by local buyers. The two hog cars were bought by the Western Meat Company for 15 cents.

Appropriations for State Fair

The directors of the California Agricultural Society are asking the legislature for appropriations to cover a number of contemplated improvements for the state fair grounds.

The directors believe that a new concrete and steel grandstand is necessary for the comfort and safety of the public and are asking for $250,000 for that purpose.

Because of increased costs of construction the $300,000 appropriation in 1917 for the Agricultural Building proved insufficient and an additional $40,000 is needed to complete the building.

For the purpose of acquiring additional land the society is asking for $30,000.

New Guernsey Sire and Dam Supplement

The American Guernsey Cattle Club has just issued a 100 page booklet containing a supplement to their advanced register sire and great producing dam list of all advanced register cows.

The supplement and complete Advanced Register Index may be obtained by breeders of Guernsey cattle free of charge by sending a postal request to the American Guernsey Cattle Club, Peterboro, New Hampshire.

D. O. Lively in Russia

It is reported that D. O. Lively, who was in charge of the live stock show at the P. P. I. E. and who more recently has been engaged in the live stock brokerage and breeding business, is now in Russia on a government mission, and it is not expected that he will return before next May.

Los Angeles Live Stock Slaughter

The United States bureau of markets reports that during November, 14,085 cattle, 3339 calves, 14,866 hogs, 20,481 sheep and two goats were slaughtered in Los Angeles.

1919 Dairy Show at Chicago

At the annual meeting of the National Dairy Association held last month in Chicago, it was decided that the 1919 National Dairy Show will be held in Chicago.

LIFELIKE

Artist: "This is my painting, 'Youth in the Melon Patch'."

Critic: "But where are the melons?"

Artist: "What a foolish question!"

—Toledo Blade.



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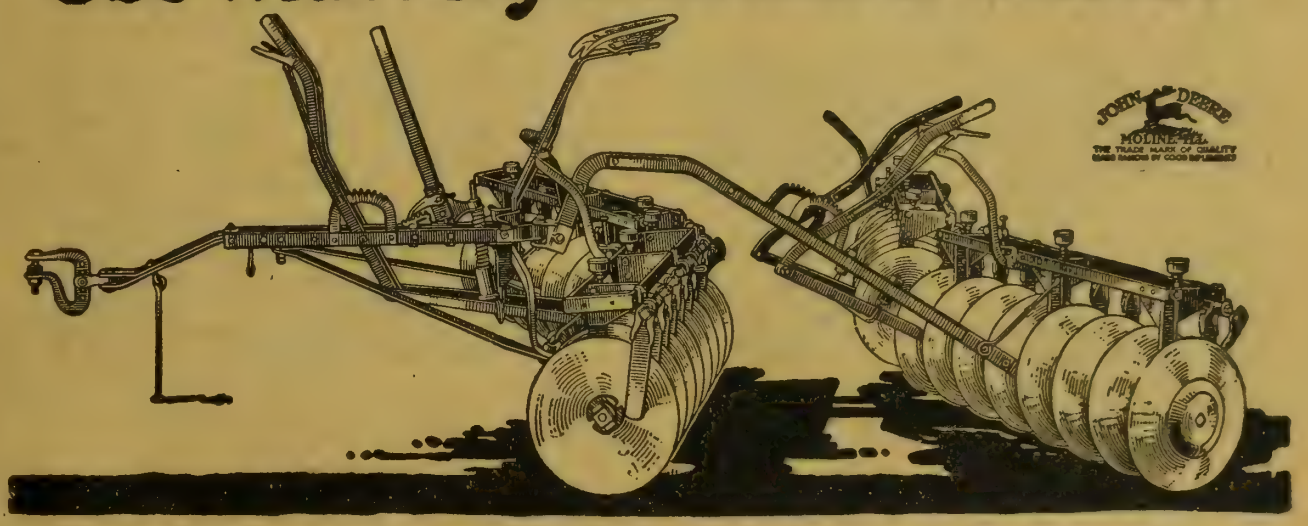
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GET QUALITY AND SERVICE — JOHN DEERE DEALERS GIVE BOTH

Aralia De Kol---Foundation Cow

ON THAT fortunate day when A. W. Morris & Sons Corporation, Woodland, decided to stake their future upon pure bred, registered Holsteins they probably had not the least idea that in the foundation herd which they purchased there were three cows that would in future stand out in a manner to turn the eyes of all Holsteindom, in fact the eyes of the entire dairy world toward the Pacific Coast. These three cows were De Kol of Valley Mead, Riverside Sadie De Kol Burke, and Aralia De Kol. Of these, De Kol of Valley Mead is possibly the least appreciated of the trio, for the other two made spectacular world's records and she did not, although she will in time receive full credit for the true greatness she has transmitted to her descendants. Riverside Sadie De Kol Burke was possibly the best known world's record cow developed in the Morris herd up to the time of Tilly Alcartra, for her name became almost a household word in California, and even to this day many people inquire for her not knowing that she long since took up her abobe in Cow Heaven.

Aralia De Kol, the third of the great trio, can now be counted among the foremost foundation cows of the breed, and as her blood is becoming liberally disseminated throughout many of the best herds in the West it is safe to assume that she and her descendants will one day occupy an even higher family position in Holstein history. She is essentially a western product, her sire Ignaro De Kol, and her dam Aralia both having been bred by Paris Gibson, Great Falls, Montana, while she herself was bred by that great agriculturist, the late Mrs. M. D. Eshelman Sherman, Fresno.

Aralia De Kol was well along in years before she fell into the hands of the Morris Company, and had never been developed for great production, but she was naturally a great cow as she proved when at past 11 years of age she was put on yearly test for the first time and astonished the world by producing 28,090 pounds milk and 1142.32 pounds butter in one year, thus becoming the world's first 28,000 pound cow, and winning second prize on her butter record. She held the record but a short time however, when it was taken from her by her mate, Riverside Sadie De Kol Burke, who in turn shortly lost it to Creamelle Vale.

Aralia De Kol was not a show cow, but she was one of the rugged, dependable looking matrons that command attention in any herd. During her year's test she did not make a single world's record up to the finish, although her records of 596.1 pounds milk and 25 pounds butter in seven days eight months after calving won first prize that year and stood as the second highest in the world, but she was a persistent worker and after having been in milk for 13 months was still yielding 65 pounds per day. Freshening again at twelve years six months of age she made 742.3 pounds milk and 30.13 pounds butter in seven days under official test and 3069.1 pounds milk and 122.30 pounds butter in 30 days, winning 42nd prize for butter in seven days and 13th prize for butter in 30 days that year. She was continued on test for the year and made 22,922.6 pounds milk and 950.69 pounds butter, making her the second cow in the world to have made over 50,000 pounds milk in two years and giving her the second highest butter record in the world for two consecutive years. She calved again at 14 years four months in splendid condition and every indication of making a large record, but died suddenly with an acute attack of milk fever.

Aralia De Kol left behind her, to hand down her great blood, three sons and three daughters. Unfortunately all of her sons are now dead, Aralia Masterpiece having fallen into the hands of a man who used him mostly on grade cows and finally sold him to the butcher, Aralia King who has a splendid list of daughters, but who suffered an injury and had to be killed, and her youngest son Aralia De Kol



Aralia De Kol
One year Milk 28,090, butter 1142.32. Two years: Milk 51,012.6, butter 2193.01.



Aralia De Kol Mead
One year: Milk 23,044.6, butter 1215.20 (strictly official). Two years: Milk 39,713.9, butter 2085.81 (includes record as two year old).



Aralia De Kol Pontiac Mead
One year: Milk 18,362.5, butter 932.43 (record made as senior two year old, a California record).



Aralia De Kol 3d
One year: Milk 24,554.10, butter 1100.47. Two years: Milk 42,363.6, butter 1873.40 (including record as junior two year old).



Sir Aaggie De Kol Acme 2nd
Son of Aralia De Kol 3d and sired by Sir Aaggie De Kol Acme. Five of his seven nearest dams average: Milk one year 24,089.88, butter 1105.07. Butter average is second highest in world for any bull of service age. Owned by Alex Whaley, Tulare, California.



Aralia King
Son of Aralia De Kol, and sire of Margaret Aralia De Kol.



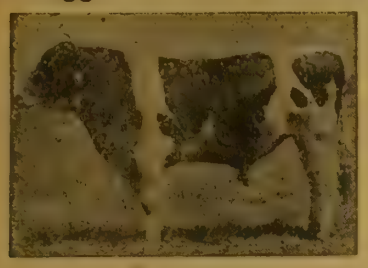
Margaret Aralia De Kol
One year: Milk 22,922.70, butter 1161.87. Two years: Milk 37,257.7, butter 1884.89 (including record as senior two). Holds state record 25.85 pounds butter in seven days eight months after calving.



King Aralia Mead
Son of Margaret Aralia De Kol and sired by King Mead of Riverside. Owned by H. E. Vogel, Fresno, California.

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Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average:
Milk one year....24,089.88 pounds
Butter ..... 1,105.07 pounds

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Segis Pontiac De Kol Dutch
Whose three nearest dams are 1000 pound cows that average over 30 pounds in 7 days, heads my herd. Bull calves for sale. E. E. Freeman, Rt .B, Modesto

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Registered Holsteins of best breeding. Young bulls for sale.
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Sale will be held under big tent

State Fair Grounds, Phoenix, Arizona, February 5, 6, 7

Owing to large number sold, great opportunity is offered. Cotton growing in the Salt River Valley has made cattle cheaper than other sections, and Pacific Coast breeders and dairymen will do well to attend this sale, because cattle of splendid breeding will be sold.

Special Feature of Sale

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Some of the Peaches and Cream of the state—include, a bull whose three nearest dams average 33.02 butter, seven days.

A bull whose seven nearest dams average 32.26 and who is a son of the famous sire, King Segis P. Alcartra.

A two year old son of the 27 pound two year old daughter of Johanna McKinley Segis.

175 Registered Holsteins



100 High Grade Holsteins

The Grand Champion Show Cow: Frontier Mona Korndyke, butter 22.78, milk 551, seven days.

Many other excellent show animals.
Many A. R. O. cows.
Many daughters of 36 pound bull.
Many daughters of 32 pound bull.
Many daughters of a bull who has 43 A. R. O. daughters.
Numerous daughters of two 30 pound sons of King Segis Pontiac.
Numerous daughters of a grandson of Aralia De Kol.
Nearly all females of breeding age are in calf, to a full brother of King Segis Pontiac Count, whose two nearest dams average 1146 pounds butter one year, or a son of King Segis Pontiac, and the 30 pound cow, Pear Ormsby Burke.

Blood lines of this entire sale are close to the greatest record cows and bulls of the breed. Cattle of this section are notably free from tuberculosis. and are tuberculin tested, by State Authorities.

As a special inducement, individuals whose purchases exceed 15 head will have freight paid to destination of purchaser.

Do Not Miss This Greatest Sale of the Southwest. For illustrated circulars and catalogue address:

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Good Holstein Bulls

Sons of a Great Sire From High Record Dams

They are by SEGIS PONTIAC DE KOL BURKE, son of the great RIVERSIDE SADIE DE KOL BURKE, 134 pounds milk in one day, 28,826 pounds milk, 1085 pounds butter in one year, 2065 pounds butter in two years. His first five daughters tested average 753 pounds butter, 17,358 pounds milk as two year olds.

No. 1. Dam's record, 762.37 pounds butter, 18,424 pounds milk in one year, 24.37 pounds butter seven days. She has a full sister with 843 pounds, and her dam, 23.74 pounds in seven days, at eleven years three months old, has five A.R.O. daughters. Her sire is IGNARO DE KOL with ten daughters that average 883.60 pounds butter and 21,815 pounds milk, including Aralia De Kol, 1142 pounds and Ignaro Creamcup, 1077 pounds. He is more white than black, excellent type and ten months old.

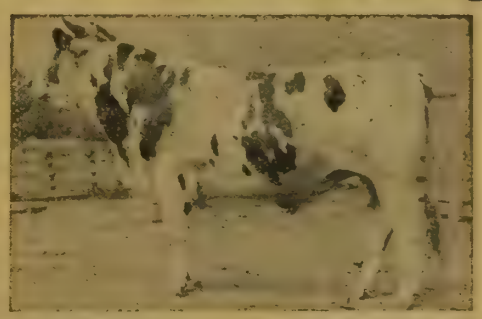
No. 2. Dam now completing test over 800 pounds butter as four year old. Butter seven days 26.30. She is just one of the nicest cows you ever looked at, a real show animal, straight, deep bodied, light colored, carries a faultless udder and milked over 90 pounds with second calf. This bull is light in color and his type is beyond criticism. Eleven months old.

If you are considering the purchase of a herd sire and appreciate heavy long distance production combined with the most desirable type, you will take our advice and buy one of these. Remember that under official supervision the dam and sire's dam of these two bulls average over 900 pounds butter and 28 and 29 pounds in seven days. Your choice for $300.00.

A. W. Morris & Sons Corporation
Woodland, Cal.

The Proof of the Pudding

KING KORNDYKE PONTIAC 20TH as a calf looked like the real bull to head our herd, adding to his great individuality the backing of a pedigree with an unbroken line of great producing dams and type of the highest character. The price of $6500.00 which we paid for him was really a minor consideration. Now that his calves are coming on we know that we made a fortunate choice, for they are certainly beauties. His oldest son in our herd was sold at 40 days of age to become the future head of a newly established Stanislaus County herd.



And the last six calves by King have all been heifers, mostly white in color, beautiful individuals, and every one of them has large well-placed teats, just what we expect from the great uddered cows in his ancestry.

Better get in touch with us for one of his young sons for YOUR herd. We already have requests for reservations of unborn calves if they are bulls. Satisfaction of the buyer is our first consideration, and our prices are reasonable.

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Prince Hiske Walker

He is by Prince Gelsche Walker and out of Hiske of Riverside, being therefore full brother to Lady Hiske Walker, 34.25 pounds butter in seven days as a junior four year old, former state record in class. His offspring are uniformly straight, vigorous, and well marked. A few of his young sons for sale.

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Herd guaranteed free from all disease. Address
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Five of his sisters sold at public auction for $23,800, an average of $4760.
This blood has made some of the world's greatest producers.
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Young bulls for sale. No females.
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Creamcup Holsteins Headed by the 33.92 pound bull Creamcup Champion Pontiac
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Pontiac Segis who likewise was killed, but who has a fine list of daughters and several sons to carry on.

In the Morris herd the blood of Aralia De Kol appears to have nicked particularly well with that of the Mead and Juliana famalies. Her oldest daughter, Aralia De Kol 3d is by Juliana King of Riverside, who is out of the former world's record two year old, Juliana De Kol, who is by Ignaro De Kol, sire of Aralia De Kol. Aralia De Kol 3d has the following records to her credit:

At two years three months:
Milk seven days..... 457.60
Butter 17.63
In seven days eight months after calving:
Milk 325.30
Butter 16.54
Milk 365 days 17,509.50
Butter 772.93
At three years six months:
Milk seven days 501.80
Butter 23.08
At six years:
Milk seven days 646.20
Butter 28.75
Milk 30 days 2,399.70
Butter 109.65
Milk 365 days 24,554.10
Butter 1,100.47

It will be noted that like her dam she made no sensational spurts in production, but has kept right on delivering the goods throughout the year. In her two year old form her eight months after calving butter record won second association money and her yearly butter record fourth prize. She is also a show type of high excellence.

The next daughter of Aralia De Kol is Aralia De Kol Mead, who is by King Mead of Riverside, son of Juliana King of Riverside and De Kol of Valley Mead. Aralia De Kol Mead has the following records to her credit:

At two years seven months:
Milk seven days 450.10
Butter 21.70
Milk 30 days 1,875.80
Butter 89.25
Milk 365 days 16,669.30
Butter 870.61
At three years ten months:
Milk seven days 491.60
Butter 26.16
At five years:
Milk seven days 536.60
Butter 27.27
Eight months after calving:
Milk seven days 408.10
Butter 25.57
Milk 365 days.....23,044.60
(Strictly official)
Butter 1,215.20
(Strictly official)

Here again we find no sensational short time records, yet one of the greatest yearly records of the breed, while only a few cows have exceeded her two year butter production of 2085.81 pounds. It is particularly interesting to note the very narrow margin between her original seven days butter record and her eight months after calving record during the year of her strictly official test.

The third daughter of Aralia De Kol is Aralia De Kol of Riverside, who made 14,552.60 pounds milk and 697.03 pounds butter in one year as a four year old and at the next freshening has made 562.00 pounds milk and 24.98 pounds butter in seven days.

Through her sons Aralia De Kol has some splendid granddaughters, the daughters of Aralia King being the only ones to have reached mature age as yet. Of his daughters, Margaret Aralia De Kol recently completed a yearly record that adds to an outsanding family combination. Her records to date are as follows:

At two years seven months:
Milk seven days 365.50
Butter 17.32
Milk 365 days 14,335.00
Butter 723.02
At four years:
Milk seven days 517.80
Butter 26.91

At five years—No increase in seven day records.

Eight months after calving:
Milk seven days 397.80
Butter 25.85
Milk 365 days 22,922.70
Butter 1,161.87

Again no sensational short time records, but delivery of the goods on the yearly work.

Granddaughters of Aralia De Kol through her daughters are in milk only from Aralia De Kol Mead. Her oldest daughter, Aralia De Kol Pon-



Retained After-birth

Cows can be made to clean easily without using force.

When cows do not clean properly after calving, it indicates a germ infection which is likely to run through the entire herd and result in Abortion and Barrenness.

The after-birth should be removed at once without force by means of the B-K douche and the cow treated to prevent her becoming an aborter or sterile. Authorities state that while there is no absolute cure for abortion and sterility, nevertheless the infection can be controlled by prompt treatment and the animal saved for successful breeding.

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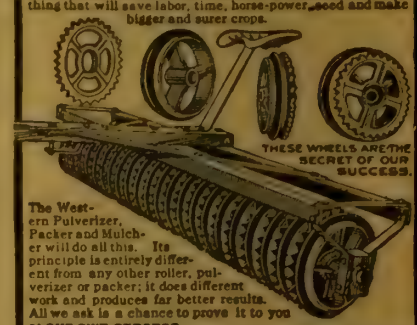
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tiac Mead, sired by Segis Pontiac De Kol Burke, son of Riverside Sadie De Kol Burke, is now milking with her second calf and has the following records to her credit:

At two years seven months:
Milk seven days 475.90
Butter 23.29
Eight months after calving:
Milk seven days 370.10
Butter 15.51
Milk 365 days 18,362.50
Butter 932.43
At three years nine months:
Milk seven days 511.80
Butter 34.41
Milk 30 days 2,194.40
Butter 138.09

In her production we find some really creditable short time records with a beginning of yearly records that promises to add much to the fame of this family. Her eight months after calving butter records and her yearly butter record each won first prize money last year, milk record third prize, while her seven days butter record in three year old form won fourth prize and her 30 day butter record third prize. She is distinguished as the dam of the first bull in the world whose seven nearest dams average over 1000 pounds butter in one year, he being at present in service in the Morris herd where a number of top females have already been bred to him.

Aralia De Kol Mead also has a pair of twin daughters now milking in the Morris herd. Of these Aralia De Kol Mead 2nd made 481.8 pounds milk and 21.61 pounds butter in seven days at two years four months and is now making a splendid yearly record. The other twin, Aralia De Kol Mead 3d, came in with two blind quarters but made nearly 16 pounds butter in seven days from half an udder, freshening as a junior two year old.

Grandsons of Aralia De Kol are being given promising opportunity in a number of leading western herds. Of these Sir Aaggie De Kol Acme, by Aralia De Kol Pontiac Segis and out of Aaggie Acme of Riverside 2nd, is owned jointly by the Morris Company and Fred W. Kiesel, Sacramento. In these two herds he is being given very heavy service and has a beautiful and most promising lot of young daughters coming on.

Segis Pontiac De Kol Mead, out of Aralia De Kol Mead and sired by Segis Pontiac De Kol Burke, thus making him full brother to Aralia De Kol Pontiac Mead, is owned jointly by J. H. Hulbert, Mount Vernon, Washington, and Ed Hoem, Snohomish, Washington.

Sir Aaggie De Kol Acme 2nd, son of Sir Aaggie De Kol Acme and Aralia De Kol 3d, heads the excellent herd owned by Alex Whaley, Tulare. This bull has an average of 1115 pounds butter in one year for five of his seven nearest dams, an average equalled by only one other service bull in the world. He is a splendid individual besides being one of the very best bred bulls in service today.

Another young bull of marked excellence in this family is King Aralia Mead, son of King Mead of Riverside and Margaret Aralia De Kol. He is in service in Westlawn Herd of registered Holsteins owned by H. E. Vogel, Fresno, and combines in a wonderful manner the blood of the Mead, Juliana, and Aralia families, the combination that has proved so successful in the Morris herd.

Thus, upon the blood of Aralia De Kol is being built one of the most remarkable groups of producing Holsteins within the breed. To summarize a few of the outstanding features uncovered in the observation of Aralia De Kol we find:

That her sire, Ignaro De Kol, is the only bull in the world with nine daughters above 20,000 pounds of milk in one year, the nine averaging 22,305.1, pounds and his entire list of 14 yearly record daughters averaging 20,543.4 pounds milk in one year. Ten of his daughters average 883.59 pounds butter in one year.

That Aralia De Kol, with two daughters and four granddaughters, has won $409.75 in the association prize lists, besides having been debarred many times under the rule which prohibits a breeder from winning more than three prizes in any one division.

That Aralia De Kol, two daughters and a granddaughter are the only instance in the breed where an 1100 pound cow had two 1100 pound daughters, an 1100 pound granddaughter and a 932 pound granddaughter.

That Aralia De Kol, one daughter and a granddaughter are the only instance in the world where each of the three has an 1100 pound butter record and a record of 25 pounds butter in seven days eight months after calving.

That Aralia De Kol, her three daughters and two granddaughters average 21,921 pounds milk and 1041.55 pounds butter in one year, with an average butter fat test of 3.8 per cent, and this average includes one two year old record. No other family of equal number can nearly approach these averages in any respect.

GREAT SALE OF PURE BREDS

Messrs. Sanders and Bradshaw, owners of 175 pure bred Holsteins, are announcing their sale at the state fair grounds, Phoenix, Arizona, Wednesday and Thursday, February 5 and 6. There are 140 females and 35 bulls. Amongst the bulls is King Lilith Pontiac Segis, Bradshaw herd sire. Full brother to King Segis Pontiac Count whose two nearest dams average 1146 pounds butter one year. Greatest sire of world's record daughters. Nearly all of Bradshaw consignment in calf to above bull.

Another is King Pearl Segis Pontiac. Two nearest dams average 33.88 butter seven days. Half brother to the $50,000 and $35,000 bulls. Many cows and heifers in calf to this bull in sale.

Many other bulls of great merit in breeding and individuality, who are sons of 36, 32 and 30 pound bulls and from A. R. O. cows of excellent records.

Frank R. Sanders, Mesa, is manager of the sale. The auctioneers are R. E. Heager of Illinois and C. O. McMurtry of Arizona. The gathering of such a large number of pure breds means great opportunities for the great Southwest.

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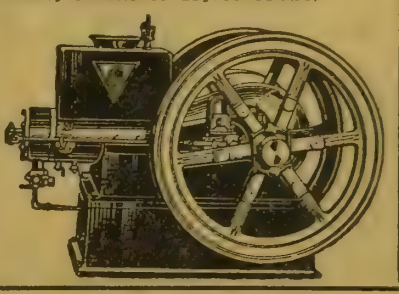


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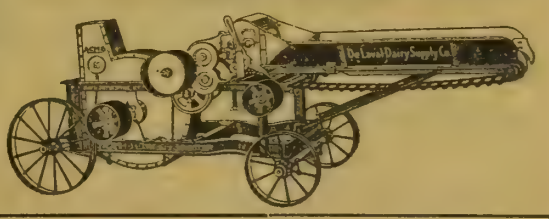
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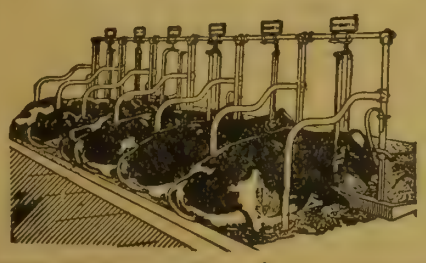
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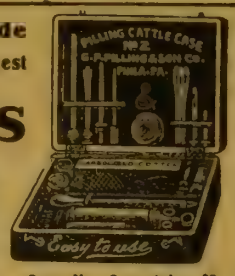
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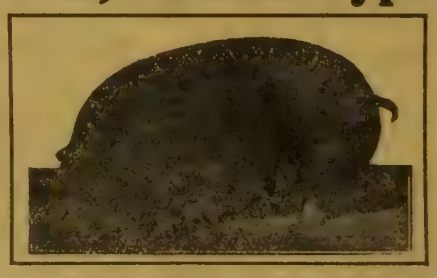
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BERKSHIRE SALE AT UNIVERSITY FARM

W. N. Carruthers, president of the Western Berkshire Congress, has announced that the annual congress and sale will be held at the University Farm, Davis, Wednesday and Thursday, February 19 and 20.

A meeting of the board of directors has been called for January 18, and plans for the event will be discussed.

The annual meeting and election of officers will be held Wednesday afternoon and will be followed by a dinner in the evening.

The entries will be judged Thursday morning and the champion sow will be selected.

One of the features of the meeting will be the barrow contest. Much interest is being manifested in this contest and the prizes offered are such that, it is expected, will attract practically all the barrows that were entered for the San Francisco show.

The sale will consist of 50 head, and will include bred sows, few open gilts and a limited number of boars.

The idea back of these congress sales is to furnish an opportunity for young breeders and beginners to select the highest class of breeding stock. Every animal listed is vouched for by the Western Berkshire Congress.

Catalogs for the event will be available to those who file their applications with W. M. Carruthers whose address is Live Oak.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Horse Out of Condition

I have a horse that I purchased about two months ago and he seemed to be out of condition from the start. His bowels rumble and he has catarrh. When he is worked he tires very quickly. What remedies would you advise for him?—Subscriber, Downey.

Probably the result of influenza and overfeed. Have your druggist prepare these remedies: One ounce of aloin, three ounces of turpentine and one quart of raw linseed oil. Mix and shake well. Divide into three doses and give one dose every day. Also get four ounces of nitrate of potash, four ounces of ground gentian, two ounces of powdered nux vomica, two ounces of the sulphate of iron and enough farina to make one pound. Mix and divide into 16 powders. Give one in the feed every night.

Skin Disease

I have a young horse that has some kind of skin disease. During the summer we noticed lumps under the skin about the neck, shoulders and body about an half inch across and some swellings under the belly. There seems to be a lot of dandruff in the hair. We treated it with kreso solution and an ointment made of vaseline and kreso and thought we had it cured but now it has broken out worse than ever. White hairs have appeared on some of the spots about the head that have healed. Will the white hairs turn black again and what can we do to remedy the trouble?—Subscriber, Lincoln.

This is a form of skin disease that is usually accompanied by stomach disorders. Where white hairs appear now they will always remain. Get the following powders and ask your druggist to prepare them carefully. Arsenic, one dram; powdered nux vomica, two ounces and powdered gentian, four ounces. Mix and divide into 24 powders. Give one powder every night in a little feed that has been slightly dampened with water. Also the horse should be clipped all over and thoroughly groomed twice a day. Do not feed too rich feed and give some carrots if you can get them.

Cough

I have a horse that had an occasional hard cough for several months and now a nasal discharge has developed. At first I thought barley beards were causing it but on examination found none. Please prescribe through the Cultivator.—Subscriber, Ramona.

Probably catarrh following a cold. Get these powders of your druggist: Chlorate of potash, two ounces; powdered belladonna leaves, one ounce; sulphate of iron, one ounce and powdered gentian, four ounces. Mix and make into 16 powders. Give in the feed every night.

Sore Neck

I have a horse that has an ulcerous sore on the neck where the collar works. By using healing powder I can keep it smooth when working and when idle a short time it seemed to heal over only to become raw and mattery again as soon as worked. What can I do for it?—Subscriber, Ramona.

A sore on the top of the neck where the collar comes is hard to heal. Try this: Sugar of lead, two ounces; dilute acetic acid, one pint and 20 drops of sulphuric acid. Mix in the order given. Once a day after working wash the neck with cold water and dry the parts, then shake the bottle of lotion to stir up the powder that settles and apply enough to soak the sore spot. Or if you can get some oak bark, the part next to the wood, make a strong decoction of it and use that in place of the above.

Sweeney

I would like very much to have a sweeney remedy published again that

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The investment breed—the profit producers. Richer milk from less feed. Cheese and butter that bring better prices. The facts about the Jersey make other breeds seem extravagant. Let us send them free. Write Breeders for prices and pedigrees.

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was published in the Cultivator several years ago. My father used it with grand success on two different occasions and we are needing it now to treat a valuable mule but we have lost it.—Subscriber, Porterville.

Sweeney is the result of strained muscles of the shoulder. It may be caused by a slip forward or back or by a sudden jerk of the shoulder when the hub of a wagon strikes a solid object or a plow strikes a stone. At first the muscles swell but are usually not noticed. If the muscles were properly treated at that time they would not shrink below normal and would regain their full strength, but when neglected they will shrink away and become very weak. The proper treatment in the first stages would be plenty of hard rubbing with a good liniment. This liniment would be good for such cases. Equal parts of turpentine, spirits of camphor, tincture of capsicum, ammonia, alcohol and olive oil. Shake well and rub in once or twice a day.

A method commonly used to restore shrunken muscles is to run a tape under the skin the whole length of the muscle. Cut a hole in the skin at each end of the muscle and with a long, flat needle draw the tape through and leave it there. Tie a large knot at each end so it will stay. Soak the tape with equal parts of turpentine and castor oil and leave it until the muscle is up to normal size, then remove it and wash out the wound with a good antiseptic. It will soon heal.

A method I use and recommend is to inject the shrunken muscle with an hypodermic syringe in several places, using equal parts of turpentine and alcohol and using 15 or 20 drops of the mixture in each place. This is a good treatment for sweeney in any stage of the trouble. It is a little severe but will do no harm. It may have to be repeated in two or three weeks. The patient should be rested most of the time until fully recovered.

The reason for giving the several remedies is because you may not be able to follow one and then you may adopt the other. With the two latter methods you should employ a veterinarian as you would not have the instruments to do the work properly.

Pigs Dying

I have fifty pigs weighing from 50 to 60 pounds each and 17 of the number are Durocs. The Durocs are the only ones affected so far. They take spells of slobbering at the mouth, going around in a circle and sometimes falling over on their back, when it is hard for them to get up again. They linger for two or three weeks and die. I would like to know what the trouble is and what to do for it.—Subscriber, Bloomfield.

The symptoms are somewhat out of the ordinary. Open the next one that dies and see if there are any worms in the stomach or bowels. And see if the bowels are inflamed. If you find any worms then get some powdered areca nut and give each one a teaspoon in a cup of milk. Maybe he will eat it as there is no taste to it, but if he will not then turn him on his back, hold his mouth open with a stick and pour it down him. If there are no worms would suggest a dose of castor oil; three or four tablespoons for each one. By all means see what you can find inside those that die, and if this does not help you write again when you find out more about it. The fact that only the Durocs have the trouble is probably accidental.

GINGER SNAPS

"What is your doggie's name?"
"Ginger."
"Does he bite?"
"No, sir. Ginger snaps!"—Judge.

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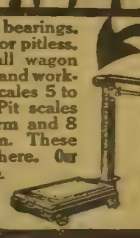
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Soil Analysis: Its Relation to Plant Nutrition

By R. R. Snowden

IT IS generally understood that a soil destitute of any one of the accredited plant-food elements: oxygen, hydrogen, nitrogen, potassium, calcium, magnesium, phosphorus, sulphur and iron, is essentially barren. It is therefore evident that each of these—and carbon which is derived directly from the air—is just as necessary and important as any other element in the economy of plant life.

The mineral elements and nitrogen may exist in the soil in one or more of three states as regards their availability for plant use, as follows: that which is soluble in water and may be used immediately by plants without further change; that which is not thus soluble and usable, but may be made so by suitable agencies in the soil to replenish the first class as it is removed from the soil; and a third which is not readily made available and therefore cannot be counted upon to influence crop production in any appreciable degree.

The first mentioned category of plant foods is that which determines and controls the immediate productive capacity of a soil, while the third constitutes those much larger stores held in trust for the use of future generations, providing a kind of insurance against the rapacity of the present.

These distinctions furnish a basis for three separate kinds of soil analysis, and as a matter of fact, the analysis most suitable for one class or state of plant foods is entirely valueless for another. And yet it is not infrequently the case that the permanent fertility analysis is used for determining immediate crop production needs, and although foredoomed to failure, upon these false results soil analysis is condemned. That acknowledged benefactor of world wide agriculture, the late E. W. Hilgard,—without the mention of whose name and work a book on agricultural chemistry can scarcely be written in any language,—speaking in this connection of his "results in many respects so definite that he has ever since continued it" says: "This was done in the face of almost uniform discouragement from agricultural chemists until within the last two decades; with occasional severe criticism of this work as a waste of time and of public funds." Fortunately Doctor Hilgard lived to see the beginning of recognition of the value of soil analysis when rightly directed and interpreted.

All discussions of the usefulness of soil analysis hinge upon the methods of analysis; and this is where the writer is inclined to arraign the use of the official method for determining the fertilizer needs of soils. This method, which is used by all the agricultural experiment stations throughout the country,—however admirably adapted for permanant fertility investigations, is utterly useless for determining the current crop needs of the soil, since the soil solution made as it directs cannot even approximately represent the nutrient medium of the soil in which the plants feed. This solution is made by digesting the soil at 212 degrees Fahrenheit in strong hydrochloric acid for ten hours. Analytical data obtained by such method furnishes no adequate basis for determining the fertilizer needs of a soil.

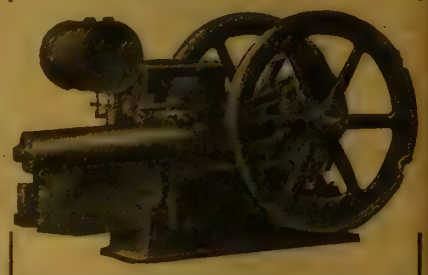
Many methods have been proposed for extracting the soil so that the analysis of the solution obtained would furnish an accurate appraisment of the several plant-food elements subject to immediate use by the plants. Each was proposed with a laudable desire to contribute to the general store of knowledge for the common good, and therefore entitled to at least a respectful hearing; yet each must "run the gauntlet" of unprejudiced investigation, for every true scientist expects a critical examination of his ideas, and even their rejection if found unsound.

The most recent attempts made along this line have been to obtain the soil moisture itself without the addition of any solvent whatever. With this object in view the soil has been subjected to the action of a powerful centrifuge machine whereby its capillary water, clinging by cohesion to the surface of the soil grains is forced to pass out of the soil mass and is collected for analysis. This method seems to the writer open to the objection that the water passing under such stress through the soil mass inevitably becomes charged with the soil nutrients in greater measure than it originally contained. This view appears supported by the fact that the solution thus obtained is practically the same in composition and concentration from all soils, whether rich or poor.

The latest method proposed for making the soil extract with the above object in view is to subject the soil to a pressure of something like 150 tons to the square inch, by which the soil solution is actually squeezed out of the soil. This method is open to the same criticism as the preceding and with still greater emphasis, for by this procedure the soil grains must all be crushed to impalpable powder, in which condition they should reasonably be expected to surrender all the more readily their substance to the solvent action of the water. The analysis of the soil extract thus obtained therefore can furnish no accurate knowledge of the actual nutrient medium in which the plants feed, and any forecast of the fertilizer needs of the soil based upon it must be misleading.

After all that may be said, the only test worth considering is the agreement between the actual crop performance and the analytical indications. By this test the writer has proved to his own satisfaction in the practical results obtained that the best solvent for the soil analysis is one of the following three for the several soil constituents: a weak solution of hydrochloric acid, a saturated solution of carbonic acid—the actual acid of the normal soil, and distilled water. And the analysis of the solution made

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Case 900 exterminators..... 13.50

Calif. Chemical Co.

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with the proper one of these solvents does furnish the necessary data for correct diagnosis of the immediate soil needs.

Failure to get results from soil analysis may be due to any one of a number of causes besides that indicated above, for "a chain is no stronger than its weakest link."

It is therefore that the agricultural chemist is concerned with much more than simply determining the plant-food deficiencies of the soil; though this of the first importance. He must seek the detection and counteraction of injurious soil elements; the mellowing and softening of tough clays; destruction of hard-pans, etc.; the prevention or correction of acidity; the promotion and maintenance of the highest state of capillary efficiency; the conservation of organic matter in the soil. He must encourage to the utmost the activities of the beneficial bacteria and prevent loss of their products from the soil. For instance, he must provide for the fixation of ammonia when it is produced by one species of bacterium from the organic nitrogen of the soil or manure. Neglect of this latter duty may be, and sometimes is followed by lack of new growth, and other evidences of nitrogen-starvation in the trees or plants in spite of generous stores of nitrogen in the soil; for the ammonia if not "fixed" passes into the air as a gas and is lost to the soil it should fertilize. He must secure and maintain conditions favoring the development of the root-hairs, for these are the principal mouths of the plants through which the contributions of the soil to the living plants are absorbed. The importance of this is seen in the fact that under the most favorable conditions the aggregate root-hair surface, and consequently the approximate feeding capacity of the plant, may be multiplied, it is estimated, as much as 50 times; and the resulting increased ability of the plant or tree to draw nourishment from the soil becomes an important factor in crop production.

It is thus manifest that the agricultural chemist must be not only an efficient chemist, but a practical and scientific farmer as well; for he must have a more or less intimate knowledge of these various needs of the soil and of the means whereby to attain them.

In view of all these facts it is no wonder that soil analysis fails to bring expected results in the hands of some.

SMILO GRASS

One of California's greatest needs is a pasture grass which will spread over our hillsides and endure during the season of drouth. A grass is now reported from San Diego which offers many of the advantages which have been so long desired. It is sometimes called Many Flowering Millet. Regarding it we have from a subscriber in San Diego County:

"A package of seed of Smilo Grass was received from the University of California as early as 1885 by the former owner of Oakdale Ranch, Spring Valley, Mr. Steele.

"He planted it under some cottonwood trees back of his house and gave it no further thought. It grew, but the rabbits kept it from seeding and spreading.

"When the ranch was fenced in 1909 the grass soon made itself evident, so much so that G. D. Steele, the present owner, in 1914 applied to the university through the farm adviser to ascertain its name and value."

The botanical name of this grass is oryzopsis miliacea. Other names which have been given to it are Many Flowering Millet (as noted above), and San Diego Grass, but the more general term used is Smilo Grass. The same subscriber also sends us these notes as to its culture:

Fall is the time to plant Smilo Grass seed for forage on lands which cannot be irrigated. Roots may be set at any time if watered, otherwise set before last spring rains.

As Smilo is similar to grain the way it roots, it is easily killed by cultivating, consequently cannot become a pest.

Smilo can be grown where alfalfa cannot, and even where it is impossible to grow ordinary cultivated crops.

Smilo is a valuable grass to plant along fences or in any spare corner or plot. When once rooted it smothers out weeds and makes a valuable forage grass when all other grasses are dried up. It is particularly valuable in milch goat pastures.

The seed of Smilo Grass came from Southern Europe where it is said to be a wonderful forage grass. Being a perennial bunch grass, it is planted 12 to 14 inches apart each way, and in a few years becomes nearly a solid mat.

Now's the Time

to get in your dormant or winter spraying. If done properly—this will prevent the accumulation of certain insect and fungus enemies; will clean your trees and soften the bark; and will keep the trees in better health, vigor and fruitfulness. For this purpose there is nothing so effective as

Crude Oil Emulsion

Remember—Universal Orchard Sprays are made by us from the finest materials, under expert supervision. They are quick and sure. And—*they penetrate.*

Among the other sprays manufactured or distributed by us are;

Dormant Soluble Oil
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Order now—don't wait until your trees are laden with deadly insects.

Never hesitate to write our Service Department—in charge of Paul R. Jones, Expert Entomologist. His advice is dependable—and it's yours *free.*

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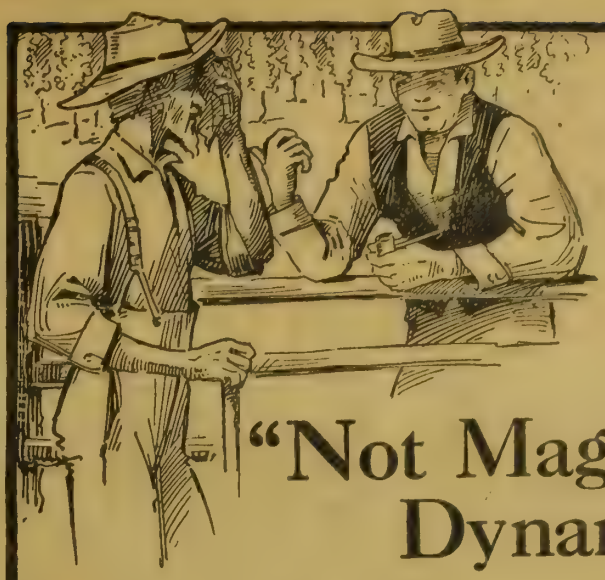
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"Magic?"

"Sure,—if you want to call it that. It's the 'Yellow Magic' that's packed inside of those little sticks marked

HERCULES DYNAMITE

"And I'll tell you something else, too. Trees that are planted in blasted holes grow better and bear sooner than the ones planted in the old fashioned way. The shock of the explosion loosens the earth all around the hole so that, when the young tree begins to take hold, its roots have a chance to spread and grow."

"When I first started to use dynamite I didn't believe that it *could* make such difference—but I've learned by experience. The trees that I planted last Spring look like two-year-olds today."

"Better send to the Hercules Powder Co. for a copy of their 68 page, illustrated book, 'Progressive Cultivation.' It will tell you how to make more money and save time and backache by using dynamite in your orchard."

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MR. PLANTER:

The coming season promises to be the most favorable in many years for orchard planting. With such a season and

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WILL WORK WONDERS ON YOUR FARM



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WE SEND THEM ON THREE DAYS' TRIAL

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Sure Pop Almond Hullers and Separators, 3 sizes; McGarvin Fruit and Olive Graders, any size; Schandoney & Harrington Equalizing Hitches, any size; Diamond Special Harrows, Baker Clips, Clevises, and Schmeiser Portable Automatic Hay Derrick. We sell the Martin Ditcher and Grader.

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We announce with this advertisement that we have added a complete Sprayer Department. Everything from a compressed air hand machine to the large rig shown here. We can supply every kind of sprayer from our large stock and invite inquiries. Complete catalogue on request.

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For information apply to the nearest NATIONAL FARM LOAN ASSOCIATION or write direct to

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Legal Queries

Louis B. Stanton, attorney, 248 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Injunction Against Trespassing

How do you start and what is the cost of an injunction to restrain cattle from trespassing? The justice of the peace claims he has not power to stop the trespassing.—Subscriber, Lancaster.

An action to obtain an injunction is one for an equitable remedy of which the superior court has original jurisdiction. The justice of the peace has jurisdiction of the action for damages for trespass of animals under the estray act, providing it be less than $300. As the injunction remedy is one which requires the knowledge of a lawyer to successfully institute and prosecute you should consult your attorney with respect to the above question.

Faulty Note

My sister gave a note due in six months. Both parties, unused to legal terms, inserted the words "with grace" intending to mean "with interest." If sister asks the noteholder for time and is refused what can be done and how much time extension can she get? —Subscriber.

The words "with grace" have generally been understood to mean a period of three days after the date of maturity within which payment might be made. As between the maker and payee it, therefore, is of comparatively little importance; with respect to the liability of an endorser of the note, if such there be it would be of importance with respect to the date of presentment for payment and notice of dishonor. Days of grace, however, have long been abolished in this state, although it is possible that where particularly mentioned in the note the three days might be given. In a suit at law upon the note in this cases the holder could not obtain interest, but would require the aid of equity to reform the note under proof of the mutual mistake.

Willing Partnership Property

Father and son are partners; each wishes the other to have his estate in case of death and survival of the other. In case of no will what would be done? If estate would go to the probate court, explain the how and why of this proceeding. — Subscriber, Lamanda Park.

If there is no will, the wishes of the parties would probably be frustrated. The laws of all states provide how the estates of intestates shall be divided, embracing every possible contingency. It is necessary for the proper transmission of property, payment of debts of deceased persons, and securing the claims of all interested that a tribunal shall determine who the creditors are and in what amount and who the heirs are and to what they are entitled. In case of no will, the procedure is commenced by the appointment of an administrator, relatives are preferred, the closer relatives having the higher preference, except that a surviving partner must in no case be appointed; notice is then given to present claims to the administrator, who in conjunction with the court approves or rejects them; if rejected suit may be brought against the administrator to establish the claim. When claims are paid the estate must be distributed to those heirs that the law declares to be entitled to it.

Partnership

Father and son, business partners, sell real estate on installment contract. The title to this real estate stands some in the name of the one, some in the name of the other. The firm does a regular real estate brokerage business. Could the survivor carry out the contracts? Could either give the other a power of attorney, good after death?—Subscriber.

The interest of the decedent in the partnership business being an asset of the estate of the deceased would be included in the inventory of the estate. The contract purchasers knowing only the firm would have their claim against the estate of the deceased, as well as the survivor to enforce the performance of their contracts or damages for breach. It is the right and duty of the surviving partner to continue in possession of the business, but he must settle up its business without delay and account and pay to the administrator, from time to time, such balances as may be payable. Thus on lands belonging to the survivor, the profit on the sale made would have to be determined and the interest of the deceased partner therein paid to the estate.

All powers of attorney or other agencies are revoked by the death of the principal as the agent derives his power to act solely from the principal and when the principal ceases to exist the power ceases and at the moment of demise.

UTILIZATION OF THE MOJAVE

The California state department of engineering has issued Bulletin No. 5, "Report on the Utilization of the Mojave River for Irrigation in Victor Valley". It is a 94 page report with complete maps and is most valuable to Victor Valley people and to all interested in Mojave desert conditions. The report may be had by writing State Department of Engineering, Sacramento, or Division of Irrigation Investigations, U. S. Department of Agriculture, 601 Federal Building, Los Angeles.

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Fundamentals of Poultry Culture

Written for California Cultivator By Jean A. Koethen

IT USED to be just "keeping chickens," now it is poultry husbandry. The farmyard flock of 25 or 30 years ago was not expected to pay any particular profit. It picked up the grain left by the horses and cows, and laid eggs in the spring. Today we are expecting something of the farm flock. With the cheap feed the farmer is able to command, chickens can be made one of the most profitable of all farm crops. If they are unprofitable and unproductive the fault rests on the shoulders of the farmer himself.

At the beginning of what promises to be the best year poultry men have seen for nearly a decade, it is well for everyone who contemplates raising a flock, whether large or small, to sit down and think out his aim for the year. Is the flock to be improved? If so, how can improvement be managed most readily? Have the hens you already have been satisfactory layers? Then how can their virtues be reproduced or accentuated in the next generation?

The first rule of poultry husbandry ought to be "Quality first." There is nothing gained by raising a lot of culls. Even for the family table they cost more than they are worth. Neither is there any profit in raising more chickens than you have comfortable room for. The backlotter is wise to limit himself to a dozen hens or less, unless he keeps one of the small, active Mediterranean breeds which stand close confinement well. The farmer was never in a better position to increase his flock than now. He has the feed; he has the range. With a poultry house from 16 to 20 feet square and a run half the size of a city lot, he can keep 100 hens almost as easily as he could keep 25 without proper accommodations.

But it is not sufficient that the hens be merely hens. They must be layers as well. Real bred-to-lay hens the past year, in spite of high-priced feed, have netted their owners a profit of two to three dollars each. At some of the laying contests the value of eggs produced by a single hen has been as high as $8.00. Why, the income from a 100 hens of the right sort, on the farm, would be "velvet." But they must be the right sort.

Now in January, with the hatching season close upon us, is the time to take stock, decide which hens are worth keeping and which are not, and whether or not the better hens have been layers worthy to reproduce their kind. If an egg record has been kept, or the slackers have been culled out early in the winter by one of the many methods recommended, the breeding hens have already been selected. If the purpose of improvement is the result of a New Year's resolution, or as more often happens of a visit to the poultry show, culling will not be so easy. If any of the hens are satisfactory in both utility and standard qualities, the best plan is to confine these few with a good male and breed from them and from them only. The rest of the flock can then be culled as occasion comes. During February, March and April most hens will be laying. Any that are not should certainly be gotten rid of without further trial.

I used the word in the plural at the head of this column, but the more I think of it, the more I am inclined to believe there is just one fundamental thing in poultry culture, at least so far as it applies to chickens, and that is breeding. Stock must have the right start, must have in itself the constitutional vigor which will enable it to live in spite of external conditions, must have the congenital, inbred disposition to lay, if it is a female, to pass on fecundity to its offspring, if it is a male, or it is worth very little. The foundation of every prolific, profitable flock is proper selection and mating.

If you find you have two or three hens that are vigorous enough and prolific enough and near enough to standard requirements in color and shape for breeders, your breeding pen is half provided for. The other half is the male. Indeed he may easily be more than half. Color, size, prolificacy, vigor, may all be spoiled by the use of the wrong male.

It is often safer to buy eggs from a breeder who understands mating than to risk mismating your own hens to a male with whose qualities theirs do not "nick." If you have a special reason for using your own hens, then find some expert who will select the right mate for those hens. Many judges are willing to undertake this delicate task, as far as exhibition type is concerned, but let us never forget for a moment that what we are most concerned about is eggs. We want standard color and type and weight, but we also want egg type and egg records.

It has always been possible to secure eggs and cockerels from Leghorns with egg records, but until now bred-to-lay stock that was also standard bred has been difficult to find in the heavier breeds. Now breeders begin to realize that the public demands eggs as well as feathers and are combining the two. This is the most delicate of all breeding problems and is solved only by the most rigid selection, using as breeders only hens that have made a certain record and leaving out every bird that is not up to the standard in other respects. So far R. I. Red breeders seem to be ahead of other breeders of heavy hens in that several now advertise egg-type hens. At the winter shows I talked with two breeders whose Reds have made very high records, E. A. Weaver of Los Angeles, whose birds are known as "Weaver's Reds," and Lester Payne of San Bernardino, who is breeding not only for eggs and type, but for the five-year hen. A pen of six of Mr. Weaver's hens averaged 208 eggs in 1916; 1917, 64 hens averaged 206 eggs; and in 1918, 36 hens averaged over 203 eggs. One of Mr. Payne's hens laid 272 eggs her first year, 261 eggs the second year and 258 eggs the third year. One of her daughters laid 283 eggs in her first year, and a granddaughter 201 eggs in 207 days. This hen, "Champion Red Angeles," won two special cups at Los Angeles shows, and her sister was first hen at the mid-winter show. These figures simply show that bred-to-lay and exhibition quality are by no means incompatible, and give the beginner something definite to aim at.

Let us keep distinctly in mind in beginning poultry operations for the year that there is no best breed. Our breed is what we make it. Doubtless there are many breeders of other breeds who are doing the same work for their breeds that Mr. Weaver and Mr. Payne are doing for R. I. Reds. It is possible, by right selection, and mating to build up a heavy laying strain out of indifferent material. Mating a well-bred male to just ordinary hens, and the best pullets of the next generation back to their sire is a good way of improving the strain you have, provided the breeding of the male is right. The son of a heavy layer mated to hens that are themselves good layers can hardly fail to produce better layers. If the male is not the son of a heavy layer his daughters will in all probability be less prolific than their mothers.

Shippers of eggs are asked to load cars to capacity. The minimum is placed at 24,000 pounds.

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A good layer will transform one dollar's worth of food and supplies into $3 worth of eggs at present prices. To be a good layer a hen must be in top notch of health. That is GERMOZONE'S strong hold.

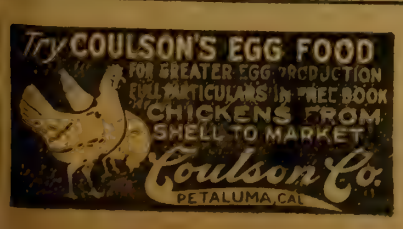
Germozone, three times a week, coupled with our simple directions for daily feeding, care and culling out slackers, is guaranteed to produce better and more permanent health and egg supply, or no pay.

One woman averaged 18 eggs daily from 21 hens in December. Germozone costs less than one cent per hen per month. See the profit.

Germozone cuts out the illnesses from musty or spoiled food, impurities picked up with food from floor, contagion through the drink, roup, colds, canker, throat inflammation, sour crop, etc. It goes well with any modern method of feeding—grain, vegetables, meat.

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to produce a finished product without the proper raw material.

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The Hen Is Merely an Egg Factory.
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Thousands of Dollars Are Thrown Away
every year, on account of feeding hens rich egg mashes and grains which produce more yolks than whites. The hen not having the ALBUMEN to produce the white of the egg, naturally can not make the egg; therefore the surplus yolks are absorbed into the system, causing the hen to become too fat and a decrease in her egg production.

Lactein Contains the Needed Albumen
to produce the white of the egg. It contains Lactic Acid which helps to assimilate and digest the food and keeps the bowels in a healthy condition. It also contains a Germicide which kills the worms and all intestinal germ life.

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but it prevents nearly all diseases known among poultry, by keeping them so strong, healthy and vigorous that their system resists the disease germs.

Lactein Saves the Baby Chicks.
It prevents the dreaded white diarrhoea and will cut your heaviest losses 90 per cent. Chicks fed Lactein will show a much more rapid growth in weight, than those given the same food without Lactein; this has been proven many times. Hundreds of poultrymen find Lactein superior to either sour milk or buttermilk for chickens, besides being cheaper and more convenient to feed. Lactein is just as valuable for the entire feathered family: turkeys, geese, ducks and pigeons.

Feed Lactein to Hogs.
Lactein is equally valuable as a food and tonic for hogs. It stands to reason if sour milk or buttermilk is a good appetizer and tonic, Lactein is even better, because it is perfectly pasteurized and the acidity is always the same. Feed it to your hogs in their swill water or other feed and watch them grow. A few extra pounds of pork these days make a big difference in profits.

If feeders who have as many as 5,000 hogs, 30,000 laying hens, or 50,000 ducks find Lactein profitable, why shouldn't you? No matter if you only have a few hens or hogs it will pay you to feed Lactein.

Lactein Is a Scientific Milk Product
produced under perfect sanitary conditions from fresh buttermilk, skim milk, whey and milk albumen at the creameries, cheese and casein factories on the Pacific Coast. It is put up in wood barrels of 5, 10, 25, and 52 gallon sizes. Sold by feed dealers. Should your local feed dealers not have Lactein, write us direct.

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Dwarf Milo Seed for Sale—Selected milo seed from fields producing two tons of threshed grain per acre for sale at eight cents per pound. Seed is heavy and plump, recleaned and of high germination quality. The grain from this plant makes the best poultry, hog and stock feed on the market. The fodder makes good stock feed. Samples sent free. Order now for spring planting. Seed Dept. Elliott-Brant Rancho, Owensmouth, California.

I Will Have One or Two Tons of Sorghum seed, especially selected for syrup making qualities for sale as long as it lasts. Send for list of different varieties, with description, prices and instructions for planting to get best results. Can send seed by parcel post. MARION GRABER, Hawthorne, California.

Plants Grown on Contract. 20 years' experience; select seed, tomatoes, peppers, cabbage, sweet potatoes, egg plant. Any quantity, shipped to all points. Large quantities at reduced rates. L. C. Johnson, Pomona, California. Phone 2032.

Early Amber Sorghum Seed for Sale—Choicest sorghum seed on the market; 9c per pound. This seed selected from high producing fields that made 15 tons of heavily grained silage per acre. This plant produces more tons of silage of high feeding value than any other silage crop. It makes silage of the best quality, equal to Indian Corn silage and more tons per acre. The grain makes good poultry, hog or stock feed and the fodder makes excellent stock feed. Samples sent free. Order now for spring planting. Seed Dept. Elliott-Brant Rancho, Owensmouth, California.

For Sale—Strawberry Plants, four varieties. Write for prices on Cane seed, Watermelon, and home grown garden seed. Primma Vista Gardens, R. D. 4, Arlington, California.

Strawberry Plants—Try our strong rooted everbearers. Americus, Progressive, Superb. Americus, $1.50 per 100; $3.00 per 250. Send for catalog. F. L. Moffet, Ellensburg, Washington.

Gigantic Climbing New Guinea Butter Bean. Thirty inches long. Delicious eating. Prolific bearers. Phota and full particulars. E. Harrison, Willows, Glenn County, California.

For Sale—Florida Sour orange seed and California sweet seedling orange seed. Order early. Milo Hunt, Whittier. Phone 250.

Berry Plants—Blackberries, Raspberries, Strawberries, Currants and Gooseberries. M. J. Moniz, Berry Specialist, Sebastopol, California.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees, Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

Rhubarb Plants — Wagner's Giant Crimson Rhubarb plants, extra clean, 50 cents per dozen, $3.00 per hundred. Currier Bulb Co., Seabright, California.

Peruvian and Common Alfalfa Seed—Specialty. Write for prices and sample. Box 501 Fowler, California.

MISCELLANEOUS

Here Is What Counts—Mr. H. E. Gilley of Los Angeles, following my directions after I analyzed his soil had a 65 per cent crop of oranges last year, while the neighboring groves suffered so much from "drop" that they held only a 15 per cent crop. CAN'T YOU SEE THE VALUE OF SOIL ANALYSIS? R. R. Snowden, Agricultural Chemist, 320 Stimson Building, Los Angeles, California. Phones: Office Pico 843; Res. West 702.

Farmers—I have invented WONDER PLOW FACING, an attachment and chemical mixture that prevents adobe or waxy land from sticking to mouldboard. Makes plowing easy. No pay if it don't work. Write for particulars. P. A. W., Care Cultivator, 115½ N. Broadway, Los Angeles.

Pure and unadulterated leaf tobacco. Comes to you exactly as it leaves the farmer's hands. Hand picked 60 cents pound prepaid parcel post, 10 pounds $5.50. Order today. Duke Bros., Dresden, Tennessee.

If You Want to Earn Money during spare time at good pay at home or traveling, write J. H. Yetter, Manager of Salesmen, 115-117 North Broadway, Los Angeles.

Long Distance Hauling. Anything, Anywhere, Anytime. Household movables a specialty. Write, what, where from and where to. Wagner's Transfer & Storage, 551 Main St., Watsonville, California.

For Sale—Ranchers attention.. Store your grain in tanks about 6000 bushels capacity, $250; 12,000, $350. Cheapest, quickest. DEMMITT, 120 N. Main.

Extra Fancy Dried fruits in 10 and 20 pound boxes by parcel post. Write for prices. Banning Fruit Co., Banning, California.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

FOR EXCHANGE

For Exchange — Our close in Pasadena home with flowers, fruits, garage, all in perfect order, for a smaller house or land well situated. Address F. E. P., 145 N. Mentor Avenue, Pasadena. Colorado 6937.

Exchange—Beautiful home in Berkeley for country realty. Address 5809 Ocean View Drive, Oakland

ENGINES

Several New and Slightly Used Engines, ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

TREES

MY "TOP NOTCH"
GRAFTED WALNUT
ORANGES and
LEMON
TREES
now ready for you. Write, phone or call. William Pollard, 1831 S. El Molino Ave., South Pasadena, California. Colorado 1613.

Santa Rosa Plum—J. H. Hale Peach, New Early Red Nectarine, Apec Plumcot also Bartlett Pears on Japan root and a general collection of best varieties deciduous fruit trees, thrifty, well rooted true to name, grown under expert supervision. Los Nietos Valley Nursery, Downey, California. Phone 692.

Grafted Walnut Trees—Placentia Perfection and Eureka on northern black roots. Citrus stock one year old from selected fruit bud wood. Also all the leading varieties of fruit and avocado trees. Order your trees early and get the first choice. Geo. M. Ketscher, 702 Orange Ave., Santa Ana. Phone Sunset 229W.

Trees for Sale — 2000 Royal, 2000 Blenheim apricot on peach root, ⅛ to ⅝ caliper—4 to 6 ft, 20c; 20,000 almond on bitter root ½ to ⅝ caliper, 3 to 4 ft. for 16c. For reference — County Horticultural Inspector W. Gould of Woodland, Western Yolo Nursery, D. C. Parker and R. Jose, Esparto, California.

Budded Avocados, Fuerte, Sharpless, Lyon, Dickinson, Blakeman, Puebla, Spinks, Taft, Linda, Rey, Queen, Knight, and others. A fine stock of field grown trees, $2.50 for one, $2.00 each by the 100, 25c per tree for packing. Newbery-Sherlock, 2202 East Colorado St., Pasadena, California.

For Sale—250,000 Homegrown fruit trees. Apricots, apples, pears, peaches, walnuts, etc. All stock guaranteed first class in every respect. You will save money by writing for our descriptive catalogue and low prices. Orange County Nursery Co., Box 235, Anaheim, California.

Eureka Walnuts are the best grafted on Paradox roots. They resist blight. You are sure to get the real thing by placing your order with us. We graft Eurekas only. Geyer Bros. Walnut Nursery, 214 S. Alamansor St., Alhambra, California.

Grafted Walnut Trees — Placentia Perfection and Eureka. A careful selection of grafting wood from the best groves of Southern California has been used on best black root stock. C. W. Story, Rivera, California.

BUDDED AVOCADOS
All varieties, field grown stock $2.50 each F. O. B. nursery, Mathers Avocado Nursery, 137 N. Fair Oaks Avenue., Pasadena, California.

For Sale—Fruit and ornamental trees, grapevines, berry plants, etc., at low price. Buy from an ex-soldier. Burke's Nursery, Lodi, California.

Olive Trees—Mission, Manzanillo. Propagated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, California.

Placentia and Eureka Walnuts on black root. A general line of high grade nursery stock. A. R. Marshall Nurseries, 1212 Ross St., Santa Ana, California.

For Sale—Yearling Valencia Orange trees. Nothing better on the market. P. H. Ebel, Tustin, California.

Apricots, Peaches and Olives. Good thrifty stock and carefully grown. C. E. MOYER, Hemet, Riverside County, California.

Eureka and Placentia Perfection Walnut buds for sale. E. Holve, Fullerton, California.

TREES, TREES, TREES.
No War Prices.
Cash Nurseries, Sebastopol, California.

For Sale—8000 Mission and Manzanillo olive trees. Bed rock prices. York Nurseries, Highland, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

RABBITS

For Sale — New Zealand rabbits. None better, with litters or without, always in stock. Los Angeles Route 9, Box 485 Vermont Heights, West Athens. Burlingame Rabbitry.

Money in Rabbits
Raise rabbits for us. Will pay $6.00 per pair. Send stamp for particulars. H. E. Gibson Co., Arcadia, California.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches. ARNOTT & COMPANY, INC., The Yellow Front. Established 1892 112-118 S. Los Angeles St., Los Angeles.

LUMBER

Lumber-Sash-Doors-Plumbing - Supplies—Building materials of all kinds. New and second hand *A.*R.W. shingles 60c per bundle. Send list for estimates. Dan P. (Mission Street) Dolan, 1620-1650 Mission Street, San Francisco.

GOATS

Largest Herd Swiss Toggenbergs on the Coast. 100 grade does bred to my $1000 Buck, Captain No. 256, A. M. G. R. Association, due to kid in February and March, $40.00 each, lots to suit. Crating $2.00 extra. Stamp. Rae P. Williams, Oakland, California.

GEESE

McNeely's Mammoth geese; the kind that pay. Eggs 25c each any amount. Fancy breeding stock ready to ship. Chas. McNeely, Alpaugh, California.

HOGS

BERKSHIRES BERKSHIRES

ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

Registered Duroc-Boar Pigs—We have four boar pigs, four months old, weighing 150 lbs., out of a King's Col sow and sired by King Orion himself. Sow is a sister to Citation, $5,000 boar, and is herself one of the best sows in the country. This blood won more prizes for get of sire than any others west of the Mississippi. These pigs are the classiest boars for sale in California. Write for one or call and take your pick, $150. Hog Dept. Elliott-Brant Rancho, Owensmouth, California.

BERKSHIRES GUERNSEYS
GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
A. B. HUMPHREY,
Escalon, San Joaquin County, California.

"BILLIKEN" CHESTER WHITES.
The San Francisco Fair being called off allows me to offer some of the stock I had intended showing. This offering will consist of 3 boars and 8 bred sows and gilts. These will be priced right; also have a few weaned fall pigs left. Every animal is cholera immune. C. B. Cunningham, Mills, California.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

Castleview Berkshires are the typey, modern, quick-growing kind, choicest blood lines. Prices reasonable. Castleview Ranch, Berkshires exclusively, Santa Rosa.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Young Duroc—Jersey boars Orion Cherry King and Pathfinder breeding. Reasonable. Sterling Smith, Route 1, Box 220, San Diego.

Masterpiece-Superbus strain Berkshires. Choice stock from prolific breeders. Geo. A. Stingle, San Gabriel. Ranch Garvey Ave., two miles SW. of El Monte.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

FOR SALE: REGISTERED POLAND-CHINA BOARS. J. R. CARHART, FULLERTON, CALIFORNIA.

MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Duroc-Jerseys — We breed the champions. Peter, Lamson & Walker, Devore, San Bernardino County, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLITS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

FARM LANDS FOR SALE

30 Acres ½ mile from State Highway, ¾ mile from point where local trains stop, and 3½ miles from Arbuckle. This place partially improved. 11 acres 6 year old almonds, 1 acre 6 year old fruit and 5 acres 1 year old Thompson Seedless. 13 acres to be planted to almonds this spring. Fine location. Will make a dandy home. Write us.
NELSON REALTY COMPANY,
Pioneer Dealers in Almond Land,
ARBUCKLE, CALIFORNIA.
THE HOME OF THE ALMOND.

For Exchange or Sale — A sightly home fruit ranch, 15 acres including all kinds of citrus and deciduous fruits, vines and shrubs, four years old, two miles north of Corona, four room house, garage, with more land if needed, all under water system. F. E. P., 145 N. Mentor, Pasadena. Col. 6937.

Lands: We Own four thousand acres of land here in Southern California and want to sell all or part of it. I shall slaughter prices to close out our holdings. See me at 519 Security Bldg., Los Angeles. Bdwy. 4428. F. E. Palmer.

For Sale—Ten Acres set to Navels and lemons four years old. Will sell cheap to practical citrus man who will contract to care for additional twenty acres of lemons. Place will pay for itself in few years—good district—plenty water. Box G, Cultivator.

Wanted To Sell, trade or exchange 80 acres of alfalfa land in Imperial Valley, for a dairy having 60 to 80 cows, together with lease on place to keep them. Address Frank C. Dias, Holtville, California.

FARM LANDS FOR SALE

Will Sell on Contract to Right Party, 37 acres all checked, with improvements, near Oakdale on Stockton Highway $200 per acre. Must have $1000. J. W. Reid, owner, Oakdale, California.

POULTRY

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially Interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

Thoroughbred Barred Plymouth Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Limited number settings December and January $2.50 for 15 eggs, chicks March, April and May 30c each. Call mornings. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California. Phone 5599.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Silver Campines—The hens that lay the large white eggs and lots of them; we have as good a strain as can be had at $3.00 per setting of 15 eggs; also day old chicks from heavy laying strain of White Leghorns at $12.50 per 100. Oak Knoll Ranch, T. E. Blake, Prop., Santa Cruz, California.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain White Leghorns, carefully culled and Hoganized for heavy egg production, shipped on approval, $10 per 100, special price in lots of 500 or more. Sonoma Valley Hatchery & Poultry Yards, R. 2, Box 48, Sonoma, California. Write for booklet.

Baby Chicks—Ready in January. Order early and get the date you want. White and Brown Leghorns, Black Minorcas, R. I. Reds, Barred Rocks. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch and Hatchery, Palo Alto, California.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale, also first class breeding cockerels. Our prices are right. W. C. Smith, Prop., Corning, California.

R. I. Red Chix or hatching eggs from first class Hoganized utility stock, prices no higher than ordinary stock. Chix and eggs from prize winning Buff Orpingtons, quality rather than quantity our motto. Munier Poultry Yards and Hatchery, Cupertino, California.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. JANUARY Chicks, Eggs, cockerels. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

White Leghorn Chicks, $13.00 per hundred in February from stock bred for fifteen years for vigor and winter egg production. A. P. Ward & Son, Calistoga, California

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Hatching eggs from heaviest laying scientifically line bred (Hoganized) White Leghorns on the coast. Interesting circular free. Waldeck Ranch, Burbank, California.

For Sale—Two 400 egg Cyphers Incubators, latest model, used two seasons, $30 each. One 240 egg Cyphers, $20. All in good condition. J. H. Goodier, Paradise, California.

Spring Chix—Rocks, Reds, Orpingtons, Minorcas, Brown and White Leghorns. Satisfaction and safe delivery guaranteed. Tobener Hatchery, Washington Ave., San Jose.

For Sale: Leghorn Chicks from high quality heavy laying stock. Prices right. Madera Hatchery, Madera, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Schellville, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

We Have the Large heavy laying S. C. White Leghorns. Order now for early chicks. Tupman Poultry Farm, Ceres, California.

Heavy Laying S. C. Reds, Cockerels descended from winners at National shows. $10 C. O. D. W. M. Marquam, Bishop, California.

Choice White Wyandotte breeding cockerels $5.00, eggs $3.00 and $5.00 per 15. R. W. Stawetski, Route B, San Jose, California.

POULTRY

"Best Chicks I Ever Bought; Greatest Layers We Ever Had." Why? Bred 20 years to lay 200-290 eggs yearly. Brown, White, Buff Leghorns; Barred, White Rocks; Reds; Anconas; Minorcas; Orpingtons; ducks, turkeys; clearing customers $5. Valuable circular with proof free. Chicks; half booked to April, reasonable. 40,000 egg hatcheries full now. Many repeat orders, monthly, yearly. Breeders, pullets. James Beeson, Pasadena, California.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Setting Eggs from the Sunny Slope Poultry Ranch is sufficient to warrant quality of production. We will sell setting eggs only during 1919. If you want birds that will produce quality and quantity, place your orders with us. You will then ever be a satisfied customer. Sunny Slope Poultry Ranch, Longden Ave., Box 789, San Gabriel, California.

Standard Bred S. C. White Leghorns.—Won second cock, second breeding yard at California Liberty Fair, 1918. Our birds are bred for standard type and large egg production. Breeding yards, cockerels and pullets for sale. Our matings have been made and we are offering eggs at $3.00 to $6.00 per 15. No day old chicks sold. Tel. 53511. Allesandro Poultry Yards, 523 Rosemont Avenue, Los Angeles, California.

THE MISSION HATCHERY
Quality Chicks——Economy Prices
White, Brown, Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred and White Rocks.
Circular on request.
o o o o o o o o o o o o o o o o o o
BREEDING COCKERELS FOR SALE
The Mission Hatchery, Box 27, Campbell, California.

Baby Chicks, Anconas, Barred Rocks, R. I. Reds, Black Minorcas, White Minorcas, Buff, Brown, and White Leghorns (Macfarlane Strain) hatching each week. Write for circular. SPECIAL PRICES if ordered this month. Poultrymen's Co-operative Hatchery. D. E. Doke, Mgr., 732 So. Spring, Los Angeles.

Book Your Orders with the Stevenson Hatchery, 19 Center Street, Watsonville, California, for Day Old Chicks Black Minorca, Barred Plymouth Rocks, White Leghorn or Anconas from first class utility stock.

White Wyandottes: Large vigorous cockerels from heavy laying strain. Satisfaction guaranteed. My price is right. Eggs $3.00 per 15. J. W. Nicholson, Wasco, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, 8 Reservoir, Pomona Cal

Baby Chicks from our first class White Leghorn stock. Prices on application. J. L. Russell, Gardena, California.

CATTLE

Registered Guernsey Bull Calves—High class, registered Guernsey bull calves out of Advanced Register cows with five, six and seven hundred pounds of fat records and sired by "May Rose" bulls of the richest strain for sale at reasonable prices. These bulls will be priced right for quick sales, every dairyman should have a Guernsey bull to raise his butterfat test and give his milk the rich yellow Guernsey color. Write for prices or better call and inspect. If you buy a bull by correspondence and he is not satisfactory upon arrival you can send him back. Dairy Dept., Elliott-Brant Rancho, Owensmouth, California.

Guernseys—We will sell stock from our prize winning, high producing herd, at reasonable prices, valued according to individuality and breeding. Our supply is limited but if the buyer wants a number of animals and will write us we will furnish him with particulars. Revada Guernsey Farm, Yountville, Napa Co., California.

SHORTHORN CATTLE, SHROPSHIRE SHEEP, Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., California. W. P. Dwyer and W. S. Guilford, Owners

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Registered Shorthorns (beef) calves and yearlings for sale. Both sexes, reds and roans. Choice goods breeding. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Guernseys for sale. P. J. Weigel, Santa Fe Springs, California.

PIPE

"TESTED" and "GUARANTEED" Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.
PACIFIC PIPE CO.,
Main and Howard Sts., Est. 1906, San Francisco.

MACHINERY

USED RANCH MACHINERY
Guaranteed to do same work as new. WE SELL FOR LESS. CALL AND SEE.
WINDMILLS: 8-ft., $29.00 to $35.00; 10-ft., $39.00 to $45.00; 12-ft., $55.00 to $65.00; 16-ft., $135.00; 12-ft. Aermotor and steel tower $110.00.
REDWOOD TANKS
New and used GALV. TANKS, all sizes. 1000 gal., $39.00; 2000, $53.00. 1000 gallon, $19.50; 2000 gal., $26.50; 3000 gal., $33.00; 4000 gal., $39.00; 5000 gal., $48.00; 50,000 gal., $250.00; 100,000 gal., $350.00.
RANCH TOOLS: 10-ft. Hoosier Drill $95.00; mowers, $45.00; Fresno, $16.00; beet drills, $35.00. Fine 2-gang disc plow, $75.00; Avery tractor only used month $450.00, runs like new. Deere 14-in. riding plow, $35.00; brand new P. & O. tractor plow, $230.00; 3-gang disc, $85.00; 3-4-gang disc plows $120.00 to $150.00; spike harrows $10.00 to $18.00; cable 10c; 2-row Killifer bean cult. $25.00 to $45.00; weeder $8.75; 500 ft. 2-in. galv. pipe 27c; discs for plows.
PUMPS. Another double acting Ames 20 inch stroke, capacity 25 inches at 100 fugal, $95.00; No. 4 two-step, $150.00 feet, $175.00; Bulldozer pump jack, $49.00; large size, $98.00; No. 6 horiz. Gould centrifugal, $95.00; No. 4 two-step, $150.00; No. 7 vert. cent., $150.00; many others, also rods, pipe fittings. Also buy good serviceable material. DEMMITT CO. Upstairs, 120 No. Main. Yard 816 Yale, Los Angeles.

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale—30 H. P. Best Tractor. All track model and 6 disc Saunders engine plow, also Clark 8 foot double Cutaway disc harrow. H. J. Warr, Perris, California.

A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D. Co. California.

Samson One Cylinder Tractor, overhauled, doing field work. Want larger tractor, will sell Sammie at a bargain. E. Schrader, Arbuckle.

WANTED

Wanted — One good tight barrel cooper experienced in repairing second hand oil barrels and who is capable of handling assistant coopers. Also capable of keeping correct records of all work done in the shop. This is a steady job for the right man and is in a small country town. Write giving experience, age and whether married or single and if married how much of a family. Address M. C. H., Care California Cultivator, 112 Market Street, San Francisco, California.

Wanted position as foreman by man of long experience in the managing and developing of citrus groves and nurseries. I thoroughly understand irrigating, pruning and general care of groves also the installing and operating of gas or electric pumping plants and can handle successfully all classes of labor. Best references. Address 556 Alexander St., San Fernando, California. Phone Green 82.

Wanted—Thoroughly capable and experienced citrus grove man. Must understand irrigation and pruning. Man with wife who would be willing to board one or more men as required. Good house supplied. Address giving references and stating salary required, Box 97, Ducor, Tulare County, California.

Wanted — Live wire representative in each fruit growing section on Pacific Coast. Splendid opening for men, with acquaintance among orchardists who wish to convert their spare time into money. Write immediately H. S. C., Box 105, Oakland, California.

Have Two More Salary positions to offer first to returned soldiers, sons of farmers preferred. Agreeable work. References exchanged. Have employed two at $112 per month. State business experience. Address No. B-14, Care Cultivator.

Wanted — **Superintendent** or foreman, thoroughly up in orange and lemon culture, for permanent position. Give experience, references and general information. Box 97, Lemon Cove, Tulare County, California.

Wanted—Position as Ranch Manager U. S. or Mexico; experienced executive in general farming, cattle, hogs, irrigation and development work; speak Spanish. References. Address R. G. P., care of California Cultivator.

Wanted Second Hand Small power hay baiter without the power, must be in good condition. Route 1, Box 8, Cloverdale, California.

WANTED: 500 EUREKA LEMON TREES WITH TWO YEAR BUD. MUST BE A PICK-UP. REPLY BOX 25, CALIFORNIA CULTIVATOR.

Want to Hear From Owner of Farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minnesota.

Wanted: Subsoiler for 75 Holt. Must be strong. Will F. Phillips, Terra Bella, California.

TURKEYS

Giant Bronze Turkeys — Gold Nugget strain. Prove their superiority by winning Gold Special Sweepstakes for best turkeys at the following great shows: Arizona State Fair, 1916; Texas State Fair, 1917; California State Fair, 1917-1918; Los Angeles Show, 1917-1918; Pacific Coast Land and Industrial Exposition, Oakland, 1918. An unequaled record. Large turkeys can be raised at practically the same cost as small ones. Toms for sale that will increase size and improve any flock. I am the originator of the Gold Nugget Strain. J. Will Blackman, 607 East Third St., Los Angeles, California.

Bronze Turkeys—Mammoth Bronze Toms and hens for sale. Place orders now before prices advance. Also Collie dogs for herding. John G. Mee, St. Helena

For Sale: Bourbon Red Turkeys.—Eggs for hatching $5.00 per setting of 13 eggs. Book your orders early. Albert E. Balmer, Martinez, California.

Giant Bronze Turkey Eggs, 35c each Hoganized White Leghorn roosters $3.50 each. Mrs. G. E. Rasdall, No. 27 Shawmut, California.

Mammoth Bronze Toms and hens for sale. Large and well marked, satisfaction or money back. Albert M. Hart, Clements, California.

TURKEYS

Orders Booked Now for Bronze, also Mammoth Bronze turkey eggs in season, cash with orders. For sale Mammoth Bronze young tom turkeys. Robinson Turkey Ranch, San Dimas, California. Covina Phone 902.

For Sale: Mammoth Bronze baby turkeys with hints as to rearing. Palo Pino Turkey Ranch, Box 503, Monterey, California.

For Sale—Golden Bronze Turkeys.—Big boned breeding Toms of America's best strain. Eggs in season. M. M. Reiman, Planada, California.

PATENTS

Patents — Copyrights, trade marks and labels registered. Solicitor of American and foreign. James R. Townsend, 712 San Fernando Bldg., Los Angeles. Phones: Home A4619; Sunset Main 347

STRAY THOUGHTS OF A COWMAN

Written for California Cultivator By A. L. Spellmeyer

There is nothing like a business hitting rock bottom. Nothing worse can come, and anything will be better.

Nature must smile with grass and water; banks must loan money; beef comes from a cow; the boys will soon be home on the job, and even congress seems interested in the meat question.

Whether the packers run an eleemosynary institution for the welfare of cattle producers and the consuming public, as their advertisements indicate, or whether they are wolfing it in the skin of the calf, and the lamb, is not material to the fact that cows and yearlings will advance in price.

The law of supply and demand is working for higher stock cattle prices just as it worked against them, when trainload after trainload of cattle from the drouth stricken districts glutted Eastern markets. Those $60 up cows sacrificed as canners, to net $24 to $38, have a little voice saying stock cattle will advance.

The estimable bankers who during the drouthy spell close herded the dollars will soon have to let them out to graze. The cow man has even the prospect of a nod and smile from his ex-banker within the next year.

From Texas to Montana, and from Kansas to California, cattle will be in demand during 1919. California already is finding out that cattle are not as plentiful as was supposed sixty days ago. California has the advantage of a winter grass growing season and this gives six months advantage over some twenty other states that will soon be clamoring for cattle. California is at present asking for steers but will soon be talking cows, calves, or anything in live stock that can eat grass and get fat.

A lot of men say the hundred dollar range cow is coming. We hope so as producers, but that's too much money for a cow.

Not long ago when shipping to the Kansas City market, a nice bunch of grade whiteface heifers was alongside a pen of half-Navajo ewes. The heifers netted $28 at Kansas City; the measly, undersized ewes sold at $16 each, without shipping. The heifers weighed 500 pounds each, the ewes about 60. The ewe could have a $9 lamb the next year; the heifer would not bring returns until three years, and then a yearling, worth from $30 up, and which would under present conditions cost $30 and up, to raise.

There is going to be a shortage in breeding stock and yearlings. Aged steers are high and scarce now. It takes years to increase cattle production, and conditions can get no worse for the producer, so they must improve.

When our government gets the right hold on this squirmy meat question, we are going to see cattle production assisted and stabilized, but we are going to see within a year, no matter what conditions are, higher prices for cattle.

A TURNING WORM

"See that measuring worm crawling up my skirt!" cried Mrs. Bjenks. "That's a sign I'm going to have a new dress."

"Well, let him make it for you," growled Mr. Bjenks. "And while he's about it, have him send a hookworm to do you up the back. I'm tired of the job."—Liverpool Mercury.

ECONOMY IN LUBRICATION

One half of the troubles experienced with farm machines could be obviated if proper regard were paid to lubrication. This means, says F. A. Meckel of the University of Missouri college of agriculture, that not only enough lubricants must be used, but that they must be of the right kind. There can be no economy in using low grade oil and grease, nor in applying lubricants in less quantity than the machine requires.

Any machine which the farmer may own is entitled to the very best of treatment. Without that its efficiency is reduced, and this reduced efficiency is just the same in effect as needless expense in any other direction. The more complicated and valuable the items of the farm equipment are, the better the care to which they are entitled. Tractors, gasoline engines, binders, and the like, should receive only the best of everything, including lubrication, both in quantity and in quality. Farmers who own automobiles are beginning to learn the economy of an adequate use of lubricants, but they should not confine the application of this acquired knowledge to their automobiles. Give each machine on the place a chance to do its best. It can't have this unless it is lubricated properly. A bath of the very best oil on a bearing once a day is not the same as the same amount of oil distributed in equal parts to that bearing at intervals of 30 minutes. This implies the judicious use of the best oils that money can buy. To do anything else is false economy.

DEPARTMENT TO SELL NITRATE

The secretary of agriculture has announced that, under the authority of the food control act and subsequent legislation, the department of agriculture during the coming season will offer nitrate of soda for sale to farmers for fertilizer use. The nitrate will be sold for cash at cost. The price to the farmers will be $81 a short ton, free on board cars at the loading point or port. In addition the farmer will have to pay the freight charges to unloading point and any incidental expenses that he may himself incur in connection with the delivery of the nitrate.

Presumably this is of no interest to Pacific Coast producers, for as last year local freight rate will be necessary from some Atlantic port.

Book Review

PEACH GROWING

"Peach Growing" by H. P. Gould of the United States department of agriculture, published by Macmillan Company, 66 Fifth Avenue, New York, price $2.00. Although the development of peach growing in the United States has been coincident with the development of the country, peach literature is notably limited except as it appears in experiment station bulletins and reports. Of these there are many. The motive of this book is to present in a fairly comprehensive way the principles and practice of successful peach production. As to varieties, it makes recommendations, in lists taking up several pages, for sections covering the United States. For instance Ontario, Southern California, elevation 1000 feet, plant Elberta, Tuskena, Muir, Lovell, Phillips; these varieties mostly for canning. Other sections selected from California are Hanford, Vacaville, Yuba City, Newcastle and East Auburn. There are 426 pages filled with text and illustrations which makes a most complete account of peach growing in the United States. There are 18 chapters touching upon the status and extent of the peach industry; location and site; propagation; details of planting; management; tillage; inter-planted crops; fertilizers; pruning; insect and disease control; thinning; irrigating; a consideration of adverse temperatures; annual cost factors; varieties, botany and classification; picking and packing; transportation, storage, marketing.

CORROBORATED

"Madam," remarked the weary wayfarer with the bandaged eye, "I was not always as you see me now."

"I know it," replied the stern-visaged woman at the back door. "The last time you were here you had on a deaf-and-dumb sign."—Puck.



HALF

Calumet Baking Powder costs half what you pay for "Trust Brands." That is a big saving. And you make even a *bigger* saving when you use it—as you *use* half the amount generally called for by other Baking Powders—only a *level* teaspoonful to a cup of flour.

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Calumet is a perfectly manufactured baking powder—sold at a moderate price. It costs less than high priced trust brands. It is more economical to use than the cheap big-can kind. Try it.

And save a *lot* both ways.

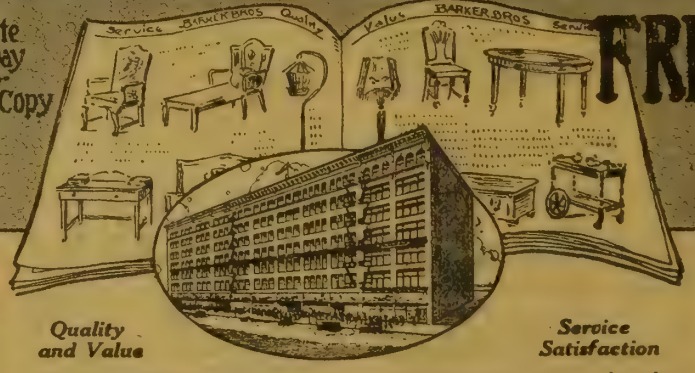
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Household Department

THE TOAST

Fill, fill your glasses, gentlemen,
And let the toast go round
To woman, darling woman,
Wherever she is found.
Without her, even the fairest spot
On earth is dark and drear;
But with her, stormy winter seems
The summer of the year.

When Eve went out of Paradise,
Had Adam stayed behind,
To him no longer seat of bliss
If he were of my kind;
With her for his companion,
The wilderness was bright,
And every dim and desert spot
Endued with Eden-light.

Worlds have been lost, so poets sing,
By woman's artful wiles;
But who would wish to own a world
Without her sunny smiles?
Better to have the smallest house
Where ladies are about,
Than all the palaces of kings
And emperors without.

Then drink with fervent hearts and souls,
The toast that I propose;
To Woman! woman everywhere,
Creation's sweetest rose;
But chiefly those whom we love best,
Yes, dearer than our lives—
Our mothers, sisters, daughters, friends,
Our sweethearts and our wives!
—Unknown in Tid-Bits.

WHEN ROOSEVELT FACED WAR WITH GERMANY

THE crisis arose over Venezuela, which had come so near to precipitating war between the United States and England in 1895. Venezuela was now under the dictatorship of a shrewd and unscrupulous adventurer named Castro, who, secure as he believed, in the protection of the United States under the Monroe Doctrine, was cheerfully defying half of Europe. Venezuelan citizens owed large sums of money to Germany, England and Italy. Collection of these debts proved difficult. Castro intimated that Europe might come and get the money if it wanted it. Says Herman Hagedorn in October Boys' Life.

Germany, always on the alert for an opportunity to gain a foothold in South America, now approached the government of England and Italy with a view of effecting joint intervention to protect the interests of their citizens in Venezuela. Both nations agreed to cooperate, and all sent gunboats to blockade the Venezuelan coast. Castro protested vociferously to the United States. John Hay, secretary of state, answered that the Monroe Doctrine did not mean that the United States would preserve any South American nation from the consequences of its own financial indiscretions.

The so-called "pacific blockade" continued for a year. Numerous neutral vessels were sunk. Hay lodged an emphatic protest and urged arbitration. The allied nations refused, and on December 8, 1902, England and Germany broke off diplomatic relations with Venezuela, intimating that the next move would be the bombardment of Venezuela towns and the occupation of Venezuelan territory.

At this point President Roosevelt took charge of the negotiations. He saw that in the invasion of a weak debtor state by a naval or military expedition lay a threat against the Monroe Doctrine. He advised the nations to come to an understanding. England and Italy expressed their willingness to do so, but Germany refused, declaring that any occupation of territory would be only "temporary."

Roosevelt, having notions of his own about the probability of Germany's relinquishment of any territory on which she had once planted her flag, summoned to the White House Dr. von Holleben, the German ambassador. An American squadron, under Admiral Dewey, was off the coast of Cuba, he told him. Unless Germany consented to arbitrate her Venezuelan claims, he would order Dewey at noon ten days later, to proceed to the Venezuelan coast and prevent, by force of arms, if necessary, the landing of a German expedition.

A week later Von Holleben called again on the president. He talked on various matters. The one matter, however, that he did not touch on at all was Venezuela. But when he rose to go, Roosevelt asked him bluntly what answer he had received from his government.

Von Holleben was light-hearted about the matter. "You did not expect me to take your statement seriously?" he remarked. His government, he said, had not communicated with him.

The president snapped his teeth together. "Very good," he said. "I shall instruct Admiral Dewey to sail not in three days, but in two."

The ambassador was thunderstruck. His whole manner changed. He knew at last that he had made the most fatal mistake a diplomat can make—he had miscalculated the intention of his opponent. He protested that the kaiser could not give in.

"Do you realize," he cried in extreme agitation, "that this means war?"

"It means war," answered Roosevelt, "if Germany tries to land troops in Venezuela. But not a stroke of a pen has been put on paper. If the emperor will agree to arbitrate, I will heartily praise him for it and treat it as a token of German initiative. But I must have an offer to arbitrate in 48 hours or Dewey sails."

Within 36 hours the ambassador returned to the White House wreathed in smiles. A dispatch had just come from Berlin, he said, saying that the kaiser would arbitrate.

Roosevelt did as he promised and commended the kaiser publicly for being so staunch a friend of arbitration. Von Holleben was almost immediately recalled by his government. The affair evidently rankled in the emperor's mind. But his attentions to America and Americans increased in fervor. From the Venezuelan affair dated his almost romantic devotion to Theodore Roosevelt. The president had spoken in the only way William the Second understood; and in his curious, mediaeval heart the emperor loved Roosevelt for the very qualities which had revealed him as his master.

ROOSEVELT'S LAST PLEA WAS FOR AMERICANISM

What was the last public statement by Colonel Roosevelt was read at an "all American concert" in New York, under the auspices of the American Defense Society, of which he was honorary president.

It read in part:

"I cannot be with you and so all I can do is to wish you Godspeed. There must be no sagging back in the fight for Americanism, merely because the war is over.

"There are plenty of persons who have already made the assertion that they believe the American people have a short memory and that they intend to revive all the foreign associations which most directly interfere with the complete Americanization of our people. Our principle in this matter should be absolutely simple.

"In the first place, we should insist that if the immigrant who comes here does in good faith become an American and assimilate himself to us, he shall be treated on an exact equality with every one else, for it is an outrage to discriminate against any such man because of creed or birthplace or origin.

"But this is predicated upon the man's becoming in very fact an American and nothing but an American.

"If he tries to keep segregated with men of his own origin and separated from the rest of America, then he isn't doing his part as an American. There can be no divided allegiance at all.

"We have room for but one flag, the American flag, and this excludes the red flag which symbolizes all wars against liberty and civilization just as much as it excludes any foreign flag of a nation to which we are hostile.

"We have room for but one language here, and that is the English language, for we intend to see that the crucible turns our people out as Americans and of American nationality and not as dwellers in a polyglot boarding house; and we have room for one soul loyalty, and that is loyalty to the American people."

LIKE THE LETTER "P"

Gibbs: "Bilson expressed a good deal of sympathy for poor Blank. Did you try him for a contribution?"

Dibbs: "No, I know Bilson; he's like the letter 'P'—first in pity and last in help."—Boston Transcript.

A USE-EVERYTHING IDEA

Written for California Cultivator By "Subscriber, Santa Ana"

Here is a "use-everything idea." Whenever I want anything new I simply get out the flour and sugar sacks and make it. A sugar sack bleached and cut in four pieces, each piece fringed and whipped around the edge to hold it makes everyday napkins. Sugar sacks hemstiched on one edge make very nice serviceable curtains for kitchen and bedroom windows. All of my every day pillow slips are made of sugar sacks. My children's summer underwear is made of sacks. Hundred pound flour sacks make good sheets, when bleached, and do very well when sheets cost as much as they now do. Five sacks make a large sheet. I took a 25-pound flour sack and hemstitched it and put a little fancy work on it and behold I had a nice centerpiece for my dinning table and I didn't have to be careful of it either. Four 50-pound flour sacks make a nice tablecloth for everyday wear and look real enough when nice and white. Corn meal sacks make nice handkerchiefs whem hemmed and surely wash and look better than those horrid red and blue ones that lots of men use.

Flour sacks make good linings for bed quilts and crib quilts made of sacks and quilted on the machine will stand any amount of washing. Put a strip of sacking on the ends of your quilts, folded over and tacked down. This can be easily removed and washed and put back and your quilt is still clean.

If anyone can do any more with sacks I should like to have the idea. I buy sacks at bakeries and grocery stores.

(If "Subscriber, Santa Ana," will send name and address to this office her subscription will be extended one year.—Edit.)

HOUSEHOLD QUERIES

Cooking Dried Potatoes

Will you kindly tell me how to prepare potatoes that have been dried? I have tried several ways and each time the potatoes have remained tough and leathery. Following the instructions in a spring number of the California Cultivator, we dried our crop of potatoes. They dried nicely and have kept well; however, I have found no way to prepare them satisfactorily for table use.—Subscriber, Burbank.

Where the potatoes are dried without cooking they should be soaked for six or eight hours or over night, using eight pints of water to one pound of potatoes. They should then be cooked in the usual way. Where cooked before drying they are not supposed to need any preliminary soaking, but we think it would be worth trying. Have any of our readers found a successful way of cooking the dried potatoes? Dried string beans we have found delicious when soaked over night and cooked in a fireless cooker all day. A long slow heat seems to bring out the rich flavor and leave them very tender.

WASHING THE DISHES

Very few women like to wash dishes, but having convenient appointments and plenty of clean dry towels ready makes it less distasteful. The mechanical dish washer is a help in boarding houses or on large farms where there are several hired men to cook for. These washers are permanently attached to the sink and waste pipe, and they may eventually be improved so much that they are practical for the small family, but at present the large majority of housekeepers are using the old methods for this work.

An oblong pan fitting the shape of the sink is the best dishpan. Instead of a cloth use a cotton string mop. There is no reason why a housekeeper's hands should be red and rough if she will give them a little thought and care. Shake a little gold dust washing powder in the dishpan, and pour the hot water over it. The powder dissolves very quickly in hot water, and you are ready to begin. After the dishes are washed through the suds, adding boiling water from time to time to keep it hot, rinse glasses in warm water, and china in hot water, wipe them dry, and they will be clean and shining.

One of the first lessons taught young housekeepers is that their dish cloths should be immaculate. They should be rinsed and dried every time they are used, and either put in with the clothes when the regular washing is done, or washed and boiled in suds once a week, then rinsed in clear water and dried.—E. J. C.

ARE WE MODERN ENOUGH?

So many people laugh "modernism" to scorn, and will snap their fingers at you if you try to teach them that there is often a new and better way to do thngs. There is a distinction, and a decided one, at that, between modern ways and faddy notions. A modern means of plowing your acres, harvesting your crops or churning your milk is one that calls for new devices in machinery and new forms of management.

The reason that the people of India today are so backward and ignorant is because they believe in ancestral worship, and live only in the past. What has caused them to partially awaken, and make an attempt at throwing off their old yoke? It is nothing more than modernism brought to India by the English people.

Are we willing to live in a backward age, simply because our grandmothers lived then, and didn't know all that we know now? Wouldn't they laugh at us if they could and suggest progressiveness? Yes, we all know that to be true. The people who are considered the most intelligent, and who are leaders in their home life, business life and in society, are the men and women who look ahead, keep apace with the times, and have as their motto, "Progress."

Don't be afraid to take hold of new things, and at least test them until they fail. When you know that a word which you have always pronounced one way has had its pronunciation changed, practice speaking the word until you are sure of yourself, then don't hesitate to use it.

Changes are things that we all hate to see come upon us, still we realize that they are inevitable, and we have but to adapt ourselves accordingly. This is an age of awakening interests, advancement and changes. What we did yesterday, tomorrow we may do in a new and better way.

If you do not want to cook a whole pumpkin at once, a piece of plain white paper pressed over the cut portions of that left will almost seal it air tight so that it will keep quite a while in a cool, dry place.



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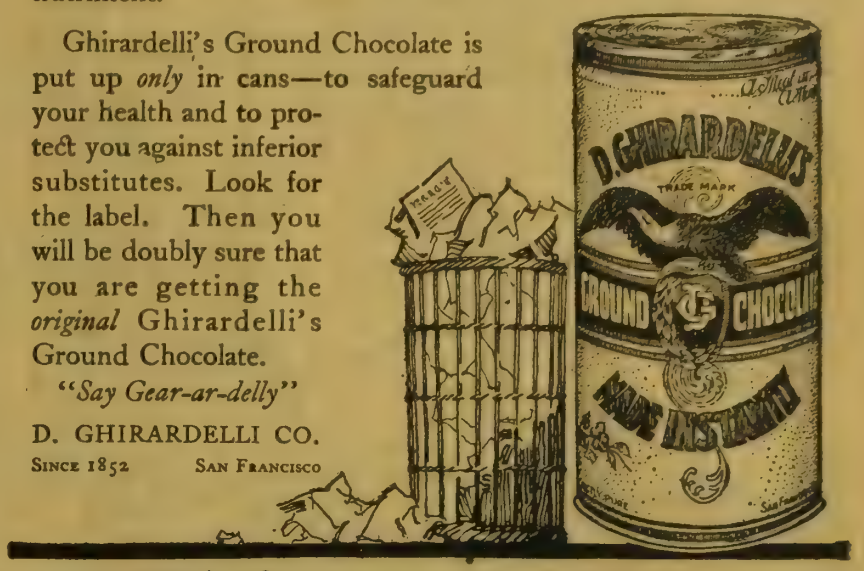
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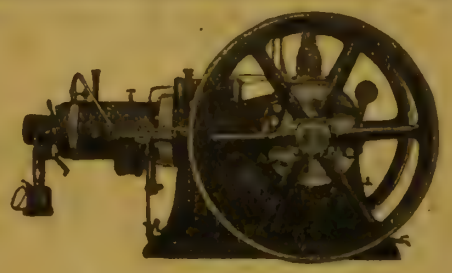
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Jan.	15	16	17	18	20	21
'19 ...	64	..	63	63	55	52

Rcts. wk. ending Jan. 21, 202,700 lbs.

CHEESE

Brokers' prices:
California fresh, lb.....31½

EGGS

Exchange quotations. Price to retailers 2 to 3 cents higher.

Fresh extras 57
Case Count 54
Pullets 52

Jan.	15	16	17	18	20	21
'19 ...	53	..	54	54	57	57

Rcts. wk. ending Jan. 21, 823 cases.

POULTRY

Hens; heavy, 32; light, 30; colored, 32; broilers, 40@43; fryers, 35; roasters, 30; old cocks, 20.

Ducks, 30; ducklings, 32; geese, 28; turkeys, 34@35; squabs, 40-43; Belgian hares, 20.

LIVESTOCK

The market for steers and cows is advancing steadily due to the fact that range cattle are about all marketed. The increased cost of feeding beef producing animals, hay and grains warrants an advance. Cows especially are in good demand but the supply of them is decreasing at an alarming rate.

Hogs are on the decline at the present time. Prices now paid by local packers figure a full dollar lower than a week ago. The oversupply of hogs in all packers' pens is responsible for the downward trend.

Lambs are in better demand especially those of good quality. An early advance in price is anticipated. Mutton is considered bad property. Ewes are plentiful but buyers do not need them as the demand for the dressed product is very poor.

Report of live stock conditions on the Los Angeles market as compiled by the United States Department of Agriculture, Bureau of Markets, through the local office. The following are live stock prices on the Los Angeles market f. o. b. packers' yards. Prices at country points are $1.00 to $1.50 per cwt. less than these quoted:

Good Steers .....13.50@14.25
Med. Steers .....12.00@13.00
Common .....11.00@12.00
Good Cows .....11.00@11.50
Medium Cows .....9.00@10.00
Common and canners .....6.50@7.50

Prices quoted below are for carload shipments f. o. b. slaughterers' pens. Driven-in, or truck hogs sell for ½ cent less.

Hogs—
No. 1 hogs, 150-225 lbs. .....16.00@16.50
No. 2 hogs, 250-350 lbs. .....15.50@16.00
Sheep—
Lambs, 65-80 lbs. .....15.50@16.00
Wethers .....11.50@12.00
Ewes .....8.50@10.50

POTATOES

Wholesale selling prices:

Six cars California, six Idaho arrived; 32 cars on track unbroken; nine cars diverted. Supplies heavy; demand and movement moderate, little change in prices. Stockton, Burbanks, quality and condition good, sacked per 100 pounds, special marks 2.60, fancy 2.35-2.40, choice 2.15. Idaho Russets, quality and condition fair, best 2.35-2.40; Oregon, seed stock, White Rose and Red Rose, sacked per 100 pounds, 2.75-3.00, Homegrown, White Rose, mostly 2.75-3.00.

Sweets, lug .....85@95

ONIONS

Wholesale selling price, cwt.

Demand and movement moderate, little change in prices. Stockton, sacked per 100 pounds, Brown, best 1.90-2.00; Yellow Danvers, poorer 1.25-1.50; Lompoc 2.50.

VEGETABLES

Wholesale prices:

Beans—String 15
Limas, lb. .....9@10
Cabbage, cr. .....1.25@1.50
Carrots, doz. 45
Cauliflower, cabbage, cr. .....1.25@2.25
Celery, cr.: Homegrowns, best 7.50@8.00; poorer, 5.00@6.00; Northern, best, 8.50@9.00.
Lettuce, cabbage cr. .....2.25@2.50
Parsley, doz. 20
Peas, Tel. lb. .....15@16
Peppers, Chili, lb., 18@20; Bell, lb. .15@16
Pumpkins, lb., best .....1@1½
Radishes .....15@20
Rhubarb, Strawberry, bx. .....2.00@2.25
Spinach, doz. 35
Squash—Hubbard, best, lb. .....1½@2
Turnips, doz. 30

FRUITS

Apples—Bellfleurs, bx. .....2.00@2.25
Yucaipa Delicious .....2.25@3.00
Pearmains .....1.85@2.00
Newtons .....2.00@2.25
Pears: Winter Nellis, lb. .....5@6

CITRUS

Lemons: Fancy packed, 4.50; local pack, 3.00@4.00; loose, some tree ripe, 2.00@2.50.

Oranges: Navels, medium and large size, fy., 4.50@5.00; local pack, 3.00@4.00; loose, 2.50@3.25; Tangerines, 1.50 lug.

Grapefruit: No carlot arrivals. Tulare County, Seedless, medium and large size, fy., 2.75@3.00. Arizona, Seedless, 3.00 packed bx. Imperial Valley, Seedless, 3.00@3.25; locals, 2.25@2.50.

HONEY

Little change in prices, very little honey left in producers hands, carloads f. o. b. usual terms. Extracted light Amber Alfalfa 20½-21 lb.; Light Amber Sage 23 lb.; Inyo County Comb: Fy. Light Amber $6.25 cs.; No. 1, $6.00 cs.; Beeswax, best 40 lb.

BEANS

Practically no demand. None being sold. Growers offering freely anxious to sell, warehouse cash to growers:

Limas 9.50@9.75; Small Whites 8.50@9.00; Large Whites 7.75@8.25; Pinks, 6.50@6.75; Henderson Bush 8.75@9.25; mostly 8.75@9.00; Blackeyes, best 4.75, others more or less rain damaged 4.00@4.50; Teparys practically no demand, none being sold, nominal 4.00.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....21.00@26.00
Barley .....19.00@24.00
Alfalfa .....17.00@21.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:

Choice dairy hay .....25.00@26.00
Choice alfalfa .....24.00@25.00
No. 1 dairy .....23.00@24.00
Standard dairy .....22.00@23.00
Standard alfalfa .....20.00@21.00

GRAIN

Prices on local grain exchange. For government prices see San Francisco market.

Wheat, mixed feed 43.00
Bran 41.00
Shorts 43.00
Middlings 53.00
Milo .....2.62½@2.80
Barley .....2.00@2.27½

San Francisco Markets

San Francisco, Jan. 21, 1919.

BUTTER

There was an upward trend in the butter market the past week and active trading was reported on all markets.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½c to 2½c; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extras 60

Jan.	14	15	16	17	18	20
'19 ...	66	63½	64½	63½	63½	60
'18 ...	53½	53½	54	54	53	..

Rcts. wk. ending Jan. 20, 264,800 lbs.

CHEESE

Dairy Exchange quotations:

Cal. Flats .....32@33
Ore. Triplets 40½
Jack, full cream 30

EGGS

Dairy Exchange quotations:

Extras 67½
Extra Pullets 55

Jan.	14	15	16	17	18	20
'19 ...	57	56½	56½	58½	58	57½
'18 ...	65½	66	68½	66½	65	..

Rcts. wk. ending Jan. 20, 9972 cases.

POULTRY

We quote to producers, lb.:

Hens, 36@38; broilers, 45@50; fryers, 40@45; old roosters, 21@25; young roosters, 37@39.

Ducks, 30-32; geese, 30@32.

Belgian hares, live, 20@22.

Jack Rabbits, doz. .....3.50@4.00

Squabs, doz., 3.00@4.00.

Turkeys, dr., 40@42; live, 35@37.

LIVESTOCK

Prices gross weight:

Cattle: The following prices are for grass fed stock. Hay fed brings ½ to ¾c more.

No. 1 steers, weighing 950 to 1100 lbs. alive, 12¾@13; 1200 to 1400 lbs., 13@13¼; second quality, 11½@12; thin steers, 9@10; No. 1, 9@9½; second quality, 8@8½; common to thin, 6@6½; calves, 10½@11½.

Sheep — Lb. gross weight: Wethers, 11½@12; ewes, 8½@9¼; lambs, 14; yearlings, 12½.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 16; 150 to 250 lbs., 16½; 250 to 300 lbs., 16; 300 to 400, 15½.

POTATOES

Wholesale selling prices at wharf, cwt.:

Deltas, 2.00@2.15; Red Shima, 2.35; Oregon Burbanks, 2.00@2.15; Gems, 2.00@2.25; British Queens, 1.75@1.90; sweet, per 100 lbs., 3.65@3.75; new potatoes, lb., 5@7.

ONIONS

Wholesale selling price on wharf, cwt.:
Australian, Brown and Yellow—1.75@2.50

VEGETABLES

Wholesale selling price:

Artichokes, doz. .....35@1.50
Beans, String, lb. .....20@25
Wax .....20@25
Limas .....15@17½
Beets .....1.50@1.75
Brussels Sprouts, lb. .....8@8½
Cabbage, lb .....
Carrots, sk. .....1.50@1.75
Cauliflower, doz. .....75@1.00
Celery, cr. .....5.50@7.50
Cucumbers, hothouse, bx. of 30 .2.50@3.00
L. A., lug .....2.50@3.00
Egg Plant, lb., Southern .....10@15
Lettuce, doz. .....20@40
Southern Iced, cr. .....2.50@3.00
Egg Plant, lb. .....5@10
Peppers, Chili, lb., 12½@15; Bell ..15@20
Peas .....12½@17½
Pumpkins, sk. .....1.00@1.25
Rhubarb, bx. .....2.50@3.00
Squash—Cream .....75@1.00
Hubbard, sk. .....1.50@2.00
Marrowfat .....1.00@1.25
Summer, cr. .....75@1.00
Spinach, lb. .....5@5½
Tomatoes, cr., Southern .....2.00@3.00
Seconds .....75@1.00
Turnips, sk. .....1.25@1.50

FRESH FRUITS

Apples—Newton Pippins .....1.25@2.00
Pearmain .....1.25@1.65
Bellefleur .....1.50@1.75
Bananas .....7@9
Olives, lb. .....10@12½
Pears—Beurre Hardy 1.50
Kieffer, ½ bx. .....1.50@1.75
Winter Nellis .....2.25@2.75
Bartlett .....2.50@3.00
Persimmons, bx. .....1.00@1.25

CITRUS

Box: Lemons, 2.50@4.75; lemonettes, 2.00@3.00; grapefruit, 2.50@3.50; limes, 2.00@3.00; Mandarins, 1.75@2.50 cr.; tangerines, bx., 1.75@2.50; Navel, 3.75.

BEANS

Per cental:

Demand and movement very slow. Carloads f. o. b. common California shipping points choice recleaned sacked per 100 pounds, Large Whites 7.75@8.25; Small Whites, 8.25@8.40; Limas, 10.25@10.50; Henderson Bush, 9.25@9.50; Blackeyes, 5.25@5.40; Red Kidneys, 10.25@10.50; Teparys, 3.90@4.50; Pinks, 6.50@6.75; Cranberries, 7.25@7.50; Garbanzas, 9.25@10.00; Red Mexicans, 6.75@7.50; Bayos, 7.30@7.75.

DRIED FRUITS AND RAISINS

Prunes—Bulk basis: 30-40s, 10; 40-50s, 9½; 70-80s, 8½; 80-90s, 8; 90-100s, 8; in 25-lb. bx., 20-30s, 18½; in 50-lb. bx., 100-120s; 5¾; 120s up, 5¾.

Peaches — Bulk basis: Standard yellows, 11¼; ch., 11¾; fy., 12½; extra fy., 13¼; slabs, 10¼; standard Muirs, 11¾; ch., 11⅞; extra fy., 14; slabs, 10¼.

Raisins—Muscats, pkg. seeded: Fy., 36 16s, 9⅝; fy., 54 12s, 7¾; ch., 36 10s, 9¼; ch. 45 12s, 7¾. Bulk seeded in 25-lb. bx.: Bakers, 8; loose in 25-lb. bx., recleaned and floated, 1-cr., 7⅛; 2-cr., 7½; 3-cr., 8; 4-cr., 8¾; layers, ordinary pack, 20-lb. bx., 3-cr., 1.85; 4-cr., 2.10; 6-cr., 2.95; 10-lb. bx., 3-cr., 1.05; 4-cr., 1.20; 6-cr., 1.65; 5-lb., bx., 3-cr., 65; 4-cr., 70; 6-cr., 90; vineyard run layer raisins, 50 lbs., 3.00; 100 lbs., 7.50.

Figs—Bulk basis: White Adriatic, extra fy., 17½ fy., 15¾; ch., 14; Calimyrna, extra fy., 25; fy., 23½; pkgs. ch. to fy., 12 10s, 1.75@1.80; 24 8s, 2.90@2.95; 50 6s, 3.40 @4.40; 70 4s, 4.40@4.50.

Pears—Bulk basis: Fy., 19½; extra ch., 17; ch., 15½; standard, 12@14.

Apples—Lb.: Extra ch., to the evaporator, 13½ jobbing price, 14½.

Apricots—Standards, 9½; ch., 13; extra ch., 14½; fy., 16; extra, 17½; Moorparks, 19; slabs, 11.

NUTS

Pecans, lb. .....25@27
Pine nuts .....22@25
Peanuts .....18@19

The Almond Growers' Association has established opening prices as follows per pound:

Nonp. 27½
I. X. L. 25½
Ne Plus 24½
Drake 20

Outside dealers have named prices above these quotations and it is understood association stock is practically closed out and prices withdrawn.

Walnuts: Net prices have been named by the California Walnut Growers' Association:

No. 1 Softshell 28
No. 2 Softshell 25
Jumbo 30
Fancy Budded 31½
Golden Gate Budded 29

Franquettes, Eurekas and other fancy varieties sold on sample. No. 1 Softshell guaranteed 88 per cent good; Fancy Budded, 90 per cent. In case of worms or damage by ants not more than five per cent.

RICE

1917 crop, nominal; 1918 crop, when harvested, per 100 lbs.: Paddy rice, $4.32; 3d and 4th grades, $4.10; clean, fy. Japan, 7½ per lb.; ch. Japan, 7¾; per lb.; fy. second heads, 6⅞ per lb.; screenings, 5⅝ per lb.; brewers, 5¼ per lb.; rice polish, 50.00 ton, car lots; rice bran, 30.00 ton, car lots; early prolific, 4.47. All other grades are to be sold on proportional basic value and proper differentials are to be added for the cost of double pockets.

HONEY

Demand and movement slow, no change in prices cash to producer at country loading points. Water White 22@23 lb.; Sage White 20@22; White Alfalfa, 20@20½; Amber 19@20; Dark Amber 16@17; beeswax, 36@37 lb. Nevada Comb: White 24 section cases 6.50; Dark Amber 4.00@4.25.

GRAIN

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Cental
No. 1	$2.20	$3.62 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	$2.18	$3.63 1-3
No. 2	2.15	3.58½
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	$2.16	$3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 ½

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Barley — Feed, 2.20@2.25 per cental for choice spot; shipping, 2.25@2.30 milling, nominal.

Oats — Red feed, 2.35@2.50 per cental; seed, do, 2.85@3.00, with recleaned at 3.15@3.20.

Corn — Egyptian, 2.75@3.00 per cental for choice white; Milo, 2.65@2.70. Cal. Yellow, 2.85@3.00; White, 2.65@2.85. Rye nominal.

HAY

We quote today wholesale prices, in carload lots as appear from dealers' transfers upon the hay market. For prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.

Fancy Wheat Hay
(light 5 wire bales) .....24.00@26.00
No. 1 Wheat or Wheat and Oat Hay .....22.00@24.00
No. 2 Wheat or Wheat and Oat Hay .....16.00@20.00
Choice Tame Oat Hay .....21.00@23.50
Other Tame Oat Hay .....16.00@19.00
Wild Oat Hay .....16.00@18.00
Barley Hay .....16.00@18.00
Alfalfa .....16.00@20.00
Stock Hay, in order .....14.00@17.00
No. 1 Barley straw, bale .....50@80

SEEDS

Flax .....8@8½
Millet .....5@5½
Rape .....2½@5

Citrus Fruit Market

Los Angeles, Cal., Jan. 22, 1919.

Orange market may be characterized as a bit easy. First class stock, however, is commanding good prices and ready sale. Large sizes are in demand in the auction markets.

The lemon market is in fair condition with few sales running above $4.00, the average being closer to $3.50.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 3485 cars, lemons 1405, total 4890. To same date last season; oranges 2772, lemons 650, total 3422. Central California this season; oranges 2902, lemons 271, total 3173. Last season to same date, oranges 1838, lemons 89, total 1927. Northern California; oranges 243. Last year same date, 202.

AT THE AUCTIONS

January 16

New York: 22 oranges, 5 lem. Firm on prices. Off on low grades. Nav. 3.30-5.75, lem. 2.35-4.35.

Boston: 6 oranges, 1 lem. Nav. 3.20-5.55, lem. 3.50-3.90.

Pittsburg: 3 oranges, 1 lem. Nav. 4.35-5.35, lem. 1.20-2.50.

Philadelphia: 1 oranges, 2 lem. Nav. 4.85, lem. 2.60-3.40.

January 20

New York: 19 oranges, 5 lem. Lemon market firmer. Nav. 3.00-5.65, Val. 3.50-4.65, lem. 3.05-4.25.

Pittsburg: 7 oranges, 1 lem. Nav. 3.25-4.60, Val. 4.40-4.95, lem. 2.85-4.25.

Cleveland: 6 oranges, 2 lem. Nav. 4.35-5.55, Arizona Nav. 4.35, lem. 2.00-4.00.

Boston: 10 cars. Nav. 3.00-4.90, lem. 2.55-3.30.

Philadelphia: 3 cars. Nav. 4.25-5.30, lem. 1.90-2.15.

St. Louis: 5 oranges, 1 lem. Nav. 3.00-4.85, seedlings, 2.35-3.65, lem. 2.80-3.90.

January 21

Boston: 7 oranges, 1 lem. Nav. 3.40-4.50, Val. 3.95, lem. 2.80-3.45.

Pittsburg: 2 cars. Nav. 4.35-4.65.

Philadelphia: 1 orange, 1 lem. Nav. 4.60-4.85, lem. 1.60-2.20.

PARTIAL LIST CALIFORNIA FRUIT AND VEGETABLE SHIPMENTS

From post card reports to the Los Angeles branch of the bureau of markets, report is made of the following shipment of cars of products from California for the week ending January 20: Apples, 32; cabbage, 56; carrots, 2; cauliflower, 59; celery, 178; dried apples, 5; dried apricots, 2; dried beans, 64; dried olives, 1; dried peaches, 27; dried peppers, 6; dried prunes, 12; grapes, 1; lettuce, 23; mixed fruit, 2; mixed vegetables, 72; mixed fruit and vegetables, 28; mixed dried fruit, 13; olives, 1; onions, 12; pears, 1; pomegranates, 1; potatoes, 152; raisins, 266; spinach, 15; sweet potatoes, 14.

MARKET NOTES

Los Angeles quoted on Monday arrivals of 12 cars potatoes, 4 celery, 1 lettuce, 1 oranges. Besides these there were local smaller shipments of garlic, cabbage and celery.

The latest United States department of agriculture bulletin of Wednesday notes California Limas ranged slightly lower in leading terminal markets at $11.00@12.25 per cwt. declining 25@50 at shipping points to $9.50@9.75 to growers, recleaned basis. Colorado Pintos were also slow and weak. Sacked Michigan pea beans were slightly lower at shipping points at $7.50@8.00 per cwt. to growers, hand picked basis, moving slowly at $9.35 @10.00 in terminal markets. Shipments were slightly heavier.

A look over the honey market indicates a range of prices from 20 to 26 cents for white and water white.

Kale, spinach and other truck crops were seriously injured in Virginia by the early January cold spell.

Florida's acreage of winter cabbage is only 40 per cent of that of last year.

Florida's shipments of garden peas begin about March 15. The crop is much smaller than former seasons.

Butter scoring 92 is now selling in Chicago around 61 cents.

California Iceberg lettuce is reported very firm at $3.25@3.75. Imperial Valley lettuce advanced 50 cents at Chicago, Pittsburg and other markets.

WEATHER CONDITIONS

San Francisco, Cal., Jan. 18, 1919.

Stations	Wk.	Rainfall Season.	Norm.	Temp. Max.	Min.
Eureka	4.48	17.54	21.22	62	42
Red Bluff	.55	15.96	12.72	54	36
Sacramento	.26	7.84	9.01	56	32
San Francisco	.29	11.38	10.52	60	41
San Jose	.12	10.22	7.64	66	32
Fresno	.00	3.93	4.54	66	34
San Luis Obispo	.00	7.56	8.64	72	36
Los Angeles	.00	4.06	6.63	74	44
San Diego	.00	4.20	4.40	68	46

SEED POTATOES

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One hundred sixty acres of five year old alfalfa, balance in grain.

Two good pumping plants furnishes plenty of water.

All buildings in excellent order. Will sell orchard separate or together with the alfalfa and grain land.

Easy terms. For further particulars write or see owner.

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For Sale

Very choice, Dixon Ridge, 16 A., modern bungalow, 6 R. and bath, hardwood floors, all conveniences, seldom found on country property. Joins town limits, two blocks to station. Fine barn, chicken run, garage, tool house. Fine well for irrigation, house supplied, city water and electric lights. Soil best sandy loam. Price $8,000. Half cash if desired. Address

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Willys-Overland Inc., Toledo, Ohio

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles. An Illustrated Weekly for the Rural Home and Ranch San Francisco

Vol. LII February 1, 1919 No. 5



Acres of Lettuce in Arizona

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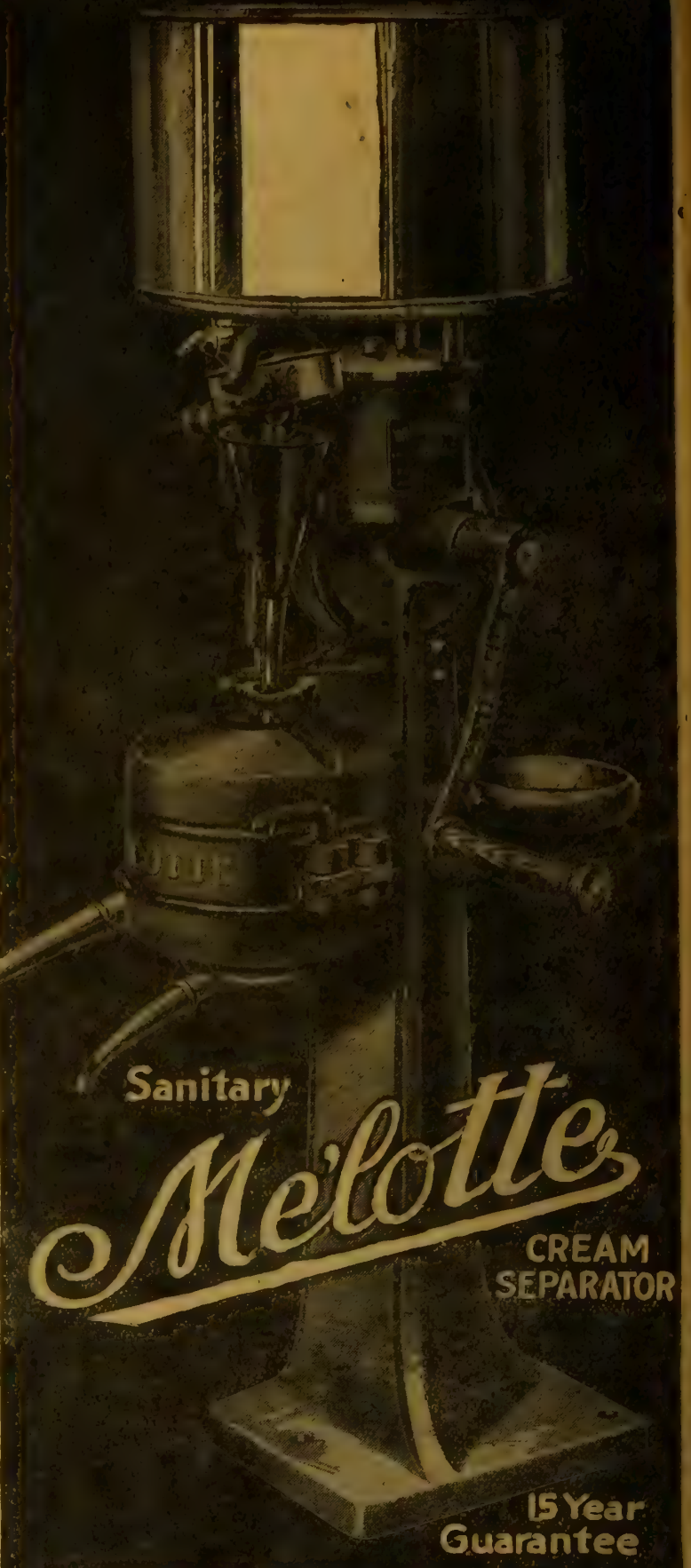
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California Cultivator

Vol. LII, No. 5 Los Angeles: February 1, 1919 One Dollar Yearly

Get That Squirrel!

By C. A. Nidever

GROUND squirrels cost the state of California about $30,000,000 each year in damage done to crops alone. Counting the cash outlay for poison that runs from $5.00 to $5000 to individual farmers who fight the squirrels, the cost would probably be increased by another half million.

The $30,000,000 crop damage is waste, pure and simple, for the ground squirrel can be exterminated. Much of the cost yearly to individual farmers is waste also, for the squirrel cannot be exterminated by individual effort, but only controlled on the individual place temporarily. As soon as the farmer lets up on his war against the squirrels on his place they immediately move in from adjoining ranches. Thirty million dollars is a considerable sum of money to throw away. Thirty million dollars worth of wheat, beans, corn, barley, potatoes and fruit go to feed useless ground squirrels each year while human beings are starving in Europe. And there is no excuse for the squirrel except indifferent land owners, principally land speculators, and indifferent county boards of supervisors, as the ground squirrel can be exterminated by organized systematic effort. A state law which became effective July 27, 1917, gave the county horticultural commissioner the power to enforce squirrel eradication.

Section 2322a, Chapter 508, Political Code, Statutes 1917, says, "It shall be the duty of the county horticultural commissioner in each county whenever he shall deem it necessary to cause an inspection to be made of any premises and if infested with animal pests, etc., he shall in writing notify owner or owners and require such persons to eradicate or control such pests to the satisfaction of the county horticultural commissioner, within a certain time to be specified in such notice. If such notice shall not have been heeded within the time specified in such notice it shall be the duty of the county horticultural commissioner to cause such nuisance to be abated at once, in a summary manner, by destroying said pests. The expense thereof shall be county charge, and the board of supervisors shall allow and pay the same out of the general fund of the county, any or all sum or sums so paid shall be and become a lien on the property and premises from which said nuisance has been removed or abated, such lien to take precedence over all other liens with the exception of taxes."

"The district attorney shall within 90 days after abatement of nuisance, commence suit to foreclose the lien, and, if necessary, sell the land to pay costs of squirrel eradication and of the suit."

The supervisors of some counties have refused to put aside money to pay field men to poison squirrels on property where owners refuse to do so, though the law plainly specifies that the money so set aside and expended is a lien upon the property where eradication work is done and all such money will be returned to the county treasury.

In one county where the damage done each year by the ground squirrels is estimated at $1,000,000 the supervisors have persistently refused to appropriate moneys to properly enforce the law. A million dollars is a lot of money for farmers to lose each year, but it seems that a bunch of land speculators' votes that could be gained by holding down expenses for them look bigger to these supervisors. However, the county horticultural commissioner, who has the work in charge, after pleading in vain, decided that he was being paid to get results instead of playing politics, so went over the supervisors' heads and appointed field men to inspect and poison with the understanding they were to sue the supervisors for their salary.

The state law gives the commissioner the right, and it is his duty, to enforce the law and the supervisors must pay the bill whether they like it or not.

State Commissioner of Horticulture G. H. Hecke, realizing the necessity of coordinating the efforts of 50 county horticultural commissioners, in January, 1918, organized the rodent control division of the state commission of horticulture. W. C. Jacobsen, assistant United States biological survey, who during the summer of 1917 did such excellent work in starting squirrel eradication in California, assisting the county horticultural commissioners over the state whenever possible, heads the rodent division as superintendent, and S. V. Christierson, formerly county horticultural commissioner of San Luis Obispo County, who started the first squirrel eradication campaign in the state under the law of 1917, was chosen as assistant superintendent. With the aid of three field assistants they are organizing the work and aiding the county horticultural commissioners in every county in the state.

The squirrel and the kaiser are in the same class—undesirable citizens—and they must go! It is up to every individual, especially the farmer, to help. Help organize locally for distribution of poison and carbon bisulphide, demand that the supervisors furnish inspectors and assist the county horticultural commissioner in his work. The best means of advocating squirrel eradication is through farm bureaus, chambers of commerce, county papers and various farm organizations. Squirrel eradication is of as much importance to the town people as to the farmer. One of the best means of reaching the business man is through the chamber of commerce. In counties where inefficient supervisors block the way, it is the duty of the farmers to insist on action.

During the past war farmers were urged to produce to their limit. Last year one patriotic rancher, induced by Mr. Hoover's call for more food, took a chance and planted about three acres of corn on some summer fallow land. Across the road from this farmer's little ranch lay about 400 acres held by a land speculator. This 400 acres was well stocked with squirrels. The little corn patch escaped great injury until ripe, then the land speculator's squirrels harvested Mr. Hoover's corn. If Mr. Hoover sends another call for more food there is one farmer who will say "Never Again." While Mr. Hoover's corn was being harvested, the county supervisors were deliberating over what to do with the squirrels. In that county the damage done was estimated to be over $1,000,000 annually.

Progressive Tulare County has distributed about $37,500 worth of poison barley and $2700 worth of carbon bisulphide. Over there they know that it does not pay to feed ground squirrels. Of the 58 counties of California, 10 have done absolutely nothing in the way of squirrel control, 14 have made poor progress, 19 counties have made fair progress, while 15 are classed as commercially free of squirrels. Tulare has mixed and distributed over 125 tons of poisoned barley and about 3000 gallons of carbon bisulphid. Tulare also has employed ten inspectors for the last year. Kern County has distributed about 80 tons of poisoned barley and employed four to eight inspectors for the past year.

San Joaquin County during last winter, the campaign not starting until December, distributed nine carloads of carbon bisulphid and has done a great deal of work towards forcing recalcitrant land owners to clean up.

Ground squirrels are being eradicated on state lands by state crews under supervision of the rodent control division of the state commission of horticulture. Dr. W. B. Bell, assistant biologist, United States bureau of biological survey, estimates that after his bureau had eradicated ground squirrels in the national forests of California, the carrying capacity of the range was increased by 20 per cent.

Commissioner C. C. Staunton of San Luis Obispo County has divided his county into districts. Each district will be cleaned up at a given time. Where individuals will not poison, the work is being done by men appointed by Staunton.

Methods Used in Squirrel Control

The two best agents for destruction of ground squirrels are poisoned barley and carbon bisulphide. Generally speaking, carbon bisulphide is used during the winter, while poisoned barley is used during the dry season. To get the best results in fighting the ground squirrel one should know something of their habits. It is thought possible that during late fall the old squirrels hole up and remain in a dormant state until spring, while the young squirrels remain active all winter. Some investigators have found that in holing up, the squirrel will dig from the bottom of his burrow to within 12 to 18 inches of the top of the ground, make his sleeping quarters and then plug up the hole with dirt. Nature tells him to do this to protect himself from being drowned by storm water filling his burrow during the winter.

The proper method to follow in using carbon bisulphide is to use a 1½ gallon bucket covered with a tight lid. In this 60 wasteballs should be immersed and soaked well in the carbon before using. Remove the saturated wasteball by hand or by means of a wire hook, inserting one saturated wasteball in each squirrel burrow. If the hole is not to be fired, cover up immediately with moist earth and tamp well to prevent an escape of the deadly gases. If firing or exploding is practiced a length of time varying from three to ten minutes should be allowed to elapse before a match or torch is applied. This will allow the liquid carbon bisulphide sufficient time to vaporize. Cold damp weather calls for longer periods to insure vaporization than warm sunshiny weather. In all cases the burrow should be tightly sealed following ignition. Every burrow must be treated. Extra large burrows may require more than one saturated wasteball. A little more gas is better than one live squirrel, as one squirrel left will open up a half dozen holes if given a little time, which means more work later on.

A very effective time to use carbon bisulphide is after the squirrel has come out of the dormant state and opened up the burrow, which may be as early as January or as late as the first part of March. From the first of March to the first of June the work of carbon bisulphide is 95 per cent perfect, all the squirrels being active and the ground being in condition to retain all of the gas in the holes.

Two men can work best with the carbon bisulphide or gas method, as it is usually called. One man carries the waste balls and gas, placing the soaked wasteball in the hole while the next man fires the gas and covers the hole. As the carbon is very inflammable great care should be taken if one man is doing the work alone. As the gas evaporates rapidly the main supply should be kept corked, taking out a small supply with which to work. After the grass becomes dry, carbon is dangerous to use on account of setting fire when exploding the gas. Also the ground becomes too dry and porous permitting much of the gas to escape without effect.

After the conditions are no longer suitable for the use of carbon bisulphide the work with poisoned barley should start and be continued through the summer and fall.

A large spoonful of the poisoned grain scattered a few feet from the hole is sufficient for one dose. The grain should be scattered on clean ground when possible and not directly in front of the hole where it is liable to be covered by dirt thrown out of the hole, but principally along the hard trails made by the squirrels, known as runways.

Best results can be obtained by putting out ample amounts of poison at a time and not going over the ground too frequently. Go over the ground once thoroughly then wait a week or two. After the second time go over the ground with a hoe or shovel and cover all the holes. In a week go over the ground and poison all holes that have been opened up. In this manner only the live holes are left to be poisoned and the territory is soon narrowed down.

Squirrels will raise on the average a litter of eight every year. For every squirrel that you leave on the ranch this year you will have eight to contend with next year. Count your squirrels and figure it out.

Continued on Page 155

Agricultural News Notes of the Pacific Coast

Northern California

El Dorado County is increasing her mileage of good roads.

The Western Berkshire Congress now meets at Davis, February 19-20.

The four months creamery practice course has started at the Davis farm.

An act has been introduced into the legislature to standardize fresh fruit containers.

The national rabbit show was held in San Francisco last week at the Civic Auditorium.

A tractor course will be given at the Gridley high school for three weeks beginning February 3.

At the recent meeting of the Orland farm bureau center H. M. Kingwell was elected president.

The state highway is completing connection of Oroville with the main state highway to the west.

The lands about Oroville, Butte County, are now being tested out as long staple cotton producers.

Residents of Big Valley filed a protest against Big Valley Irrigation District or what is generally called the Round Valley project.

There will be farm bureau meetings of Shasta County at Fall River, January 25; Burney-Hat Creek, 26; Millville, 28; Whitmore, 28.

The California International Live Stock Show which was to have been held February 8 at San Francisco has been postponed until next fall or winter.

Gridley, Butte County, shipped out during the month of December 139 carloads of foodstuffs. Forty-seven of these were rice and rice bran, and 34 barley.

At the recent meeting of Florin Fruit Growers the following directors were elected: G. B. Fell, J. W. Holmes, G. H. Nesche, J. Morris, J. E. Thomas.

Tomato growers of northern Sonoma County have united with the California Tomato Growers Association and a large acreage will be grown next season.

The state railroad commission has denied the petition of warehouse men for increase of weighing and handling charges in Sacramento, Oakland and San Francisco.

Nevada County has called off for an indefinite period all meetings of the farm bureau because of the influenza epidemic. Outdoor demonstrations will however, be held.

The Sacramento Cow Testing Association is planning a cow testing competition with many prizes offered. The association has members in Sacramento, Yolo, Solano, and San Joaquin Counties.

At a meeting of the Thermalito farm center it was decided to conduct a series of experiments during 1919 to determine if a way can be found to stop the heavy orange losses caused by the "June drop." The experiments will be carried on under the direction of Farm Adviser W. L. Sweet.

In the dispute between water users and the water company in Butte County the users refused to pay a rate which they claim was greater than that permitted under a contract made with the company. The railroad commission has, however, endorsed the rate made by the company and the users are compelled to pay.

Central California

The California Peach Growers is still handling a few dried peaches.

Turlock shipped out some 15 tons of turkeys during the holiday season.

Kings County farm bureau is making a campaign for a hundred new members.

Sugar beet growers of Stanislaus County report one half the crop of that county as already planted.

Dos Palos, Merced County, has a vision of 10,000 acres of long staple cotton planted during the coming season.

Turlock, Stanislaus County, shipped 210,000 pounds live poultry and 94,000 pounds dressed poultry during 1918.

Fresno County farm bureau recently sold seven cars of fat hogs at auction, ranging in price from $15.15 to $15.85.

Farmers of Tegner, Stanislaus County, are discussing whether to grow cantaloupes during the coming season.

A government terminal warehouse has been established at Stockton, San Joaquin County, for the benefit of wheat growers.

A recent sale of fat hogs at auction by the Kings County farm bureau showed a return to the producers of $16.35 per hundred.

The last of the sweet potatoes are being put on the market. One Turlock firm is sending three to four carloads a week to San Francisco.

Beet dumps to the value of over $50,000 have recently been constructed in Southern Santa Clara County. The beets will be delivered to Spreckels.

Wine grapes have brought record prices in Fresno County this year. Zinfandels brought a general price of $50 per ton. Alicante Bouchets commanded a premium throughout the season, sales being reported at $65 to $80.

The Tulare fruit grower who sold his oranges in 1916 but acceptance by the buyer was refused because he claimed they did not come up to the standard and the fruit afterwards was frozen, has been given a verdict of nearly $1000.

February farm bureau meetings of Stanislaus County: Hughson, 3; Modesto, 5; Jennings, 5; Mt. View, 7; Denair, 10; Mitchell, 11; Valley Home, 12; Tegner, 14; Orange Blossom, 15; Wood Colony, 17; Hickman, 19; Fairview, 21; Claus, 26; Ceres, 27; Patterson, 28.

At a recent meeting of Tulare orange growers with Deputy Horticultural Commissioner Weldon a resolution was adopted favoring the enactment of a law which would require 40 per cent of natural color on the orange that reaches the test of eight parts of soluble solids to one of citric acid. This would do away with sweating of green colored fruit which tests up to the chemical standard.

An olive grower of Oakdale, Stanislaus County, is shipping fresh green olives to New York by express to be pickled there. Some New York buyers claim that olives hold their flavor better if shipped green, and as this deal is by way of trying out the theory the experiment will be watched with interest by a good many growers and buyers. Mr. Bayer received $1200 for the olives on his three acre grove.

Southern California

All packing houses are now running full handed on oranges.

In spite of frost, oranges to the value of $40,000,000 will go East this season.

Riverside County Tepary bean growers are endeavoring to secure market in Europe.

Moonlight hunters of wild ducks are finding themselves in bad in Santa Barbara County.

Frost injury to orange groves of Southern California is now estimated to be from 10 to 12 per cent.

The first carload of marmalade shipped by the Redlands Fruit Products Company went to New York.

Brawley, Imperial County, claims to supply Los Angeles with some of its best baby beef and fresh pork.

The California Lima Bean Growers' Association has decided to sit tight and hold beans until a better outlook.

Walnut growers of Southern California recently met at El Monte and discussed pruning and codling moth control.

Ventura County bean growers are thinking seriously of "starting something" to move their warehouse beans onto the market.

Corona, Riverside County, growers who now have large supply of beans on hand are contemplating planting peanuts another year.

The farm bureau of Orange County has been giving special attention to poultry work. E. J. Hauser has been working with Farm Advisor Wahlberg.

The Orange County Farmers' Mutual Fire Insurance Company has over $6,000,000 in insurance written. Losses during 1918 amounted to a little over $4000.

Imperial County farm bureau is considering making request that cotton gins of Imperial Valley be placed under the public service law. This in the interest of the small grower.

Imperial County's largest shipment of live stock has been made to Eastern markets, a recent shipment being worth $150,000. There were 65 cars in the train made up of 35 beeves, 20 hogs, 10 sheep.

The Riverside County farm bureau recently conducted a meat cutting demonstration for the benefit of both the producers and consumers, the consumer being given special instruction in choosing of chops, loins, steaks, etc.

The board of supervisors of San Bernardino County is protesting at any effort to dump German produced potash in this country at low prices. San Bernardino County is contemplating the development of a great potash industry.

The Beekeepers' Association of Riverside and San Bernardino Counties has reelected its old officers. They are: president, H. T. Wagner, Redlands; vice president, J. A. Mack, Bloomington; treasurer, R. Powell, Riverside; secretary, E. W. Horne, Riverside.

The Riverside Press estimates the output for the present season of oranges from Southern California, 31,000 cars; Central California, 3200; Northern California, 250 cars. Of lemons there will be 7000 cars from Southern California and about 300 from Central California.

The Coast and General

The cantaloupe acreage in the Salt River Valley will be about 4000 for 1919.

One million dollars worth of sugar has been manufactured at the Yakima, Washington, factory.

The 14th convention of the Rivers and Harbors Congress will be held in Washington, February 5 and 6.

Klamath Falls, Oregon, claims an alfalfa and barley production aggregating nearly one million dollars.

Phoenix, Arizona, is improving her parks with a view of providing a public playground for the children of the city.

Hop growers of the Yakima Valley, Washington, are so sure there will be no further market that almost every hop yard in the valley is being plowed up.

Long staple cotton which for a number of weeks has held steady at 56 cents a pound advanced recently to 59 cents and some extra choice sold for 62 cents.

A new court house for Maricopa County, Arizona, is contemplated and it is likely that an election for bonding the county to build one may be held later in the year.

Among the moving picture scenes of American farm life to be shown in France to the American army will be scenes from the Salt River Valley and the Roosevelt dam.

Seven acres of cotton burned recently south of Mesa, caused by the carelessness of a Mexican who threw a lighted cigarette in some dead grass on the edge of the field.

Copper production in Arizona for 1918 totaled 777,000,000 pounds, the largest amount ever produced and leading all other states. The value was placed at $192,000,000.

A Hindu farmer from the Imperial Valley has purchased some land south of Chandler, Arizona, and announces that he will induce more of his countrymen to settle in the Salt River Valley.

Farmers in the Gila Valley near Florence, Arizona, are quite hopeful of getting together on a plan that will enable the reclamation service to take over their irrigation system and build a diversion dam.

About 450 birds were cooped at the midwinter show of the Maricopa County Poultry Association, held in Phoenix, Arizona, the first four days of the year. This was the most successful show yet held by the association.

The northern Arizona fair association has been reorganized in order that a fair may be held this fall at Prescott. Fairs have been held each season for a number of years until last fall when it was abandoned owing to influenza conditions.

An aerial stage line from Phoenix to Globe will, it is expected, be in operation within 60 days. A big Handley-Page plane capable of carrying 60 passengers has been ordered. Governor Campbell has accepted the invitation to make the first trip.

Governor Bamberger of Utah has announced that an effort will be made to annex the Arizona "strip," or that portion of the state north of the Grand Canyon, to Utah. It is reported that Governor Campbell of Arizona is disposed to consider a plan for annexation.

Lettuce in the Salt River Valley

By M. E. Bemis

AS a commercial crop lettuce in the Salt River Valley of Arizona is comparatively new. It was only a few years ago that one enthusiastic truck gardener, J. S. Heard of Phoenix, produced a carload of lettuce which was shipped back East and brought returns that at once showed the possibilities of this crop. The following year there were many enthusiastic growers that put in a considerable crop. Unfortunately their experience was far less in evidence than their enthusiasm, and in consequence there were some failures as well as many successes. Since then, and for the past two or three years, lettuce has been recognized as one of the principal crops which may be raised in this valley. For the past two seasons the shipments have been close to 100 carloads each season. The acreage at the present season, especially in the Glendale district, has been increased considerably and it is probable that the shipments this year will be larger than in previous years.

Lettuce is one of the few crops that makes its principal growth during the winter season. It is possible to mature lettuce in December and, as a matter of fact, lettuce is being shipped now as well as supplying local demands. For the local demand and that of the nearby markets, lettuce is planted as early in the fall as it will mature. Usually this is not earlier than September. For the main crop it has been found that the lettuce which reaches the Eastern market just after the California and Florida lettuce is off the market brings better prices. Consequently, the aim of the grower is to produce lettuce continuously from about January 15 to early March.

The most popular variety grown here is that which is generally known as the "New York Market," although this sometimes appears under different names such as "Wonderful" and other local names.

At the agricultural experiment station at Mesa, two years ago, 47 different varieties of lettuce were grown and the "New York" was pronounced the best variety for this section, although "Iceberg" may be considered a close second. Of this variety the official report of the experiment station says: "Next to the New York Market this is the best variety for Arizona. Late in spring it heads better than New York and is therefore popular with gardeners during this season. The heads are generally smaller, lighter in color and the leaves are more wrinkled than New York. The head is solid and of fine texture. The touch of bronze adds to its appearance."

Other varieties are grown to a small extent to supply local needs or for home gardens. Those who are most successful in growing lettuce are those who give a great deal of attention to the selection, preparation and fertilization of the soil. Most lettuce is grown upon the sandy loam or upon the Glendale loess soil, although exceptionally good yields have been obtained upon the heavy adobe soil.

Lettuce is a crop that requires a very rich soil, and growers now recognize the necessity of heavy fertilization. Cotton seed meal was used at the experimental farm, but best results were obtained where about 20 tons of stable manure was used. This should be plowed under in the fall, the ground then thoroughly plowed and worked, ridges being thrown up 24 inches apart. Some growers have planted on both sides of the ridges, leaving the rows on the ridges about 12 inches apart and thinning the plants in the row to 12 inches. This method makes it necessary to do a great deal of hand work, and most growers prefer to plant on one side of the ridge only, thinning as previously mentioned to 12 inches. Many growers prefer to have the rows run east and west, and for the early planting the seed is scattered with a hand seed drill on the north side of the ridge. For a later planting, October and November, the seed is sown on the south side of the ridge, the ridge forming a slight protection. The seed is not covered more than one-half an inch deep. About three-quarters of a pound of seed is required to plant one acre.

Irrigation is frequent and cultivation should follow each irrigation. There is very little lettuce transplanted, although it is possible to make transplanted lettuce grow very readily. This, however, seems to have a tendency to set it back so that it is several weeks later than where planted direct in the field.

Lettuce weighing 43 pounds to the crate of 24 is sometimes produced. The size and quality of the lettuce produced here has made a reputation for the Salt River Valley lettuce which sells it on its own merits even where there is considerable competition. Fortunately, there is not very much trouble from insects or from plant disease. The chief insect enemy of lettuce is probably the grasshopper which sometimes would clean up plants when they first appeared above the ground if they were not promptly poisoned. Poisoning insects with poisoned bran mash is a simple matter and enables the grower to easily keep them under control so that they do not become a serious menace.

In shipping lettuce a two tier ventilated crate which is paper lined and holds 24 to 40 heads is used. The usual method of harvesting is to withhold the water for two or three weeks before cutting. The lettuce is cut when there is no dew or rain on it and carefully packed in the crate. General practice is to pack the lettuce, then load the crates into the iced cars. During the latter part of the season cracked ice is usually packed between the two layers in the crate. Another protection is to ice the cars some time before loading so that they are thoroughly cooled and the lettuce is then packed for shipment. With due care in the selection of markets and keeping in close touch with market conditions, growers have usually obtained prices which makes this industry quite remunerative.

William Thompson, secretary of the United Produce Growers at Glendale, states that gross returns last year ran from $350 to $500 an acre. The net profits after all expenses were paid ran from $150 to $200.

According to reports of the United States reclamation service for 1917, the average production was about 200 crates to the acre.

Lettuce may now be considered one of the staple crops of the valley, and while the acreage will never make it a serious competitor of cotton, the fact that it is grown in the winter season and that the land is then ready for cantaloupes or some other small crop will ever make this one of the most attractive crops to the small farmer.

Annual of the Pear Growers

THE California Pear Growers Association held its regular annual meeting at the office of the association in San Francisco on January 20. The following directors were elected: R. J. Coggeshall, R. C. Dorsey, F. A. Edinger, J. F. Elliot, P. J. Huth, H. C. Melone, R. D. Moyer (Los Angeles), E. C. Rand (Sonoma), Frank T. Swett, F. A. Wilcox, G. W. Whitman.

The directors' meeting was held at the same date, at which the following officers were elected: President, Frank T. Swett; vice president, P. J. Huth; secretary-treasurer, F. A. Edinger; assistant secretary, A. D. L. Hamilton.

The association is sending out its first annual statement in which the business of the past three years is reviewed and in which we note this striking statement: "In 1918 we sold canning pears valued at $390,108.44. The same tonnage if sold at 1917 prices would have brought only $210,000. Therefore the gain to growers over 1917 prices was $180,000." "These gains were in a very large degree due to the work of the association secured at a wonderfully low cost. Does organization pay?" This statement contains a number of pungent statements from which we quote:

This coming season, fortunately, the trying war conditions will no longer prevail. The grower will be in a position to choose between a safe price in California through the association, or a prospective good price in Eastern markets, as settled by supply and demand. We look forward confidently to better railroad conditions, to better icing, and to better time between California and Eastern railroad points.

Hoover says the whole world will be hungry for two years to come. In the past, before the war, Great Britain was one of the principal markets for California canned pears. There has been an embargo on shipments of canned pears for the civilian population of Great Britain. We look for the lifting of the embargo, and trust our British friends will make up for lost time by using their full quota of our delicious fruit.

While the association, through its crop contract, is empowered to handle and sell the dried pears of its members, we did not see our way to do so this last yaer. Final organization was not effected until June, and in the limited time before crops moved it was thought best to concentrate efforts on one project alone, the sale of cannery pears. During th coming year, however, we will be in a position to secure for every member the full market value of his dried pears, if the members so desire.

The outlook for dried pears is better than ever before in the history of the industry. Shipments to European countries, which in the past have used the bulk of our pears, have been impossible. As a result, the crop has been consumed in America, and many consumers for the first time have learned that dried pears are a palatable and nutritious food.

During the coming year we shall have not only the United States as a market, with its newly taught consumers, but we shall get back our former customers in Europe. It seems reasonable to expect a most material increase in demand, at fair prices. The association, during the coming season expects to do considerable missionary work in bringing about better methods of drying pears, and later on a bulletin will be issued on the subject. There are too many low grade, off color pears on the market. Ten years from now the dried pear, instead of a side issue, should become a great staple, and should utilize a considerable portion of the entire crop of the state.

During the year the relations of the association with the various canneries to whom we have sold your product have been friendly and harmonious. We have used every effort to deliver fruit up to the contract standards. Unless we maintain careful methods of picking and sorting our fruit and making absolutely honest deliveries, we cannot expect to succeed. I am pleased to report that there were very few complaints by canners. The great majority of growers made deliveries which were above question. This is most creditable, for with the great labor shortage, it was almost impossible to hire skilled pickers. There were only a half dozen instances of poor deliveries, and these cases were promptly and fairly adjusted by the association, the canner and the grower.

A business of nearly $400,000 has been handled without the loss of one cent in bad accounts. The growers have received their money with greater promptness than ever before in the history of the industry, although it was difficult at times for the canners to finance themselves, owing to the unusual ruling of the government in commandeering nearly half the output, with payment only in sight at some distant time in the future.

While we have a growing membership roll, we need, for the fullest success, the membership and cooperation of every pear grower in California.

Each member who induces his neighbor to sign is adding to the value of his own and his neighbor's orchard. He helps reduce the overhead expense of the association and his own proportion. He is saving the expense of paid solicitors. Write to us for blanks, and cooperate by adding your neighbor's cooperation to the efforts and work of all the growers.

There are now about 17,000 acres of pears in bearing. Within ten years there will be in all likelihood at least 47,000 acres in bearing. This will mean finding markets, not merely for the present 80,000 tons, but for nearly three times that quantity. It can be done, but only through concerted effort, year by year, if disaster is to be avoided. Without adequate and complete organization a slump in prices will some day take us unawares. With adequate organization present markets can be broadened and foreign markets built up, and the industry kept on a sound and satisfactory basis.

If we continue the policy of reasonable prices to manufacturer and consumer, high quality of product, fair dealing with customers, extension of markets for canned and dried pears, and collective efforts for the general good of the industry, we may be sure of maintaining a great industry on a sound and satisfactory basis.

Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916.

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Saturday, Feb. 1, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

A bit of the Salt River Valley of Arizona is in full view on this week's cover. Heads of lettuce—acres of it—ready for the market, and all these acres of intensive cultivation of land which would be desert were it not for the great Roosevelt dam. The reclamation service has made some mistakes but these reclaimed lands have meant much in feeding the world during the past three or four years.

More specific information regarding these lettuce crops may be had in Mr. Bemis's article on the fifth page of this issue.

INCOME RETURNS

The internal revenue collector sends information that new return blanks for 1918 reports will soon be ready.

GET ACTION

Something seems to be wrong with transportation. The flour mills with supplies worked up and ready for the market are compelled to stop until these supplies can be moved from their warehouses. Manufacturers of other food products are meeting the same situation. Yet we are told the world is hungry, and we are told truly. The ship building program has been but little slowed down; some vessels which were in German ports during the war have been taken by the Allies and pressed into service; destruction by submarines has ceased; and we are all inquiring, "Why don't things move more swiftly?"

Wheat, cotton and hogs have been taken in hand and, so far as consumers and producers are concerned, a fairly satisfactory condition prevails, but the producers of other foodstuffs are anxious as to disposal of crops already produced.

SIT TIGHT

The lima bean growers' association has adopted for its slogan, "We will sit tight and carry them over until next season." The bean growers feel that there is nothing to be gained by endeavoring to force the market, and so the local warehouses, stacked to the roof with beans, will continue to house them until the next crop is ready to be sold.

Since writing the above, the communication of Mr. Serres which appears on page 142 of this issue has been received. He makes a statement so clean cut that we call attention of our readers to it.

We are also reminded that in the issue of the Cultivator of December 28 we referred to the report that the lima bean growers were able to sell for government use provided commission payment was made to a certain broker. This was commented on by the San Francisco Chronicle and the suggestion made that under such a condition there was need for government investigation. The grower is not asking for the government to give a fictitious value to his products and force the consumer to pay more than is just, but he is anxious to secure just returns for his labor. But, instead of securing these just returns, when he is promoted by the middleman and, worse, when the middlemen is permitted to import from those countries where the cheapest labor conditions in the world prevail in order to break his market, he is justified in making a most emphatic protest.

RELEASE THE FARM BOYS

Every magazine and every other form of publicity service is bringing before the people the question of what to do with the returned soldier without a job. While this discussion is going on many a California farmer is appealing for the return of his boy to the farm to aid in the production of next year's crops.

We realize that there are many turns and twists in the problems of the present reconstruction period. American soldiers are scattered pretty well over the world, from Archangel to the Philippines, and to return a California boy who may be today on guard somewhere on the Rhine is an impossibility, while other boys from the cantonments in America may be turned loose and become a problem themselves instead of helping to solve the labor problem.

The trouble is with making suggestions that we are very liable to make them from our own standpoint rather than from the standpoint of those who have the real problems on hand and whose difficulties are many. But as a mere suggestion to the powers that be in Washington, especially the army and navy departments: "Turn the farm boys loose first if more food is needed."

We note a Nebraska dispatch says: "Governor Samuel R. McKelvie left Lincoln today for Washington to request the war department to have farm laborers discharged from military service in time to permit them to do spring work on farms."

HONOR THE FLAG

The war is over. Our patriotism remains, as do also some unfortunate manifestations of our patriotism, such as the tattered and soiled flags on autos, and too often on a flag pole in front of the home. They are no honor to our country nor to the one who is responsible for their display. Brighten up with a new flag or else have it removed decently and in order.

SURPLUS WAR SUPPLIES

The war department now has a job on its hands in the disposal of a vast surplus of war supplies. After making deductions for the needs of an army of occupation and for cantonments used as demobilizing stations there still remain unnumbered tons to be disposed of. Uncle Sam planned large and bought large. For instance, in this surplus which will now be placed on the market there are 70,000,000 cans of tomatoes, 32,000,000 cans of corn, 36,000,000 yards of duck, 16,000,000 pairs of shoes, 5,000,000 hats, 6,000,000 mittens, 40,000,000 undershirts, 10,000,000 horse shoes, 2,000,000 tooth brushes, etc., etc.

At first thought it was proposed to slaughter the prices, throw these goods on the market and force immediate sale, but finally the entire matter was placed in the hands of a Surplus Stock Board to maintain prices and prevent a slump by securing gradual disposal of this great mass of supplies. For example, take the case of sulphur: Sulphur aggregating 60,000 tons will be passed back to the trade and through the trade into the regular channels of business. The trade has aided in solving the problem by offering to sell one ton of government sulphur for every ton it sells of its own.

While it is possible this may prevent producers from securing some supplies at low prices it may also prevent a slump in prices of products which they have for sale.

In any case, a whole lot of thought is being given to reconstruction.

LEAGUE OF NATIONS

There will still be many a debate in which self interest of the various nations will be manifest, and some time will elapse before the League of Nations will become a fact. However, so far as news is allowed to the public, such steps as have already been taken are very favorable to the formation of the league which the majority of civilized peoples believe means less war and, we hope, its abolition.

The League of Nations, which was organized in Independence Hall, Philadelphia, June 17, 1915, has had no small part in bringing out public sentiment in favor of the league plan, and there are those who feel that its president, ex-President Taft, should have been a delegate to the Paris conference. However, as has often been said regarding American action in the war or the action of any nation for that matter, real accomplishment depends upon the intelligence and integrity and determination of the mass of the people far behind the fighting lines. In regard to this league of nations the great mass of the American nation have hoped that other nations might appreciate the possibilities of such a league, and at the same time feared that self interest might so complicate the situation that the effort would fail.

While the league appreciates this attitude it still realizes the fact that more explicit information must be had in order to accomplish the most for this league. To that end it is calling for a congress at which the great questions involved may be discussed before the people. This congress has been divided into nine sections. The first, the Atlantic congress, is to be held in New York City, February 5 and 6; the New England congress at Boston, February 7 and 8; other congresses at Chicago, Minneapolis, Salt Lake City, St. Louis and Atlanta; the Northwestern congress at Portland, February 16 and 17; and the Pacific Coast congress at San Francisco, February 19 and 20.

These congresses will be addressed by the Hon. Wm. H. Taft, Hon. Jas. W. Gerard, Dr. A. Lawrence Lowell, Philip North Moore, Hon. Henry Van Dyke and Hon. Frank P. Walsh. Ambassador Gerard is definitely programmed for the Atlantic Coast congresses, but it is yet uncertain whether he will attend those on the Pacific Coast.

One feature of interest to Cultivator readers is the appointment of a special committee having to do with agricultural problems, for it is realized that in the discussions which will lead up to the formation of this League of Nations agricultural concerns must be looked after; further, that the fullest support of those same agricultural interests must be had for the fullest accomplishment of the League's purposes. The committee arranging these congresses writes:

In an hour when the creation of a league is the principal subject for discussion throughout the world, the society that was the pioneer in bringing forward the project of a league owes to the unconvinced an explanation of what is proposed and to believers in a league a plan of action by which they may help to secure one that will succeed and endure. Such is the double purpose of this national congress in nine sections to which the recipient of this program is invited.

Our Double and Single Acting Deep Well Cylinders Are Marvels of Simplicity and Ffficiency



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Porterville, Cal.

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Choice, Well-Grown Almonds on Bitter Almond Root
We can furnish the following varieties:
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Drake Seedling
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Peerless
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Vine Pruning Demonstration at La Canyada

HOW to prune grape vines is one long question. There are perhaps nearly as many methods as pruners. This fact was developed at a vine pruning demonstration under the direction of the Los Angeles County farm bureau by Prof. F. T. Bioletti on the White Ranch at La Canyada. Mr. White has a vineyard of Cornichons, Flame Tokays and other table grapes. The varieties used in the demonstration were those which give best crops when pruned short or according to the old California method with most of the table and raisin varieties. Prof. Bioletti was most interesting and instructive in his general discussion of the principles of pruning and even more so in the practical work done before the class which stood about the vineyard observing his method of work.



Prof. Bioletti at La Canyada Vine Pruning

With the saw and pruning shears in hand and vine ready for the pruning operation the most practical demonstration was made. Owing to shortage of funds in the state university the expense of this demonstration was borne by the farm bureau of this county of which Dr. Coit is farm adviser.

He had not talked long, however, about the method of pruning Tokays until he came in contact with those who believe otherwise. Prof. Bioletti does not believe in summer pruning. He stated emphatically that tests in practical vineyard work made by the University of California under most careful observation showed great loss of vitality to vines where summer pruning was persistently followed. Summer pruning is done to secure new growth and young leaves over the top of the vine to make up for the loss of protection from the sunshine by the continual drooping of the long growing vines. This dropping away of the leaf as the vine falls over leaves some of the more attractive bunches of grapes exposed to the sun. This, especially in non-irrigated vineyards, results in scalded fruit and severe loss to the producer. Another reason for summer pruning is to remove the excessive lateral growth of some branches which take an undue portion of the sap and stop cultivation earlier in the season than the vineyardist desires. Hence vigorous sickle pruning is followed by some. It appeared from the questions asked at the La Canyada demonstration that the greater number present believed in summer pruning under conditions prevailing in that section.

Prof. Bioletti did say that if summer pruning was necessary it should only be done with the thumb nail, that is, the growth when it's out 18 inches or two feet may have the tender tip pinched off. This only delays growth for a very few days and is reasonably sure to result in the sending out of a number of laterals instead of the one terminal bud taking all the strength of the vine. These lateral branches hold the weight of the branch growth back nearer the center, making a wealth of young growth on the top which aids in shading and protecting the young growing fruit. But the highest vigor and most liberal crops given continuously can only be secured by encouraging all leaf and vine growth possible. Continually suppressing this vigorous growth not only results in crop loss but vine loss.

New Standardization Law

A meeting was held in the office of the state commissioner of horticulture, January 17 and 18, to discuss changes in the horticultural laws and the revision of the standardization laws. Representatives of all the large fruit interests were present, as well as the legislative committee of the State Association of Nurserymen, the legislatice committee of the County Horticultural Commissioners, and the State Association of Supervisors.

The committee endorsed the changes suggested by the state commissioner of horticulture to the state and county commissioner law, which will enable the state commissioner to get greater uniformity in action between the different counties. The standardization law was discussed at some length and many changes were recommended which will greatly benefit the horticultural interests of the state.

A committee on orange standardization, represented by W. E. Sprott as chairman, suggested the placing of orange standardization in a paragraph by itself and the increasing of the requirements of maturity of oranges by the addition of 40 per cent color to the eight to one before oranges could be considered mature for shipment.

George W. Ashley reported on the question of the advisability of the state commissioner of horticulture establishing grades and grading rules for certain fruits and vegetables, which might need grading, such as potatoes, onions and any fruits which are not at the present time standardized. The meeting advised the addition of such a paragraph to the standardization law with the proviso that before any such grades and grading rules are established a meeting should be held attended by at least 50 per cent of the industries affected.

W. D. Bennett, chairman of the committee on standard containers, made recommendations covering the standards for berry baskets, apricots and plum baskets, peach, apple and pear boxes, and standard and cherry lug boxes. The question of uniform containers is a very important one and was discussed at some length. It was decided that any other sized containers could be used but they must be marked in letters not less than one-half inch high "Irregular containers". There was a discussion of the standard apple act, and it was finally decided to refer this matter to a committee headed by J. E. Gardner of Watsonville.

A resolution was also introduced drawing attention to the Lever Bill, now before the congress of the United States, recommending the secretary of agriculture to establish grades for horticultural and agricultural products throughout the United States. It was pointed out that such a bill would undoubtedly be a great handicap to California, and the committee recommended that the state commissioner of horticulture be present in Washington, to represent the California agricultural interests when the bill comes up for hearing.

The Pure Seed Bill, introduced by Senator Rigdon and now to be known as Senate Bill No. 10, was read and endorsed.

WALTHAM THE SCIENTIFICALLY BUILT WATCH AND THE FOREIGN BUILT WATCH





THE watch presents the same elements of mystery that once surrounded the automobile. Now, nearly every one knows something about a motor car's mechanism. It is to make the "works" of the watch an "open book" that these Waltham advertisements are designed—to instruct and protect you in buying a watch.

The mainspring is the power of a watch. It is a piece of specially hardened and tempered steel, about twenty inches long, coiled in a barrel between the upper and lower plates of the movement.

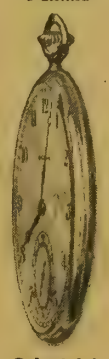
It is subjected to varying conditions of service in temperature and tension. The variation in thickness of two one-thousandths of an inch, of lack of uniformity in hardening and tempering, will decide the time-keeping quality of your watch.

The Waltham Watch Company produces fourteen tons of mainsprings every year. It is the largest mainspring maker in the world. The Waltham mainspring is cut from long rolls of steel of uniform and special quality, then tempered *in resilient form* by a secret process, and is placed in the watch coiled into a hardened and tempered steel barrel. This is exclusively a Waltham practice.

The *foreign* mainspring is not only cut *in short lengths*, but hardened and tempered *in short lengths*—therefore every foreign mainspring is an individual spring of uncertain temper, making the watch a liability.

The foreign maker of watch movements buys his springs in the open market. That is one reason why the imported watch gives such varying service. An inferior mainspring means an inferior watch—no matter how much you pay for it.

Pendant and Bow Patented



Colonial A

Extremely thin at no sacrifice of accuracy. 21 and 19 jewels

$125 to $240 or more

depending upon the case

The uniform superiority of the Waltham mainspring is one of the reasons why the horological experts of the leading nations of five continents chose Waltham in preference to watches of any other make.

WALTHAM

THE WORLD'S WATCH OVER TIME

Deming



The "Victory" built in 150 and 200 gal. sizes. A powerful sprayer with 250 lbs. pressure for fast work drenching every leaf.

FROM the "Comet" Spray Gun to the "Victory" 200 gal. power outfit, Deming Sprayers spell "simplified spraying". You don't spend six hours of your spraying day overhauling your machine. Deming's 40 years of Pump Specialization protects you from everything but added profits. The 1919 Catalog (free) shows an outfit that is fitted like a glove to your individual needs.

Germain Seed & Plant Co.

332 So. Main St. Los Angeles, Cal.

Hauser's Digester Tankage

GIVES GREATEST VALUE FOR LEAST MONEY
IT MAKES THEM FAT

Hauser Packing Co. Los Angeles

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"the GIANT mark protects you from imitations"

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"The name 'Giant' on a case or a stick of powder is evidence that the powder is made by the company that originated Giant Powders. Remember this: You can't get Giant results when you use ordinary dynamites that look like Giant but aren't marked Giant."

Look into the new, money-saving methods of clearing land, blasting tree beds, ditches, boulders, etc. They are all described in our up-to-the-minute book, "Better Farming with Giant Farm Powders." A post card will bring it by the first mail.

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STUMPING FARM POWDERS EUREKA

Absolutely Reliable Nursery Stock

is what the practical planter wants. He cannot afford to take chances, but must have trees that are free from all disease, are well rooted, and propagated only from bearing trees. Our stock is grown in San Benito County, in a climate which permits a thorough ripening of wood, and in a soil which encourages a fine root system. We have our own bearing orchards of over 60 acres from which to select buds, and test varieties. Our nurseries were first started in Napa County in 1878.

Almonds, Apricots, Prunes, Pears, still in good supply

Also Remember

That nothing adds more to the value of a piece of land than suitable planting of

Ornamental Shrubs and Trees

of which we have an immense stock. Landscape gardeners and the owners of country homes should make a note of this.

Leonard Coates Nursery Company

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Wholesale and Retail 200,000 Orange, Lemon and Grapefruit Trees one and two years old. Trees Planted and Guaranteed on Contract.

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Buy Fertilizer

The question often comes to us as to whether it is better to buy fertilizer at present prices or to let the trees take a partial rest and wait for lower priced fertilizers or manures. By this inquiry we are reminded of a remark heard at a farmers' institute when a farmer was asked how he could afford to put so much money into fertilizer, and Yankee-like he came back with "How can I afford not to?" Taxes, interest, irrigation, cultivation, and other overhead expenses go on regardless of production, but unfortunately production does not go on regardless of fertility or proper soil conditions. Hence we would keep up soil fertility regardless of present day quotations, though these times do cause twisting and turning to get that which will secure the greatest return for the lowest possible expenditure. Whether this might be through the application of stable manure, commercial fertilizers, baled hay or green manure we are not prepared to fully advise. There seems to be hopeless diversity of opinion as to this matter of soil fertility and unfortunately scientific observers sometimes fail in giving definite and consistent instructions. But regardless of any uncertainty there must be no uncertainty in the matter of maintaining a supply of vegetable matter in the soil. This may be secured in the form of green manure crops which may be increased by the use of commercial fertilizer. As to waiting till the price of commercial fertilizers come down, the wait might be too long for the best interest of the orchard. In the matter of nitrates alone the government demand for this material in the manufacture of explosives has cleaned up the market and shipping is not yet sufficient to promise any early deliveries. Local supplies of blood, cotton seed, tankage, or packing house refuse, fish meal and other organic supplies are too limited to be of great moment. We have asked a dealer as to the future and he writes:

"The writer's idea is to have the users of fertilizer look into this matter in the proper light and see whether they think it is to their advantage to put off their purchases until later, with the idea that there will be a slump in prices and that they may be able to procure their wants later on for less money. The writer has investigated very carefully the amount of supply there is in sight and under ordinary circumstances there will not be enough to anywhere near go around and the inevitable result is that supply and demand fix the price."

Solves a Walnut Worm Problem

D. B. Mackie, field deputy of the state commission of horticulture, now at Los Angeles, has solved one of the most perplexing questions relating to codling moth elimination in bags used to ship walnuts. He suggests the use of an electrically heated laundry mangle, the empty bags passing through not only being subjected to great pressure, but also are sufficiently heated to kill any living matter contained therein.

C. Thorpe of the California Walnut Growers Association says that the mangle machine has a decided advantage over other methods tried, as it turns out the bags in better condition than before treatment, whereas all other forms of treatment have left the sacks damaged and wet, later to mold. Mr. Thorp estimates the cost of mangle treatment to be about one-half cent a bag.

The value of Mr. Mackie's idea is great, as the codling moth situation is one of serious aspect to walnut growers. Mr. Thorpe suggests that every walnut packing house should be required to install one of these mangles, since the adoption of this method would prevent the spread of the worm from district to district, which is now possible through the medium of infested bags.

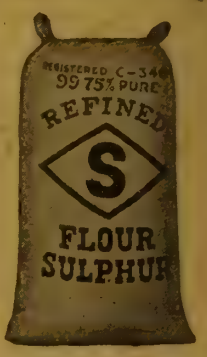
Rodent Control Work

The rodent control division of the state commission of horticulture announces the following itinerary for the month of February:

W. C. Jacobsen, superintendent of the division, and Field Assistant A. E. Gray will spend February 3-8 in Glenn County, 10-15 in Colusa, and 17-22 in Sutter County. Field Assistant L. S. Neville will spend February 3-15 in San Bernardino, 17-25 in Los Angeles County. Field Assistant J. N. French will devote the entire month of February to Sonoma County.

During their stay in the different counties, they can always be reached through the county horticultural commissioner's office, which will be their headquarters. Names of the county horticultural commissioners and their offices are given below: H. C. Wren, Glenn County, Chamber of Commerce, Willows; L. R. Boedefeld, Colusa County, Court House, Colusa; H. P. Stabler, Sutter County, Yuba City; Jno. P. Coy, San Bernardino County, Court House, San Bernardino; H. J. Ryan, Los Angeles, Hall of Records, Los Angeles; O. E. Bremner, Sonoma County, Court House, Santa Rosa.

Land owners whose properties are infested with rodents are urged to take advantage of the opportunity to get expert advice on control measures as the state representatives will be prepared to make demonstrations in the control of ground squirrels, gophers, field mice, etc.



SULPHUR

It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards SIX times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

Try our new brand of VENTILATED Sublimed Sulphur, 100 per cent pure, for making Paste — (Atomic Sulphur) — and for dusting.

For Lime Sulphur Solution, use our DIAMOND "S" BRAND refined Flour Sulphur. We can furnish you this sulphur at such a low price that it will pay you to mix your own solution.

To create additional available plant food, drill into the soil 100 to 400 pounds per acre of our Diamond "S" Brand Powdered Sulphur. Write direct to

San Francisco Sulphur Co.

624 California Street, San Francisco, Cal.

We are equipped to make immediate shipment. Send for illustrated booklet; price list and samples, and please state for what purpose you use the sulphur, quantity needed, and date of shipment preferred. Tel. Kearny 871.

OVER 40,000 CARS

According to the estimate made by the Riverside Press Southern California will send out during the coming season 31,000 cars of oranges and 7000 cars of lemons; Central California, 3200 cars of oranges, 300 cars of lemons; Northern California, 250 cars oranges, or a total of citrus fruits for the state of 41,750 cars. The fruit is distributed by districts according to the table of the Press as follows:

	Oranges.	Lemons.
Pomona district	4500	335
Ontario district	3000	750
Ausza-Glendora dist.	3000	200
Riverside district	2850	300
Redlands district	2800	.....
Orange district	1900	450
Covina	1500	.....
Anaheim	1400	20
San Dimas district	1200	600
Rialto district	1150	90
Whittier district	1000	800
Placentia	1200	20
Highland	1000	125
Ventura County	800	1000
San Diego County	225	650
Fullerton	700	40
Duarte-Monrovia	700	.....
Corona	400	400
San Fernando	400	400
Alhambra district	500	.....
Santa Barbara County	.....	500
Moreno	170	.....
Hemet	125	20
Other localities	480	300

This data was gathered long enough after the frost to make fairly accurate work possible. But it is never possible to judge the amount of frost injury until the fruit is really harvested. Another influence which may take off from the estimate is the windstorm which prevailed about a week after the above figures were made up.

BETTER FRUIT BY BUD SELECTION

Two experimental lemon groves were established in the past year by the United States department of agriculture in California, where special attention will be given to the development of better fruit growing strains through bud selection. One of the plantings is located near Corona and consists of 11½ acres; the other is at the citrus experiment station of the University of California and consists of five acres. Both of these experimental orchards were planted with progeny trees propagated from selected parent trees having the best production records. For comparison with trees so propagated other trees propagated from parent trees having inferior performance records have been planted. The plan is to keep accurate records of all trees for a series of years after they come into bearing. From a commercial standpoint the bud selection work conducted by the United States department of agriculture has made great progress in California. As a result, the California Fruit Growers' Exchange established a bud selection department, the object being to supply to growers and nurserymen reliable buds of superior strains of citrus varieties grown in California.

Book Review

MANUAL OF GARDEN INSECTS

"Manual of Vegetable Garden Insects" by Cyrus R. Crosby and Mortimer D. Leonard of the New York state college of agriculture, published by Macmillan Company, 66 Fifth Avenue, New York, at $2.00. This is one of the Rural Manuals published by the Macmillan's and is a practical account of the principal insects which attack truck and vegetable crops, including cabbage, cauliflower, cucumbers and melons, asparagus, potatoes, tomatoes, celery and parsnips, lettuce, peas, beans, beets, spinach, sweet potatoes and sweet corn. The life history and habits of each are given, its injuries described and methods of control discussed. A chapter on insecticides gives an account of the more important materials now employed, with directions for their preparation and use. There are 19 chapters required to fill its nearly 400 pages. It touches upon insects in relation to their hosts or the crops which they infest.

GRIM REMINDERS

Press Officer Parks, stationed in Paris, tells of a recent visit to London while on furlough and of his astonishment at finding nail brushes fastened to the walls above the washstands.

"Is it possible," he exclaimed, "that members steal the nail brushes and you have to nail them to the walls for safety's sake?"

"Oh, no," said the host, and he smiled sadly, "our members are honest enough, but many of them have only one arm. We nail our brushes on the wall so that our many one-armed members can use them."

Farms and employment for returned soldiers are being planned for now by Secretary of the Interior Lane. Congress has granted him a fund of $200,000 to investigate drainage and reclamation projects.

Anyone keeping bees should know how to take care of them, because if you neglect your bees you are likely to injure the bees of your neighbor by allowing foul brood and other diseases to be scattered throughout the community.

A buzz saw can teach an inquisitive man more in a minute than the best instructors can teach him in a lifetime.

The foolish man "darns" his luck, the wise man "mends" it.

Twice The Work-Half The Expense



MOLINE UNIVERSAL TRACTOR

"One man and a Moline-Universal Tractor will do about the same work (taking a season through) as two men with four horse teams."— *Crumbaugh Bros., Vandalia, Illinois.*

Statements such as this from Moline-Universal owners—and we have many of them—support our claim that the Moline-Universal enables one man to do twice as much work at about half the expense as is possible with horses.

With a Moline-Universal you can plow 9 acres a day, double disc 27 acres, drill 35 acres, cultivate 15 to 20 acres, mow 25 to 35 acres, and harvest 30 to 35 acres. Figure out for yourself how long this would take you with horses. Then keep in mind that in case of necessity you can work night as well as day, because the Moline-Universal has complete electrical equipment, including electric lights and self-starter.

As for expense it runs about half what the same work with horses would cost.

Charles J. Deck of McArthur, N. D., says: "I plowed 60 acres—fuel amounted to $32.94. It would have cost me $82.40 to plow this with 6 horses, not figuring feed for Sunday, or rainy days. I did not have to get up at 5 o'clock every morning either." Mr. Beck did not consider the saving of his own time.

"If I hadn't had the Moline-Universal I would have kept 4 more horses, which are a bigger expense than the tractor," says J. E. Carey of Wilmington, Ohio.

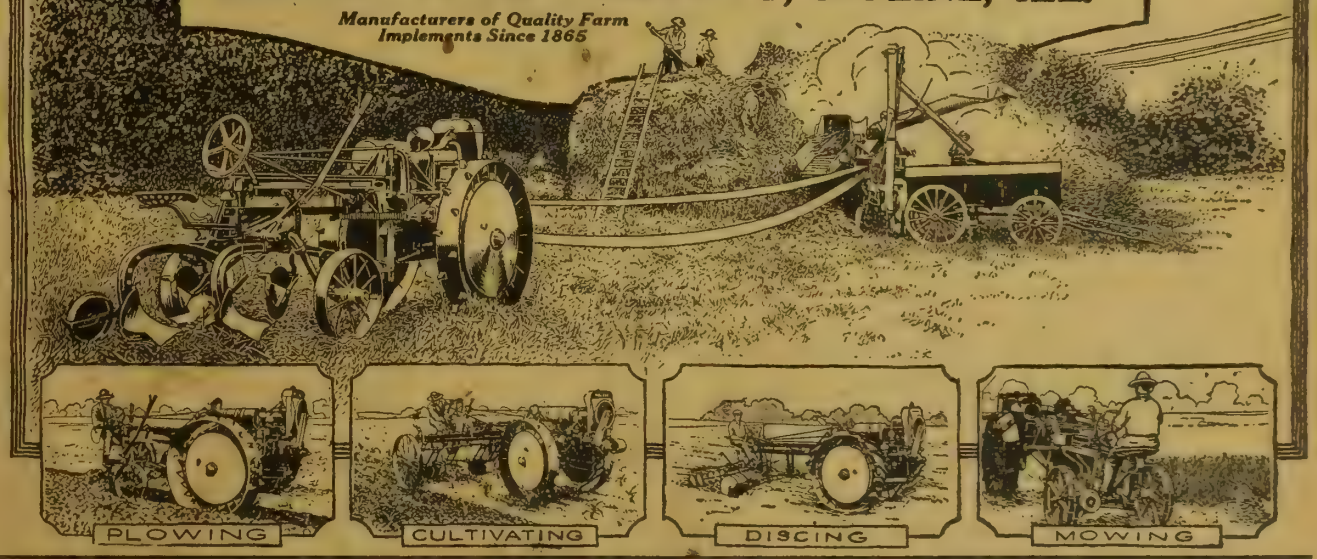
Many other statements similar to this prove that the cost of operating a Moline-Universal Tractor is no greater than maintaining three or four horses, while it will do twice as much work. Then there is another big advantage—belt work. The Moline-Universal has enough power for all ordinary belt power requirements.

"I purchased a 20 x 36 separator and then threshed my grain, pulling it with the Moline Model D. The tractor handled this separator very easily and did fine work. After I had threshed my own grain, I threshed for four of my neighbors, about 350 acres in all."—G. C. Appenzeller, Bouton, Ia.

Considered from every angle the Moline-Universal is the best tractor for you. It does all farm work, including cultivating. One man operates both tractor and implement from the seat of the implement. It will make you money. See your Moline dealer now or write us for full information. Address Dept. 49.

MOLINE PLOW COMPANY, MOLINE, ILL.

Manufacturers of Quality Farm Implements Since 1865



TREES

Peach, Apricot, Almond
Plum, Prune, Pear
Apple, Cherry, Olive
Fig, Orange, Lemon, etc., etc.

"More than a million high class fruit trees per year for California Planters."

Est. 1888 **Kirkman Nurseries** Inc. $100,000

FRESNO, CALIF.

TALKS ON

Nitrogenous Fertilization

Number 2

Why should you put ARCADIAN Sulphate of Ammonia on your wheat?

In the first place, because it is the duty of every farmer to raise larger and better crops.

In the second place, ARCADIAN, drilled or broadcasted at the proper time, will bring the needed increase.

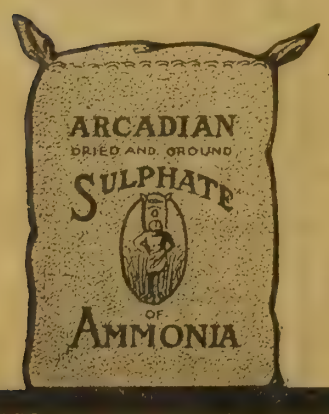
University of California experiments show this. At Glendale, Los Angeles County, the Sulphate of Ammonia plot gave 2,114 pounds per acre, while without it the yield was only 822 pounds.

At Roberts Island, San Joaquin County, the yield from the Sulphate of Ammonia plot was 1,764 pounds, and the unfertilized plot only 947 pounds per acre.

Apply 100 pounds per acre early enough to have at least three inches of rainfall afterwards. In most localities in California this means before February 20th.

ARCADIAN
Sulphate of Ammonia

ARCADIAN Sulphate of Ammonia is the well-known standard article that has done you service in your mixed fertilizers for years past. Especially kiln-dried and ground to make it fine and dry. Ammonia 25¼ per cent. Made in the U.S.A.



For sale by Hawaiian Fertilizer Co., Ltd., San Francisco; Pacific Bone Coal and Fertilizer Co., San Francisco and Los Angeles; Pacific Guano & Fertilizer Co., San Francisco and Los Angeles.

For Information as to Application, write

The Barrett Company

Agricultural Department
510 First National Bank Building,
Berkeley, Cal.

This Month in the Vegetable Garden

Southern California

Written for California Cultivator By D. F. Reichard

NOW comes the time of the year when nearly every one has a desire to plant something, to make a garden, to set out trees or plants, to watch things grow. February is the great planting month for all vegetables except the tender stuff like beans, corn, peppers, tomatoes and cucumbers, squash and melons, which may also be planted in the warmer protected districts.

In starting the spring garden do not fail to first get the ground in good shape for the reception of seeds and plants. This is of paramount importance. Work the soil about a foot deep and pulverize it well. If you are working an open space use a team and plow and harrow; if your space is confined use a spading fork or shovel or a "Planet Jr." or an "Iron Age" with the plow attachment on. Always be sure to pulverize the ground before it dries out after breaking it up. If allowed to get dry there will be a lot of clods formed that will not break up all summer unless especially treated.

It is too late to turn under rough fertilizers where you wish to start stuff at once but in that part of the plot where stuff is not to be planted for six weeks or so coarse stuff may be turned under to good advantage. If fertilizing is necessary to the ground to be used at once apply a complete packing house or chemical fertilizer at the rate of 500 pounds to an acre. Once the land is put into shape weeds may be easily controlled by cultivating the whole patch, whether planted or not, after each rainstorm. This cultivating will also keep the mulched surface which is so desirable for retaining moisture.

In sections along the foothills where danger from frost is past Canadian and Ventura Wonder beans and Earliana tomato plants can be planted. In sections where there is still danger of frosts confine the planting to more hardy things such as beets, carrots, lettuce, onions, parsnips, parsley, turnips, cabbage, cauliflower and kale plants. Potatoes may be planted in all but the very cold low lands. The White Rose is the best potato plant in Southern California.

Set out all dormant fruit trees, berry bushes and plants and roots during this month for the best results.

Northern California

Written for California Cultivator By Albert R. Gould

WITH the growing season at hand, and lengthened days we must all get busy if we would have early crops. The danger of severe weather will soon be over, which will allow us to increase our planting list and considerably enlarge our area. It is necessary to point out here that to insure good yields and to avoid wasting good seed, time and money, manure to provide ample plant food is an essential. It is no use trying to grow a crop on "played out" soil. Every year that your garden or field plots are cropped, certain elements containing plant food are taken out of the soil by the crop, and these have to be put back again, and farmyard manure or some such fertilizer must be applied every season. You need rich soil to grow both quality and quantity. Water is also important. Study these problems carefully before you start in. With both these solved and experience gained by practice and the knowledge and hints from your "Cultivator" there is very little room for failure and there's no such thing as "luck" in this business. Nature works systematically.

In last month's notes we advised leaving some portions of the garden under preparation in the rough state to allow the air and frost to do their work. This should now be leveled and put into shape for sowing or transplanting. If the frames were made as advised and placed on the hot bed of manure and seeds sown these will be germinating and some early seedlings of lettuce, etc. will result.

Onions

The main crop of these should be showing up well this month but thinning out may be deferred as many of the seedlings will be large enough next month to use for transplanting to other beds which should be well prepared with manure this month. The soil should be well stirred between the lines of the growing crop. It should also be noted that the onion is a crop that responds to plenty of moisture and is a rich feeder. Onion sets or the small onion bulbs may be secured and planted in rows 12 to 18 inches apart.

Leeks

These also belong to the onion family and make an excellent vegetable used in soups, etc. They are not nearly so well known as they should be. They have a long season of growth and are also rich feeders. Trenches 12 to 18 inches deep should be prepared partly filled with manure. Seed should be sown in a box of sandy soil, placed in a warm situation, kept well watered and in a few weeks will be germinating.

Lettuce

White Paris Cos, Big Boston, May King, Los Angeles or your particular favorite variety should be sown during the month and successional sowings may be made from now on. Seed should be sown very thinly in rows 18 inches apart. This crop loves moisture and will always repay for being grown on a rich soil. Seedlings from this sowing should be ready for transplanting during the next month.

Turnips

On richly prepared ground a sowing of the varieties as mentioned last month may be made. Early Snowball is a good early variety and of very good quality.

Asparagus

Beds of this crop should be well manured and new beds planted with roots of Concover's Colossal, which can usually be secured from your seedsmen.

Beets

Sowings of Improved Globe and Early Detroit Dark Red may be made on rich soil. Sow in rows 18 inches apart. Swiss Chard or Sea Kale beet is a very useful vegetable and the greens are used as spinach.

Peas

A general sowing of Stratagem and Little Marvel may be made this month and the cultivator should be kept moving between the rows of the earlier sown varieties. Watch out for aphis or green fly this month, and if these pests are troublesome spray with Black Leaf 40.

Raspberries and Strawberries

Planting of these popular fruits should be completed this month and established plots should have manure applied liberally.

Central Californians are hoping for the early completion of plans for "Roosevelt Park" which it is hoped will contain about 1600 miles of the wonderful scenery of the Sierra-Nevadas in the Kings River section.

Peach Growers of California have made filings with the state water commission for waters from the middle fork of the Tuolumne River to use on lands for growing peaches.

The Grange at Aromas, San Benito County, recently held annual banquet and installed officers under direction of State Master F. L. Hunt of Napa.

Several farm advisers have been appointed distributers of nitrate of soda which will cost $81 f. o. b. San Francisco.



An Orchard is a Good Investment

Write today for this

TREE Catalog

and learn how to plant and grow trees successfully

THIS BOOK answers in a satisfactory manner many questions which you may want to know, for instance if you are going to plant plums, what kind?

Early varieties of peaches bring good returns, but an assortment of peaches ripening from May to November is in many cases preferable.

While the Tilton Apricot is the canners' favorite, there are others equally good. Some trees grow and bear best in the warm interior valleys while others do better at a higher altitude along the foothills.

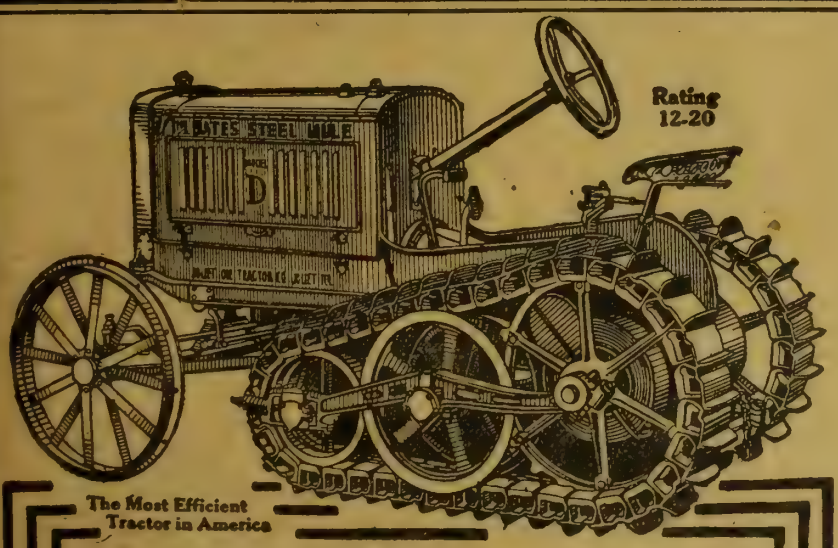
Growing almonds has become very profitable. Do you know whether your locality is suited to almond culture?

If you are in doubt as to what trees would do best on your land, write to us, describing as fully as possible all of the conditions, and we will be glad to advise you.

Send for Our Illustrated Catalogue and Price List. Contains 104 pages of real valuable information for fruit growers.—Free on request.

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P. O. Box 615-C Fresno, Calif.



The Most Efficient Tractor in America

Uncle Sam Uses Crawler Tractors Only

In Uncle Sam's war work he uses tractors of the crawler type exclusively. He knows they have the reliability and pull to get there. The great "tanks" have proved the principle to him.

The powerful twin crawlers of the Bates Steel Mule grip any soil with a firm hold so that the heavy duty valve-in-head kerosene motor need not waste even an ounce of power in uncertain traction.

If your name is not on our Delivery Schedule for one of the next carload of Model "D" STEEL MULES—see us at once, before it is too late.

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for

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—good, cool SALAD
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—old-forgotten SAUERKRAUT
—fine old PICALILLI
—best sweet PICKLES
and finish off with
—grand old PUMPKIN PIE

All from your own garden!

Grow your favorite vegetables. Have them fresh and tender and better than you can buy. But—be sure you use Morse's Seeds—specially selected, extra recleaned, soil-tested, always true-to-type and dependable.

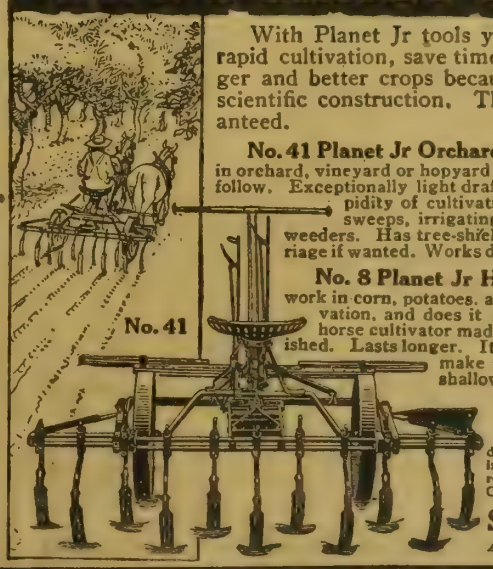
Today—send for your copy of Morse's 1919 Garden Guide. A complete handbook of Morse's Seeds—garden, farm and flower. Helpful and informative! Send for it now—it's FREE!

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Bigger fruit crops are needed Use Planet Jr. tools



With Planet Jr tools you can do more thorough, more rapid cultivation, save time, labor and money, and get bigger and better crops because of their superior design and scientific construction. They last a lifetime. Fully guaranteed.

No. 41 Planet Jr Orchard Cultivator does such thorough work in orchard, vineyard or hopyard that bigger and better crops invariably follow. Exceptionally light draft adds to the ease of operation and rapidity of cultivation. The strong frame carries teeth, sweeps, irrigating steels, plows, alfalfa teeth and special weeders. Has tree-shield, side-hitch for low trees, and fore-carriage if wanted. Works deep or shallow, and cuts 4 to 6½ ft. wide.

No. 8 Planet Jr Horse-Hoe does a greater variety of work in corn, potatoes, and other crops requiring similar cultivation, and does it more thoroughly, than any other one-horse cultivator made. It is stronger, better made and finished. Lasts longer. Its depth regulator and extra long frame make it steady-running. Cultivates deep or shallow and different widths of rows.

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Illustrates Planet Jrs doing actual farm and garden work, and describes over 55 different tools, including Seeders, Wheel-Hoes, Horse-Hoes, Harrows, Orchard-, Beet- and Pivot-Wheel Riding Cultivators. Write postal for it today!

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Giant Winter RHUBARB

NOW BEST TIME TO PLANT

Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb or Berries, write J. B. WAGNER, Specialist, Pasadena, California

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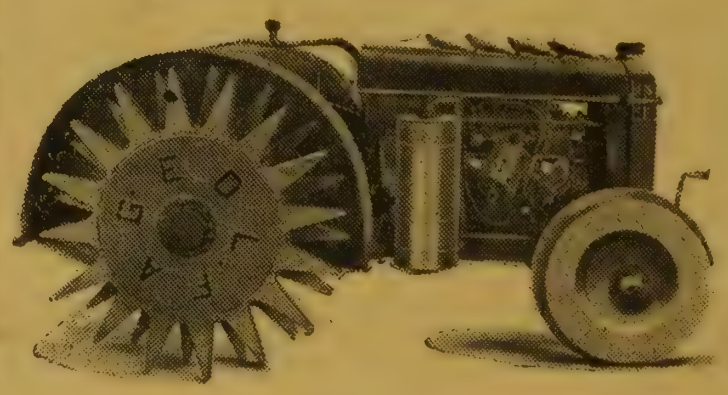
THE Fageol Tractor WALKS over soft or muddy ground just as a team walks—without sinking or miring.

A live axle, with a separate clutch on each wheel, allows quick and short turning.

With positive traction and simple construction the operation is unusually economical.

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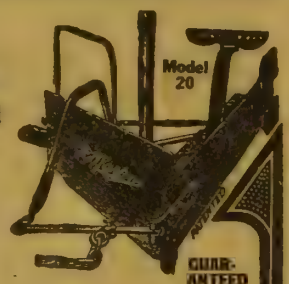
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THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with





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Makes new ditches; cleans old ones; grades roads; builds dykes and terraces. Cuts alfalfa, Bermuda grass or sweet clover roots from ditch banks, without plowing. Does more work and better work than 100 men with old methods.

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All steel. Reversible. Adjustable. No wheels, cogs or levers. More MARTINS now in actual use than all other farm ditchers combined. Warehouses and distributing points in nearly all Western States. Write for free descriptive catalog and nearest distributing point, together with list of MARTIN users near you.

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SPRING AND PEG TOOTH HARROWS

All sizes for field and orchard. Special alfalfa teeth, also special wide three section bean harrows. We have largest assortment.
Write today for free catalogue.
Call at our store when in the city.
Our harrows are stronger than the common type.
ARNOTT & COMPANY, Inc.
112-118 South Los Angeles Street, Los Angeles





Making Farm Income Tax Returns

THE big income tax drive of 1919 is now under way and every preparation is being made to handle the largest collection in the history of income tax. "I am not waiting for the final passage of the new revenue bill by congress," said Collector Carter, "nor for the new regulations and blank forms to be issued. To get this big tax in and get it accurate and complete, I urge that we all begin now."

The income tax obligations imposed by the old laws, as well as the measure now in congress, consist of two distinct operations. One is to file return or statement of all items of income and items of deductions allowable by law, and to do this within the period named in the law. The other is to pay the tax, if any is due.

"Neither of these obligations can be met without a careful review of income and expenditure for the tax year That is the big job right now, and that is why the income tax drive is already under way. Everywhere the pencil is busy. The old year is done; all its fruits are gleaned; and every person who fared well, or earned a good competence, must analyze his own case in cold figures.

"When the new bill is enacted into law proper return forms will be distributed throughout the district and everybody will be informed of the date when the sworn return must be filed. Deputies will be sent out to central locations to travel through the district, aiding taxpayers in the preparation of the returns and in deciding doubtful points. We will go right to the people with the income tax and with the cooperation which the public can give the government men, the returns will be filed by everybody who comes under the law's provisions, the right taxes will be paid, and the district will have done its full patriotic duty toward the government's support.

"Meanwhile there is no need of delaying the preparation of figures. Anything that congress does now will not affect the amount of a person's earnings for 1918. Let us avoid the belated throwing together of figures that may hit or miss. Guesses cannot be accepted as the basis of taxation. It is clearly the duty of every person to compile correct figures and ascertain whether his income for 1918 was sufficient to make a sworn return.

"A farmer must figure up all income derived from the sale or exchange of products during the year, whether such produce was raised on the farm or purchased and resold. He is allowed to deduct from this total his expenses of the year connected with the planting, cultivation, harvesting and marketing of the crop, or the care, feeding and marketing of live stock.

"He is not allowed to deduct the amount expended in 1918 in purchasing stock for resale; but when such stock is sold its cost is to be deducted from sale price in ascertaining the gain to be included in his return of income. The cost price of stock bought prior to 1917 cannot be deducted as in the case just cited, if such cost was included in the deduction made in the year of purchase.

"The farmer is not required to include in his income tax computation the value of farm produce consumed by himself and family. But in cases where he exchanges produce for merchandise, groceries, etc., the market value of the articles received in exchange must be included.

"All other items of income arising during the year through personal service, business or trade, through use of property or money, should be added into the gains for 1918.

"Everybody wants to know what income is exempt from tax. Very few plums that fall to the average man may be legally disregarded in figuring up his 1918 income. Gifts and bequests can be eliminated; also proceeds of life insurance received by the beneficiary of any insured person. A person who cashed in an endowment policy need report as income only that portion which exceeds the total of the premiums he paid in all years on that policy. Annuities are not taxable, unless the person received in the year payment which represents, when added to all prior payments on the annuity, an amount greater than the original cost of the annuity. Dividends on unexpired life insurance policies are not taxable income; but dividends on paidup policies must be considered income. Alimony is not income to the recipient, nor is it an allowable deduction on the part of the person who pays.

"From the total of all items of income there are certain deductions allowable by law. All interest paid on personal indebtedness and all taxes paid during the year are deductible, except federal income and excess profits taxes, inheritance taxes and assessments for local improvements, such as sidewalks, sewers, etc. Losses incurred in business or trade are allowable, also losses arising from fires, storms, shipwreck or other casualty, or from theft, in cases where such losses are not compensated for by insurance or otherwise. Losses incurred outside of a person's regular business are allowable to the extent of gains reported from similar transactions within the year. Debts due to the taxpayer actually ascertained to be worthless during the year are deductible.

"Depreciation on property used in farming is another item that may be claimed as a deduction. The farmer may claim depreciation on his farm buildings, aside from his personal residence, also on his farm machinery, his work horses and farm work wagons. The theory of depreciation, in connection with the income tax, is that wear and tear caused by use in earning income is a real expense in the earning of that income. The rate is determined by the number of years that the property ordinarily would be useful, and the cost of the property is the basis of the computation. If the property suffering depreciation was bought or acquired prior to March 1, 1913, the market value as of that date is used, instead of the cost, in figuring depreciation.

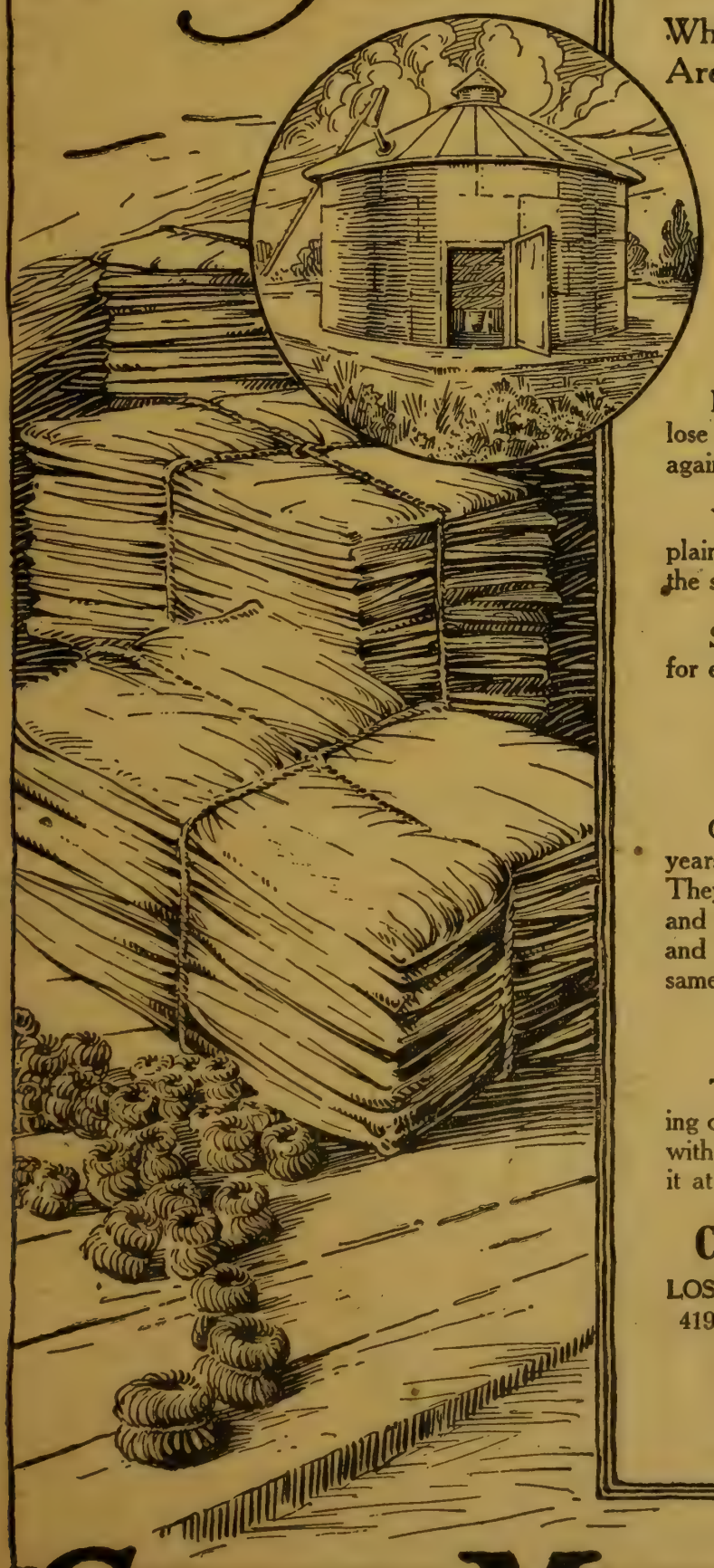
"Contributions or gifts actually made in 1918 to organizations operating exclusively for religious, charitable, scientific or educational purposes, and to societies for the prevention of cruelty to children or animals, may be deducted, to an amount not exceeding 15 per cent of the net income computed without the benefit of this deduction.

"After the total of all income is found, and the deductions allowable by law have been computed as an offset, the amount of income in excess of such deductions is the net income, which forms the basis of the assessment of tax."

Dr. Dooley of Archie Road pithily remarked: "Ye kin lade a bye to college, but ye can't make 'im think."

Sacks

How many do *you need* next year?



YOU DON'T NEED a single sack for your next year's crop of grain. You don't need to hire a single sack sewer.

What about sacks—are they economical? Are they safe?

Vermin destroy sacked grain

If you leave sacked grain in the field you lose by rats, gophers, birds, bugs, rain and sun. You lose the grain—and in nine cases out of ten you lose the sacks, too. You usually have to re-sack the grain.

If you store your sacked grain in a warehouse, you lose by vermin, ants, mould, fire and theft. And here again about 40% of the grain must be re-sacked.

You lose a considerable quantity of grain just from plain carelessness in sack sewing—the string breaks, or the sack tears and out goes your grain. LOSS.

Sacks make other costs. There's twine, and wages for extra help.

You cannot get away from the fact that in using sacks you are suffering an actual and wholly unnecessary loss.

Calco Metal Grain Bins cost little—and last for years. They cut out the cost of sacks—completely. They absolutely eliminate costs of extra help and twine and sack sewers. Calco Bins pay for themselves quickly, and after that **they cost you nothing.** Sacks cost the same or more each year.

Write for this booklet

The booklet, "Calco Grain Bins," has an interesting chapter you should read—"One Farmer's Experience with Bulking Grain." The booklet is free. Write for it at once.

California Corrugated Culvert Co.

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AMERICAN ARMCO INGOT IRON

CALCO Metal Grain Bin

With the Return of
Peace and Prosperity
Plant
Teague Quality
Citrus Trees

With the present demand for food stuffs, the return of peace and normal economic conditions there will be a growing demand for all orchard crops and a corresponding larger demand for nursery trees. Already this return is finding expression in an increased demand for Teague Quality Citrus trees, which leads us to advise intending planters to book their orders early, as the available supply of really good, bud-selected (pedigreed) trees is rather limited. For this reason we invite correspondence. Prices cheerfully furnished.



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FOUNDED IN 1889

THE BASIS FOR ORCHARD PERFECTION
TRADE MARK
CROW TREES

Prune Trees

We can still supply a few thousand each:
FRENCH on Myro., almond, apricot and peach roots.
IMPERIAL on Myrobalan.
SUGAR on Myro., almond and apricot.
CHERRY, leading commercial sorts.
JAPANESE PERSIMMON, American grown, sure to grow.

A Full Line

of all that is best in Fruit. Nut and Ornamental Trees, Vines and Plants; and our prices are low. Write for our Price List; free.

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The Bean Situation

Written for California Cultivator By Anton Serres

LAST winter, after so many of our boys had enlisted and so many others had been drafted and were training in the camps to be sent across for the fight of Liberty, Food Administrator Hoover called on the farmers to produce the utmost amount of food stuffs to assist in feeding the armies and the civilian population of our Allies. The farmers responded to all calls and plied all energies to secure the largest yields their fields ever produced. The wheat farmers of the Eastern and Central states raised large crops of bread stuffs and the government guaranteed them well-paying prices. The bean farmers of California plowed up every knob and hill, every available spot, cultivated and worked the same with great care to prepare a good seed bed; they hoed and tended the growing vines, hired very expensive labor to assist them in the tedious work of harvesting and threshing and felt happy, when after all their toils, they could bring their crops to the warehouses.

But there lurked a foe, upon whom the open-hearted farmer had not counted, in the garb of the food, or rather bean speculator. The large firms had agents all over the country watching the output in beans; they had representatives in foreign countries who saw the enormous bean crops raised by the Japs in Manchuria. The heartless speculators secured large quantities of these beans, raised by cheap labor, and imported them, using them cold-bloodedly to ruin their fellow citizens who sacrificed their sons, their money, and their hard labors to win this war for the liberty of European nations, and in doing so became the slaves and victims of the stone-hearted capital of speculators. If the government saw fit to protect the wheat farmers by guaranteeing them a fair price for their wheat, why can't our senators and congressmen urge the protection of the bean farmers by asking the government to stop the importation of foreign beans and to set a fair price on the domestic output. Many of our most loyal citizens will be runied if the present state of affairs is not remedied. The writer has a small farm of 20 acres in a canyon near Arroyo Grande, and although he did not employ the high priced labor of Japs or Mexicans in the tending of his bean crop, his beans cost him over eight cents a pound in the warehouse, as shown by the following explanation. His farm cost him $4000. He had to pay $20 a ton for hay. He fertilizes one-quarter of his ranch every fourth year. He figures only $3.00 an acre for plowing, $2.00 an acre for hoeing, although the Japs asked $3.00 and $3.50, and $5.00 an acre for pulling, against $6.00 asked by Japs, and yet he finds the following statement of expenses:

Interest on $4000 @ 5 per cent	$ 200.00
Horse feed	215.00
Fertilizing five acres at $20	100.00
Plowing 20 acres at $3.00	60.00
Two spring tooth harrowings	40.00
Two harrowings	10.00
Flattening at 25c	5.00
Planting at $2.00	40.00
Harrowing	5.00
200 pounds of seed at 15c	30.00
Twice cultivating	40.00
Twice hoeing	80.00
Pulling, $5.00 an acre	100.00
Threshing 160 sacks at 50c, wages	80.00
Sacks—160 at 22½c	36.00
Twine	1.20
Hauling to warehouse	16.00
Storage at warehouse	30.00
Insurance	25.00
Depreciation	50.00
Total	$1163.20

The 160 sacks average 90 pounds, thus containing 144 hundredweights and cost the producer over eight cents a pound.

The writer has been an invalid for 13 years, nevertheless his eldest son was drafted and serves yet in the 13th Infantry. His youngest son worked most of the time with his team on the home ranch. If we take out the items charged for interest and actual work performed by the members of his family we have these amounts:

Interest, $200; plowing, $60; springtooth harrowing, $40; harrowing, $10; flattening, $5.00; planting, $40; harrowing, $5.00; cultivating, $40; hoeing, $80; pulling, $100; threshing, $80; hauling, $16. Total $676 for a family of four members to live on as their earnings and interest of farm derived from last year's crop, provided the beans can be sold over eight cents a pound. The only way, the writer sees out of this difficulty is to have every subscriber of the Cultivator cut out this article and send it to his representative and senator in congress, asking them to put a stop to this wholesale ruining of over a million of people on this Pacific Coast.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Don't Plant Celery Too Early

I am having a good deal of trouble to get celery plants in a hot bed. They do not seem to sprout very evenly and when they get up about one-half inch they damp off badly. Some are about one and one-half inches high and have the first leaf but they are very slow in growth and very spindling. What is the proper time for planting seed for May celery? Does the seed do better in a cold frame than a hot bed?—Subscriber, San Diego.

We believe that you are trying to grow your celery too early. It is very hard to get it to grow well until about the middle of February. When celery is sown much earlier than that it acts just as you describe in your letter. We recommend a cold frame in preference to a hot one for starting celery, although when the seed is put out the middle of February or after it can be sown outside. To have mature celery for May or even June you would have to fertilize very heavily after plants have been set in the field about six to eight weeks.—D.F.R.

Canvas for Frost Protection

What is the benefit or detriment to fruit trees in covering with cloth during the frost seasons? That is, this to be used in preference to smudge pots.—Subscriber, San Francisco.

One of the first experiments in frost prevention was made near Arlington, Riverside County, nearly a score of years ago in covering an orchard, we believe 10 acres, with a lath house. We do not recall as to difference in temperature though we believe it was sufficient to prevent freezing in severe season, but we do recall that the

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LOS ANGELES

trees deprived of half of the sunlight refused to give out the necessary growth and the lath house was removed. Besides other objectionable features the cost proved a severe drain on the orchard profits. Some years later the Leffingwells at Whittier and the Chases at Corona made other extensive experiments in the use of tobacco cloth, covering some acres with quite expensive structure. These stood for a season or more but were ultimately destroyed by high winds. The covering of trees with a tent has been tried only by the use of fumigation tents with isolated or small number of trees. It is a success but hardly in the realm of economy. As to the lath house a fund of information may be had as to construction by noting columns of the Cultivator on page 257 of the issue of October 24, 1902. The tobacco cloth covering was fully illustrated and described on pages one and four of the California Cultivator of July 1, 1915.

Moisture Through Cement

Since building a granary with a concrete floor, several people have told me that the grain will draw moisture through the cement from the ground and spoil the lower layer of grain. How can I put a smooth surface layer on the floor to make it easy to shovel up grain?—Subscriber, Oceanside.

Whether moisture will penetrate your concrete depends upon the richness of your mixture and the quality of your sand. If there should be any question it would perhaps be safer to put false bottom in or to float over with the rich mixture which is at least one-fourth of rather fine sand. Here is a hint from "Concrete on the Farm": "Sometimes the porous nature of concrete in tanks and cisterns due to improper protection while hardening, can be remedied by applying a coating of what is called 'waterglass'; this is chemically known as sodium silicate. The chemical is dissolved in water in the proportion of one part of silicate to three or four parts water, depending upon the porosity of the concrete to be treated. Two or three coats of this solution applied at intervals of 24 hours may be necessary to fill up the pores."

The top or finishing coat should be placed on the base as quickly as possible after the concrete is tamped in place. If the base is allowed to dry the top will not bond as well as when the base is fresh and still wet. The mixture for the top should be composed of one part Portland cement and one and one-half parts coarse sand, which is equivalent to one sack of cement to two and one-half cubic feet of sand. This mixture should be prepared in small quantities, mixed with sufficient water to make it spread easily, and should be placed as quickly as possible. Any of the mixture not used within 30 minutes after water is added must not be used for the top but may be put into the concrete for the base. The spreading may be done with the ordinary trowel or with a home made one which may be a surfaced piece of 2x6. It may also be an inch thick. On one side may be arranged a wooden handle which makes it possible to use it to trowel down and smooth the surface. Of course to work it to a true edge and even surface a straight edge is necessary before the final finishing. The final finish may be best secured by allowing a short interval before final smoothing but it must not be allowed to stand too long for it will then require excessive troweling and the right finish will not be secured. The wooden trowel gives a better surface than the steel tool.

THE WISCONSIN SALE

Manager F. H. Everson writes us that the next Wisconsin State Holstein Breeders' sale will be held at Fond du Lac, Wisconsin, March 12 and 13. These great Wisconsin sales are becoming historical events with the Holstein Friesian people.

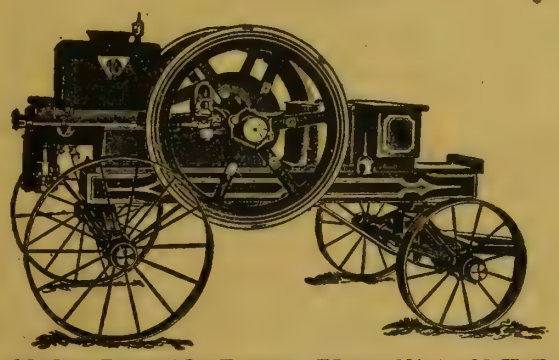
The maximum price at which farmers may sell cattle for slaughter in Switzerland has been fixed at 23 cents per pound on the farm. Maximum prices for meats have also been established.

Principles are fine things, but a cheerful disposition is easier to live with.—Binghampton Press.

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THE FIRST COMMERCIAL CROP OF PISTACHE GROWN IN CALIFORNIA

Written for California Cultivator
By Claud D. Tribble

OWING to a mix up on the part of those supplying the scions for our trees we did not have our male trees properly placed so had to pollinate our orchard by hand. This was done by cutting branches of flowers from the male trees when the first pollen began to escape and placing these on the wind side of the female trees to carry the pollen through the trees. This was done April 20 by one person. If it had been followed a few days later by more male branches our crop would have been greatly increased. One tree was not pollinated and although it was full of female flowers it did not produce a nut as it was so far away that the pollen from the others did not reach it. Mature nuts were secured early in September but the main crop was gathered September 20 and 21. We spread burlap sheets under the trees, then stripped the nuts from the stems and allowed them to fall on these sheets, when they were poured in to buckets then sacked to send them to the sheds.

The husking was more of a problem as the size of the nut made hand husking out of the question, so we took sheet iron and punched rows of holes in it, placed it in a frame, the rough side up and made a rubber of sheet iron, with holes made the same way, and nailed this to a handle. We poured the nuts into the frame about one and one-half inches deep and ran the rubber over them and then poured this out in boxes and picked the nuts from the husks. Those that were not husked were put through again. After husking, the nuts were placed on trays to dry. They were spread about two inches deep and stirred several times during the day. It took four days of good weather to dry them. A machine for husking can be made from wire mesh (⅝ by ¼ inches mesh). Make two drums, one to fit inside the other and to revolve in opposite directions, leaving a little space for the nuts to get through. By inclining this the nuts will come out clean and the husks drop through the mesh to the floor.

Some of our trees produced a few nuts in 1917 and in 1918 nearly all had a few nuts on them. The largest yield for one tree was 36 pounds of nuts in the husk. This made 21 pounds of nuts husked and 12½ pounds of dried nuts.

About 45 per cent of the nuts crack in the husk on the tree. These are kept separate and sold for salting in the shell. Those that do not crack are shelled by machinery and used in manufacturing candies, ice cream and coloring oil for candy and pastry purposes.

Home grown pictache nuts caused considerable interest among the importers, manufacturers and dealers. The United States department of agriculture took a portion of the crop for their investigations. Wherever samples were submitted they were pronounced equal in every respect to the imported nuts and the proportion of kernel to shell seems to be greater. Some to whom samples were sent pronounced them better than the imported varieties.

Those who make a business of shelling almonds and peanuts for manufacturing purposes say they can adjust their machines to crack or shell the pistache and G. P. Rixford says he was advised that when enough could

Almonds
Apricots
Apples
Cherries
Figs
Olives
Pears
Peaches
Plums
Nectarines
Walnuts



If you want exceptionally fine specimens of Italian Cypress, Irish Juniper and Irish Yew, we can supply them.

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true to name of any privately owned orchard
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probably the most magnificent stock of ornamentals to
of coniferous and broad-leaved evergreens is not appr
acter of our soil is such that we are able to "ball" all
chasers of ornamentals call at our nursery and personal
ence enables them to save buyers the mistakes frequen

Descriptions and illustrations found in our Catalogue assist
ually seeing the stock and talking things over with men who have
are thoroughly familiar with every phase of plant life is much bet
grounds are on the State Highway, less than a mile west of Ni
to Niles and telephone us from the station and we will send a co
stages running between San Jose and Oakland every half hour.

A Bit of History

The California Nursery Company of Niles is probably the oldest nursery in the State, being established in 1865. This nursery has been in active operation at Niles, California, since 1884. It is located on a tract of land comprising 465 acres, the soil being regarded as the cream of Alameda county. Time has established the fact that the late John Rock, who was the guiding spirit of this enterprise from the year of its inception until his death in 1904— having come here from Wayne, Santa Clara county, where he had been conducting the largest nursery in the State for a period of twenty years—acted wisely in selecting this favored spot. That this selection was a wise one has been fully demonstrated, for it is very rare indeed that it is possible for a nursery business to continue in one place for thirty-five years and succeed in growing successfully such an assortment of fruit and ornamental stocks—probably the largest and most complete in the United States.

The Apricot

The apricot is a native of Asia Minor and the higher regions of Central
budded on peach, apricot and Myrobalan roots. The very finest apricots, b
and quality, are grown in this State. California possesses a monopoly of ap
It seems strange indeed that there has not been a greater tendency on th
planters in the coast counties to plant at least a part of the acreage whic
devoting to prunes on their places, to apricots. It is very rarely that an apr
a failure in any of these sections. They are never lost on account of rains be
ripening period occurs at a season of the year, extending from June to Augu
rains occur in California.

Our 1919 Illustrat
Contains
The Niles Giant
pre-eminently as th
diameter---One stai
from early spring

California
P.O.Box 430 Niles,

ental Trees

fied and tried varieties of fruit trees he country and it is from this reliable or the pedigree of our trees. We have found anywhere. Our enormous stock ned by any other nursery. The char- ls of evergreens perfectly. Many pur- onsult our experts, whose long experi- nade by novices.

tly in making intelligent selection, but act- years of experience and who understand and Visitors are always welcome. Our office and If coming by train, take the Southern Pacific nce. The Western Stage Company has auto e stages run directly by our nursery.

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We wish to assure those who entrust their designing to us that we will give our personal attention to their particular problems. Our prices will always be found reasonable, consistent with good work.

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For over half a century we have been collecting and developing plants from all over the world. More specimens of our production are to be found surrounding palatial California homes and in public grounds than have come probably from any single source.

Write for Cross-Section Blank

We have prepared a cross-section blank on which detailed directions are given as to the information we must have for the preparation of a sketch. This will be mailed promptly on application without charge.

Almonds

It is size ture. t of are op is their n no

The United States impports annually 9000 tons of almonds. Our annual production is 3000 tons. The only State in which almonds can be grown successfully is in California. In the last few years many new localities have been found adapted to almond culture. The quality of the nuts is exceptionally good, no matter where they are produced in California. It is a self-evident fact that, with our small production and our large importation, no one can make a mistake where conditions are favorable in planting almonds.

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be had they could be shelled for three cents per pound. The manufacturers offer to shell amounts from 500 pounds up. Some firms advise us there will be no limit to the amount of these nuts they can use and at a good price. At present the shelled nuts are selling at wholesale at $1.25 per pound in San Francisco. The pistache will succeed on soil where other fruit and nut trees cannot thrive.

GARDEN TALK

By Ernest Braunton

For Cut Sprays

All who grow flowers in sufficient quantities to gather for house use like to have some light spray-like flowers that will look well mixed with roses, carnations, and other flowers of large size. Some grow stevia for this purpose and while it is showy it is not of spray-like growth and therefore too heavy for the purpose. Gypsophila or schizanthus are far preferable and doubtless are good as anything that could be found. Both may be grown from seeds sown at this time and will result in a good crop of flowering sprays for the whole summer.

House Palms

House palms are not difficult to care for or maintain in healthful condition for years. Food and water alone are required for palms do not thrive if roots are much disturbed. They should never be repotted unless absolutely necessary and this stage comes only when the pots are well filled with roots. These roots are few and therefore require little space and commercial dealers sometimes root-prune certain species in order to keep them in small pots. When repotting use but the next size larger in pots. Water them frequently by standing pot in a vessel or tub of water for a quarter-hour. During the growing season watering should be frequent and light doses of liquid manure, or a commercial fertilizer should be given. Keep the leaves washed free from dust so the pores will not be clogged. Potted palms grow very slowly.

A Favorite Pot Plant

Of all pot plants with palm-like foliage I do not know of another so easily grown as the aspidistra. The flowers are small, dull in color and rest on the soil among the leaf stems and so it is wholly a foliage plant and for that purpose has but few equals. Its needs are few—water well and keep leaves clean—a simple treatment. Like all plants it thrives best in good light (without sunshine however), but I do not know of another plant that so well stands darkness. The aspidistra will thrive in dark rooms, in bad air, for years if only occasionally given short spells of strong light. It belongs to the lily family and is native to China where it grows along the wet banks of shaded streams, ditches and in flowing water will thrive in full sunshine. In poor soil the leaves may become striped with white but in good soil they turn green again.

Spring Flowers

At any time during the next four weeks is a good time to sow all flowering annuals from alyssums clear through the alphabet to zinnias. There is no need of your being short of bright flowers, for a small amount spent for a variety of seeds will return a continuous crop throughout the summer. It is not well to buy these plants by the dozen when you may grow them by the hundreds at a lesser price. So many of them are hard to discourage after once they are up that it seems many would grow without the least care. More than that some will re-seed themselves and will always be with you. I still have portulaccas and poppies from seeds sown many years ago and can hardly keep the garden clear of them where they are not wanted.



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Thursday, Feb. 20

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Dairy Cow Demonstration

"PLEASE, Mister, what makes the cow's nose always sweaty?" was one of the questions propounded to Assistant Farm Adviser Scribner of Los Angeles County at the recent dairy cow demonstration at the Elliott-Brant Rancho at Owensmouth. It was a poser, and the farm adviser quickly admitted that the little girl, like all the rest of the human race, had presented a question which tests the best talent connected with the state university. Mr. Scribner did conclude, however, and inform the little lady that if the cow's nose was not covered with tiny beads of moisture it was a sure indication of ill health. Like the dog, the cow must have a cool moist nose if in healthy condition.



Practical Dairy Lessons at a Practical Dairy

On the Elliott-Brant Rancho, January 23, inspection of the silos, the milking barn, separator house, the practical use of milking machines and some of the best dairy animals in the world, together with a talk by Assistant Farm Adviser Scribner, united to make a couple of hours of a summery mid-winter afternoon most instructive. Adviser Scribner, in shirt sleeves, with arms folded, is just calling attention to the essential points of the head of the herd.

This homely incident is referred to as indicating some of the practical work done in these farm bureau meetings. They are decidedly informal. In this case the gathering was in the corrals of one of California's finest dairies, in fact, the ranch which produced the milk which won the highest honors at the recent Liberty Fair in Los Angeles. The milk, which tested 98.5, was scored by C. M. Hoyt of the dairy division of the bureau of animal husbandry of the United States department of agriculture. This milk has been characterized as the highest scored milk ever produced, and every ounce of it was produced by pure bred Guernseys. These Guernseys were used in the demonstrations conducted by Mr. Scribner. First, the head of the herd was led in; also other bulls, both aged and youngsters. Next came calves, and finally aged cows. In each case Mr. Scribner, who is a dairyman of many years' experience and had the honor of exhibiting the world's champion butter producer at the St. Louis Exposition, drew attention to the principal points of the producers amongst the dairy cows.

After he had finished with the cows he made the further suggestion that after all was said and done the best of guns and munitions in the recent war were useless without the intelligence and bravery of the man behind. Equally so there was never a successful dairyman yet who was not efficient and alert to take advantage of every circumstance from feeds to market. The cow must be all right and give the dairyman a chance to do his part, but the real answer comes from the man behind.

After the dairy cow had had its innings the audience adjourned to the ranch of Creamer & Ireland, a couple of miles distant, and proceeded to judge and to discuss the points of Duroc-Jersey hogs. This discussion was in charge of Assistant Adviser G. E. Gordon.

Live Stock Notes from Nevada

The state live stock board, consisting of ex-Senator H. F. Dangberg, Minden; ex-Senator Thomas Bell, Nye County, and John H. Cazier, with Dr. Edward Records, state veterinary control officer, is working on a plan for tubercular control for Nevada. The plan is to ask for funds to pay for reactors which are killed out of state funds, together with an appropriation for the same by the federal government.

An agricultural society consisting of members of the three agricultural divisions of the university, the college of agriculture, agricultural extension and the agricultural experiment station, has been formed to promote better agricultural conditions throughout the state.

Squirrels and jack rabbits have become a great pest in the farming districts, notably in the eastern part of the state. This is no doubt due to the rapid and vigorous extermination of the coyote during the rabies control campaign during the past few years.

Thousands of sheep are grazing on the sage in northern Washoe and southern Nye and Esmeralda Counties.

Henry F. Alps, meterologist of the local weather bureau, has lately added a herd boar, Anchorage Leader, to his fine Berkshire herd. Mr. Alps is an enthusiastic city farmer who is making good on a small suburban farm.

Nevada is experiencing a rather open winter although the temperature has continued low since the middle of December. Some heavy snows have fallen in southern Elko County, however.

Hay fed steers are now starting to market. Owing to high prices for hay early in the season, a smaller number of steers are being fed this year.

Some small lots of hay are being offered in the Truckee-Carson project, near Fernley and Fallon.

Tony Faretto of Reno has lately purchased six high class Hampshire ewes of his neighbor J. J. Frey, also a Hampshire ram of the University of Nevada.

The University of Nevada has just obtained a Berkshire herd boar, Nordyke's Comet 2nd, from Joseph Wilson, Jr. of Yerington, Nevada.

George Wendt, manager for Longview Farm, Fallon, Nevada, has resigned to take a new position with the Hendersons of Sacramento.

John B. Matley of Reno reports the sale of a Percheron mare to W. H. Moffat, president of the Union Land and Cattle Company of Reno, for his Alamo Ranch.

The University of Nevada reports the sale of a Duroc-Jersey boar by Allright Boy to Evan McIntosh, Reno, the Dorset sheep breeder. Mr. McIntosh was formerly shepherd for the university.

Jack Cornthwaite of San Rafel, Cal-

fornia has lately taken the position of herdsman at the University of Nevada. It is to be noted that he takes particular care of his Shropshire sheep and Shire horses.

C. J. Lockwood of Reno has lately added a herd of Ayrshires to his well equipped farm on the Truckee Meadows. Mr. Lockwood is thinking seriously of adding a flock of pure bred sheep within the near future.

LIVE STOCK NOTES FROM ARIZONA

Arizona wool growers met in Phoenix January 11. The new wage scale demanded by shearers was accepted. Grazing fees on the national forests will be increased this season.

The executive committee of the Arizona Cattle Growers Association met January 13 to complete plans for the annual meeting to be held in Phoenix in February and also to consider matters that will come before the national meeting to be held in Denver.

Heavy snows are reported in the White Mountains and the coldest weather ever recorded there occurred January 2—25 degrees. It is expected that there will be some loss of cattle as the grass is all covered and snow is not melting. This is an evil that has its bright side for it will mean fine spring range with plenty of water, incidentally it means lots of water in the Roosevelt reservoir for the Salt River Valley.

The ranges in Pinal County are reported as rapidly getting in fine shape owing to three inches of rain which has fallen since December 1.

Mouldy silage has caused the death of several horses near Mesa.

The live stock sanitary board now has recorded 20,000 brands, and as many of these are believed to be unused at present it is proposed to have all brands re-recorded and a complete new system of cataloging will be installed which it is expected will simplify the work of the office.

Nineteen of the 75 inspectors of the state have been replaced with new appointees under the new administration. Other appointments are expected shortly.

POLANDS TO SELL AT HANFORD FEBRUARY 22

The next annual sale of Poland Chinas by the Kings County Poland China Association will be held at Hanford February 22.

Kings County furnishes a splendid example as to the possibility of community effort in live stock production.

From a small beginning a few years ago, this county has become the center of Poland China breeding interests on the coast. A few years ago a county association was formed and public sales were initiated. Each year has seen a marked increase in the number of herds maintained in the county and with each sale has come an increased interest in these annual events, until now the fall and spring sales are regarded as fixtures and the buying public has come to look forward to them as affording an opportunity to select breeding stock that represents the cream of Kings County herds.

This year's offering, it is stated, will be more attractive than usual. The year has noted an improvement in many of the herds. Much new blood has been brought into the county and the sale offering is being selected to measure up to the high standard set by former vendues.

TO REDUCE MILK PRODUCTION COSTS

Following a study of practical means to prevent the cost of milk production from rising to a point where dairying ceases to be profitable, the dairy division of the United States department of agriculture has found that four important factors have a direct bearing on the problem. By attention to these factors, all of which are within the control of producers, it was found that under Indiana conditions, which are typical of the area supplying whole milk to Chicago, the cost of production could be reduced considerably. The factors are raising the average production per cow, reducing the quantity of concentrated feed given low producing cows, substituting legume roughage for a part of the concentrates, and more careful handling of the manure. The importance of handling manure properly is secondary only to feed from the standpoint of net profits.

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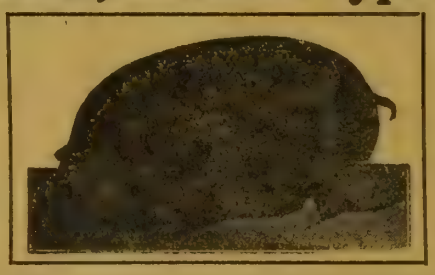
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Live Stock News Notes

Celvian Buys Paicines Shorthorns

The herd of Shorthorn cattle maintained on the Paicines Ranch owned by A. King McCumber has been sold to Edward Celvian of San Francisco.

For a good many years this collection of cattle has been regarded very highly by breeders in the state. The blood line represented in the herd were among the best and while the herd has not been represented in the show rings recently it has been responsible for the distribution of some very desirable cattle. It will be recalled that the cow Glenbrook's Marvel, dam of California Favorite and California Marvel, was obtained by university farm from this herd.

Mr. Celvian, whose recent activities in live stock circles have attracted much attention, plans to handle his new herd on his large Kern County ranch.

Anderson Believes in Barrow Contest

Frank B. Anderson who is developing a herd of Berkshires on his ranch near Sacramento believes that a barrow contest such as will be held by the Western Berkshire Congress at the annual meeting at the University Farm, Davis, February 19 and 20, provides the best means of demonstrating the efficiency of any breed or herd, and because of this belief Mr. Anderson is fitting a pen of barrows for the show.

Anderson is a practical breeder who is raising hogs for profit and he is proceeding on the theory that inasmuch as the pork barrel is the ultimate end of a hog the farmer is chiefly interested in only the sort that will hang up a carcass at the least expense.

We are rather of the opinion that most of the swine breeders, regardless of the breed they may be handling, will find these barrow and carcass contests of valuable assistance in furthering their interests.

Guaranty Sale in March

The annual Guaranty Sale, the classic Holstein event, will be held in Sacramento some time in March, according to advices from C. L. Hughes, manager of Breeders' Sales and Pedigree Company.

The sale was originally scheduled for a December date, but owing to the high quality demanded by the backers, some difficulty was experienced in getting the necessary entries. Present indications point to a very attractive lot of consignments from a wide territory.

Milk Plant for Sacramento

The Northern California Milk Producers' Association has let the contract for the construction of a milk products plant that will represent an investment of $125,000. The plant will be located in Sacramento and will turn out butter, cheese, condensed milk and other milk by-products.

Carruthers Bull to Spencer Ranch

W. M. Carruthers, Shorthorn and Berkshire breeder of Live Oak, has sold the senior bull calf Live Oak Flash to the Spencer Ranch Company of Cranmore. Live Oak Flash was sired by Hallwood Flash and is out of a Queen of Beauty dam.

Cattlemen in Zone Four Meet

Members of the California Cattlemen's Association in zone four held their initial meeting at Fresno December 16 and elected the following officers and directors: J. W. Guiberson, Corcoran, chairman; A. C. Cranor, Fresno, secretary; A. S. Good, Bakersfield; Louis Frankenheimer, Stockton; L. A. Nares, Fresno; Stephen J. Pate, Le Grand.

A resolution was adopted opposing the extension of National Parks in California. A letter was sent the federal food administrator for California thanking him for his effective efforts in securing the opening of the national parks for grazing purposes.

Durocs in Good Demand

Clayton N. Slocum, junior member of H. P. Slocum & Sons, Duroc breeders of Willows, states that the demand for breeding stock has been keener the past few months than at any time since the herd was established, and that buyers do not hesitate to pay

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good prices. Numerous sales have been made to settlers on the state land colony project at Durham. O. R. Moll, a new arrival in the Dunham community, secured a full sister to the 1917 Nebraska state fair winner. A boar by High Orion, the popular Missouri sire, was sold to Frank Tetereau of Red Bluff.

Bassett Loses Model Fellow

M. Bassett of Hanford, dean of Western Poland China breeders, reports the death of his herd boar Model Fellow. This boar was sired by Long Model and was out of Long Lady. He was farrowed June 19, 1915, and while he did not live to the age of most boars, he lived long enough to leave his mark in the Bassett herd. Mr. Bassett regarded him as one of most valuable boars he ever owned and counts his death a distinct loss to the breed. Fortunately the herd contains a goodly number of his selected daughters and these are being mated with the following boars: King's Gerstdale Jones, a grandson of the noted Gerstdale Jones; King's Timm by Sevier's Timm, who is a litter mate to the $5000 Liberty Timm; Orange King, a son of Ohio King; and California Buster, by the celebrated Giant Buster.

Trade has been unusually good the past season, and only a few head of gilts bred for spring farrow and boars old enough for service are left. There is, however, a nice lot of younger pigs of either sex.

Mr. Bassett believes he has as good feeding quality established in his hogs as can be found in any herd in the country and he proposes to demonstrate the contention with a carload of barrows that are being fitted for the San Francisco show next month.

Wasco Hogs Net $16.60-16.65

At the recent auction sale of fat hogs held at Wasco, five carloads sold at prices netting $16.60 to $16.65. One carload of rather rough stuff fetched $16.10.

One of the first hog auction sales held in this state was made at Wasco something over a year ago and since that time the popularity of that method of selling has gained in favor and resulted in raisers receiving substantial margins over the usually quoted prices.

Farm Bureau Hogs Sold at Fresno

The Fresno County farm bureau held an auction sale of fat hogs at Kearney Farm January 9, selling seven carloads at prices ranging from $15.15 to $15.85. The sale totaled near $16.000. Hogs were consigned by about 30 farmers. The heaviest contributors being the Fitzwilliams ranch, 60 head; Kearney Farm, 50 head, and H. E. Vogel, 40 head.

Armour Sends Hogs to South America

To help South America swine raisers improve the quality of their droves, Armour & Company are arranging to ship a large number of pure bred boars and gilts from this country for use in Brazil and the Argentine. Duroc Jerseys and Poland Chinas predominate in the lot that is being collected and conditioned for the first shopment south. Orders for other breeds are expected for future shipments.

Brock Bros. Sell Holstein Bulls

Brock Bros. of Pacheco report having sold a grandson of Dutchland Sir Korndyke Colantha to California state prison, San Quentin, and two grandsons of Tirzah La Polka Piertertje Lad, one to Dominik Wiget, Meridian, the other to Joseph Lucas, La Fayette.

Tulare Durocs Sold High

The first consignment sale held by the Tulare County Duroc Jersey Breeders' Association at Tulare, January 15, resulted in extremely satisfactory prices. Bred sows and gilts were absorbed by buyers at prices from $175 to $450.

There is an unfilled and growing demand throughout this state for better live stock of all kinds and breeders who are producing the better sorts are experiencing a keen demand at profitable prices.

Guaranty Holstein Sale, March 27

March 27 is the date set for the annual Holstein Guaranty Sale. The sale will be held on the grounds of the State Fair at Sacramento.

The number of cattle to be sold has not been announced but the management is busy selecting consignments and every effort is being made to catalog a superior offering.

Sales Manager C. L. Hughes states that the majority of entries will be secured from the top herds of this state, and it is certain that several of the leading herds of the Northwest will contribute.

State Dairy Commissioner W. A. Barr of Arizona estimates the number of dairy cows in Arizona to be 84,000, 58,000 being producers, the balance young stock and bulls. The annual production is 260,000,000 pounds of milk. The number of dairy cattle has decreased 8000 during the past year, but the production during next year, he believes, will be greater than this year. Many, probably most, of the discarded animals were culls. Sixty per cent of all the cows in the state are in Maricopa County. The product is disposed of as follows: 22½ per cent consumed as whole milk, five per cent for ice cream and soda fountain trade, 25 per cent is condensed and the balance, 47½ per cent, is made into butter and cheese.

Jersey Breeders to Meet in February

Guy H. Miller, Modesto, president of the California Jersey Breeders' Association, writes that there will be a meeting of the association in February. The place and date of meeting to be announced later.

Mr. Miller states that his Venadera herd is in excellent shape and that, judging from his inquiries, there is a broadening demand for Jerseys throughout the state.

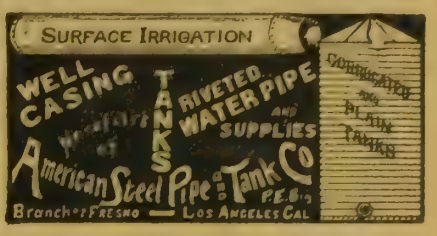
Mr. Miller recently sold the young bull, Altama of Palomar, a son of his well known herd bull, Altama's Interest, to C. H. Sturges of Yuma, Arizona.

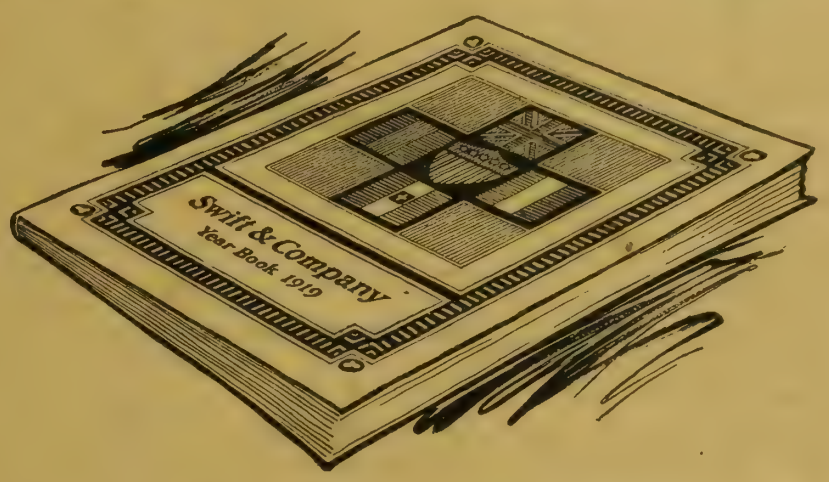
University Secures a Humphrey Boar

Charles Maurer, who has charge of the Berkshire and Guernsey herds maintained by A. B. Humphrey at his Grape Wild Farms near Escalon, has

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Two High Class Jr. Boars, choice $65.00. Six Fall Boars, choice $50.00.
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Scouring calves indicate a germ infection that is likely to run through your entire herd with serious losses. The loss of one calf is bad enough, but nothing compared to your loss when the infection spreads, as it will unless checked. Then your year's work in building up your herd is wasted and your profits lost.

Our method of handling calves will promptly stop scours and finally banish it from the premises. One good calf saved will repay the expense of protecting your stock for a long time against the disease.

B-K, the powerful germicide and disinfectant, is especially adapted to this work. B-K contains no poison, acid nor oil. When used internally it destroys germs, heals inflamed membranes, relieves irritation, restores healthy action. B-K may be given freely in the milk and drinking water.

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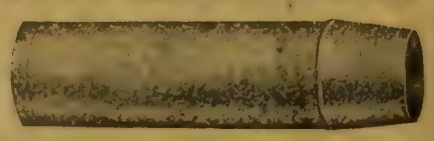
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recently sold the short aged junior yearling boar, Grand Fashion Leader, to the University Farm, Davis.

Grand Fashion Leader was sired by Grand Leader 2d and is out of a Fashion Longfellow sow. He was selected by Professor J. I. Thompson for use on the University sows, most of which are sired by Star Leader, a son of Grand Leader 2nd.

Grandson of Woodford for California

H. M. Barngrover of San Jose, who maintains a herd of Herefords on his Plumas County ranch, has selected the young bull, Don Woodford 4th, to head his herd. Don Woodford 4th was secured from Walter L. Yost of Kansas City and is a grandson of the famous Woodford 500,000 formerly at the head of Col. E. H. Taylor's herd in Kentucky.

Tulare Dairymen Receive $168,000 in December

During the month of December, three creameries operating in the Tulare district paid dairymen $168,000. Butter fat ranged from 71 to 74 cents per pound and whole milk was taken at $6.00 per hundred.

More Money Asked for Fair

Senator James C. Nealon has introduced a bill in the legislature proposing that the state extend greater financial assistance to county fairs. The measure recognizes the fact that fairs are of direct and powerful aid in developing the resources of the state and it provides that not more than $10,000 may be appropriated in any one year to a single county.

Alexander P. Fleming of Los Angeles County has introduced a measure appropriating $75,000 to pay the deficit incurred by the management of the California Liberty Fair held at Los Angeles.

Barrows Now With Muddux

C. E. Barrows, a Berkshire breeder of some 20 years' experience on the Western Coast, and recently in charge of the Natomario Rancho herd, has arranged to take charge of the breeding operations of H. C. Muddux & Son, Sacramento.

Mr. Barrows was largely responsible for the winning of two grand championships at the 1917 National Swine Show for Brush herd.

Melba Hengerveld on Test

Melba Hengerveld, a registered Holstein cow owned by Alex Whaley, Tulare, is on official test and has 30.12 pounds butter and over 600 pounds milk to her credit in seven days with very good prospects for an increase. She is by Arcady Pontiac Wayne Hengerveld and was one of the top cows in R. F. Guerin's sale last spring. She is being handled on test by Harry L. Redd, herdsman at W. J. Higdon's Tulare Holstein Farm.

Bridgeford Holstein on Test

What is probably the first daughter of King Valdessa to freshen is on official test in the Bridgford Company Holstein herd at Knightsen, and has over 22 pounds butter to her credit in seven days as a two year old.

Higdon Cow Finishes Test

Wayne of Rock, one of the good registered Holstein cows owned by W. J. Higdon, Tulare, has completed a 305 day record with 17,707.6 pounds milk and 802.63 pounds butter.

Seven Day Official Test

Sir Skylark Ormsby Hengerveld Pet 2nd, a registered Holstein cow owned by Gotshall & Magruder, Ripon, recently completed an official record of 30.62 pounds butter in seven days. She is sired by Otto McClure's bull King Pontiac Netherland Segis, and is out of a daughter of Sir Skylark Ormsby Hengerveld.

New Holstein Herd at Tipton

F. S. Barron & Son, formerly breeders of registered Jerseys in the East have located on a farm at Tipton and are establishing a herd of registered Holsteins. Their first purchase was made at the Tulare sale in November and they have since purchased four choice females from W. J. Higdon, Tulare.

Alex Whaley Reports Good Record

Alex Whaley, Tulare, recently secured the good record of 18.18 pounds butter in seven days on a beautiful daughter of Aralia De Kol Pontiac Segis. This heifer dropped a fine heifer calf by King Morco Alcartra, son of Tilly Alcartra.

Sale of Holsteins

A sale of 40 registered Holsteins and 40 high grade Holsteins is announced for April 9, for E. P. Putz, Kingsbury, by California Breeders' Sales and Pedigree Company.

"Pleasure," said Uncle Eben, "can be imported, but happiness has to be home made."

The stones you throw at others today you will find in your pillow tonight.



Calf Enemies

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Berkshires—Both Sexes

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Perkins, Cal.

WESTERN DAIRY PRODUCTS SHOW

The Western Dairy Products Show given by the Western Dairy Instructors Association will be held at Boise, Idaho, February 10 to 12.

Entry blanks have been mailed to butter makers and cheese makers for the butter and cheese classes and entry blanks for the market milk and cream classes have been sent to the dairy inspectors for distribution. A bulk cream class has been added this year which provides for cream producers of California sending to Davis, one five gallon can of cream. The cream will be paid for at market prices and the county farm bureau having the five highest scoring exhibits will receive a banner. Premiums in other classes will consist of gold and silver medals, banners and diplomas.

Last year the California butter makers entered the five highest scoring exhibits of butter in this show and a handsome silver trophy was awarded to the state and has been on exhibit in the dairy building at the University Farm. It is hoped that the butter makers will be as successful this year and that the trophy may remain in California another year.

The bulk cream exhibits must be shipped to Davis on January 28. Care C. F. Hoyt.

The butter, cheese, market milk and cream exhibits should be shipped express prepaid to Boise, Idaho on February 3rd. All milk and cream exhibits to be placed in tight boxes and covered with sufficient ice to last until reaching the destination. Additional entry blanks and rules governing the contest can be secured by writing Dairy Division, University Farm, Davis.—C. L. Roadhouse, Publicity Committee for California.

FOUR COUNTY DAIRY COW CONTEST

We have from Ernest L. Conant, assistant emergency demonstration agent, correction and additional information on article under this same caption which appeared in the Cultivator of January 18.

At the present time the committee in charge of this work have secured more than $2500 worth of prizes. These prizes consist of cash, pure bred live stock and merchandise. The committee in charge of this work, A. E. Greene, of Hood, chairman; Guy Foulkes of Elk Grove and R. E. Watson of Sacramento, have been doing splendid work in getting this contest started and we find that considerable interest is being shown by our members in the contest.

In view of the fact that all milk sold by our members is sold on a butter fat basis, it was deemed best to make this contest solely on a butter fat production basis; as shown by the figures of the test supervisor.

The following classes were adopted as being suitable for our conditions:

Class A—Herds of 5 to 20 cows; highest yearly average production.

Class B—Herds of 21 to 50 cows; highest yearly average production.

Class C—Herds of more than 50 cows; highest yearly average production.

Class D—Highest herd in each of the above classes headed by a grandsire.

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It will be seen from the above that all except classes E, F, I and J are restricted to grade herds. Any herd composed of more than 50 per cent grade cows will be considered a grade herd. Any herd carrying Jersey blood will be considered to be eligible in class H. Any herd using a grandsire on January 1, 1919, will be considered to be eligible to competition in class D. Classes A, B and C will be determined by the average number of cows tested during the year. Classes E, F, I and J are open to all herds, grade and pure bred alike.



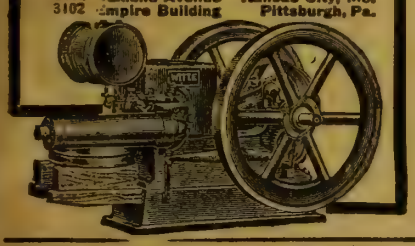
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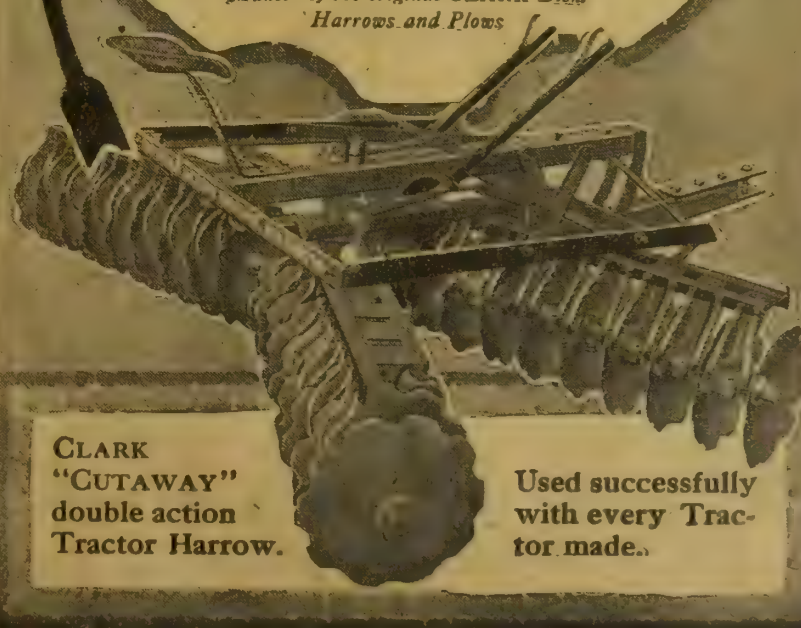
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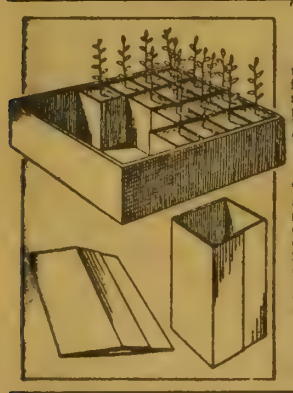
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Ducks on the Farm

Written for California Cultivator By Jean A. Koethen

DUCK raising on a large scale has been developed as a special business on Long Island and near some large Eastern cities, but lack of a wide and steady market has prevented its development generally throughout the country, and especially on the Pacific coast where climatic and feed conditions are less favorable than in the East. The Pekin duck, which is the only variety suitable for the "green" duck market, is a large, vigorous bird, grows rapidly, stands confinement well, is less susceptible to disease than a chicken, and more easily brooded, but the price paid for green ducks at ten weeks of age is hardly more than half what a chicken the same age will bring, and the cost of raising the duck is about the same. A bulletin recently issued by the department of agriculture says: "The demand for table ducks at good prices is largely limited to the large cities and is not nearly as general as the demand for chickens. The market conditions should be studied carefully before a large investment is made in ducks. A prejudice against duck flesh and eggs exists in many places, caused probably by eating the common or 'puddle' duck which has been allowed to roam in places where filthy conditions exist." The same bulletin states that the feed cost of growing Pekin ducks to ten weeks of age, when they weigh from five to six cents a pound, is estimated at from five to six cents a pound (1915). This estimate is much below that of an Inglewood man with whom I talked in 1917. He estimated that in selling green ducks at ten weeks of age at 17 to 21 cents a pound he made a profit of seven or eight cents a pound. Under present conditions feed costs are doubtless considerably more and profits proportionately less.

On general farms where there is plenty of green range, duck raising on a small scale ought to be fairly profitable. On bottom land, such as we find along all our Southern California rivers, they do particularly well and are valuable for both eggs and meat. Indian Runners on such range require a minimum amount of feed, and if they bring less in the markets than hens' eggs, which is not always the case, are admirable for use at home. Thousands of California farmers do keep a few ducks and find it worth while.

Pekins for meat and Indian Runners for eggs are most generally kept, but the meat class of ducks includes the Pekin, Aylesbury, Rouen, Cayuga, Buff and Swedish. The Muscovy and Rouen are not as good layers as Runners, nor as well adapted to market purposes as the Pekin, since the Rouen matures more slowly, and the difference in size between the Muscovy duck and drake is too great, but they are handsome birds, and favorites with fanciers. The Muscovy moreover is a wide forager and requires little care, which is a great recommendation. The Buff duck is recommended both as a layer and table duck but does not equal the Pekin in the one respect nor the Runner in the other.

In the East the wild Mallard duck is being domesticated on farms where there is marshy ground. It brings high prices in season, is very hardy and easily raised. With ample range these birds are said to be practically self supporting for half the year. The ducklings are hatched either by hens or by the parent ducks and are fed a purchased feed prepared especially for ducklings, or a mixture of hard-boiled eggs and fine oatmeal, moistened with boiling water. Later they are given commercial duck feed, bone meal and grains, and an occasional feed of boiled rice. The general testimony of experienced breeders is that they can be raised more cheaply than most domestic ducks.

In planning a duck pen allow six to seven square feet of ground space to each duck. In this climate ducks require but little shelter, a shed-roof house, open in front and with dirt floor being sufficient. Green range is not necessary but it simplifies feeding greatly. Water need be given only in tubs or pails which will permit the birds to immerse the heads. Ducks which cannot wash their heads frequently become infested with vermin.

Ducks are mated in flocks of about 30 females with five or six males. In single pens one drake is usually mated with not more than five females. Active, healthy, mature ducks should be used for breeding. The best breeders may be kept three years, but general practice is to dispose of all but the very best at the end of the second year.

The breeding season for ducks begins the first of January. Pekin ducks that are to be used for breeders should be put on an egg ration about December 1. This ration consists of a mash composed of equal parts by weight of corn meal, middlings and bran, with 15 per cent beef scrap and 15 per cent vegetables or greens. This mash mixture, moistened with water till it is crumbly but not sloppy, is fed morning and night. At noon a mixture of corn and wheat (one quart to 30 ducks) is fed. Thirty Pekin ducks when laying will eat about ten quarts of moist mash at a meal. The same ration may be given to Indian Runners the year round if they are laying. When they are not laying they should be fed sparingly. Cracked corn is preferable to whole for ducks of all ages and breeds.

Both ducks and ducklings are usually fed their moist mash on a flat board. A vessel of water should be close by so that they may wash their food down. Ducks do better without much dry food though many seem to thrive on the same ration that is given to chickens. Alfalfa, barley or any other green feed may be cut up and added to the mash, and a little sand is added to the mash given to ducklings.

Duck eggs hatch well in incubators, but when only a few ducklings are to be raised in a season they are usually hatched by hens. The eggs require 28 days for incubation, except those of the Muscovy, which require from 33 to 35 days. As ducklings are slower than chicks in getting out of the shell, it is a good plan to let the hen get off the nest to eat when the eggs begin to pip, and then to confine her till the hatch is over. Just before the hatch begins the eggs may be sprinkled with warm water. This does not seem to be necessary in all cases, but it does no harm and makes it certain that the eggs will have all the moisture they need.

When duck eggs are hatched in incubators the temperature should be kept at a slightly lower temperature than for hens' eggs. Most incubator directions recommend a temperature of 102 degrees the first three weeks and 103 degrees the last week. If directions are carefully followed a good hatch may be expected. More moisture is needed for duck eggs than for chickens, and this is provided sometimes by a pan of water, sometimes by moist sand, sometimes by a wet sponge below the tray, and sometimes by sprinkling the floor of the incubator room. The amount of moisture needed depends upon the weather.

Ducklings are left in the incubator or under the hen from 24 to 36 hours after the hatch is over. It is not necessary to warn against feeding ducklings too soon, for they will not eat until they are ready, no matter how much food is placed before them. Ducklings hatched by hens are brooded by the hens if the hens will care for them, but they are so different from chickens that many hens refuse to mother them. When this happens they may be transferred to a brooder. As ducklings require far less heat and mothering than chicks, they are raised with little trouble in any sort of brooder. A heated brooder is desirable for the first week or so, but a fireless brooder, if kept indoors at night, supplies ample warmth except in very cold weather. Most of the ducklings raised in Southern Califor-

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May: "Oh, no, but one can repeat it."—Chicago Daily News.

nia are raised, I believe, in fireless brooders.

Ducklings seem to be entirely lacking in the homing instinct which is so strong in chicks. If they are not kept confined the first few weeks they will wander off and lose themselves. They are an easier prey to squirrels and other "varmints" than chickens, whether because the latter find them a more delicate morsel, or because they do not sense the approach of danger as chicks do, I do not know. I have never heard of squirrels attacking chicks, but have known of their attacking ducklings more than once. On this account they must be quite carefully confined at first. A board a foot high will keep them from wandering, but a covered coop is necessary if they must be guarded from animals.

A good nursery feed for ducklings consists of equal parts, by measure, of rolled oats and bread crumbs, with 3 per cent of sharp sand mixed in. This is made crumbly with water and fed on a board five times daily. Water is given in a chick fountain at meal times but is removed when the meal is over, lest the ducklings play in it and wet their down. A wetting before they have their real feathers is often fatal. About the third day the nursery feed is changed to equal parts bread, rolled oats, bran and corn meal. After the seventh day it is changed again to three parts bran, one part each of middlings and corn meal, ten per cent green feed and five per cent beef scrap, with about three per cent sand or fine grit in all mashes. From the end of the first week to the end of the third, ducklings are fed four times a day. After the third week, three meals daily is sufficient, unless they are to be pushed for the green duck market, when the mash may be kept before them all the time. After the first month the amount of corn meal is gradually increased and the amount of bran diminished, until two weeks before killing time the ration consists of three parts corn meal, two parts middlings, one part bran, one part beef scrap, three per cent sand and ten per cent greens. Middlings may be omitted when necessary, in which case equal parts bran and corn meal may be used. For Indian Runners, which are to be kept for eggs, equal parts bran and corn meal, with 15 per cent beef scrap and 15 per cent greens and one meal a day of hard grain should be the ration after the first eight weeks.

Farmers' Bulletin 697, issued by the United States department of agriculture, gives full directions for raising and feeding ducks and may be had free by writing the division of publications. It should be in the hands of every one who is interested in ducks.

COULD NOT DO WITHOUT INCUBATORS

Poultry raising could not be looked upon as a business; it could not even be considered a profitable side line, if incubators had never been invented. Nowadays, when every minute counts for something, it is doubtful if very many farmers' wives by hatching and brooding with hens would have time to hatch and raise more than enough chickens for home use, but with an incubator and suitable brooding equipment it is no great chore for anyone on a farm to raise from 200 to 500 chicks in a season. On many farms it is not uncommon for as many as 1000 chicks to be raised each year. Before incubators came into existence, poultry raising was never given much consideration by anyone. Quite a contrast with what is being done now by the government, agricultural colleges, experiment stations and various other institutions in behalf of the humble hen. The incubator has revolutionized this business of raising chickens and has made of it a business worth while. Is your incubator ready for business this season?

POULTRY BREEDERS ANNUAL

The annual meeting of the Poultry Breeders of Southern California Inc. was held at the office of the company, 1516 Industrial Street, Los Angeles, 10:00 o'clock Friday, January 31. Presumably the newly elected directors will meet at once and organize for the coming year's business. State Market Director Weinstock attended the meeting. This association is a strong factor in making successful the poultry breeders of California.

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BUDDED AVOCADOS
All varieties, field grown stock $2.50 each F. O. B. nursery, Mathers Avocado Nursery 137 N. Fair Oaks Avenue., Pasadena, California.

Eureka Lemon Trees, extra heavy caliper, first class in every respect, must be moved, bargain prices for quick sale. Los Nietos Valley Nursery, Downey, California.

Walnut Scions—All the standard and new varieties; Pecan and Pistache scions; Pistache seed absolutely guaranteed. Send for list. Tribble Bros., Elk Grove, California.

Ciro Barbaccia, New Nursery. French and sugar prunes and walnuts. Low prices. 406 Bird Ave., San Jose, California.

For Sale—Fruit and ornamental trees, grapevines, berry plants, etc., at low price. Buy from an ex-soldier. Burke's Nursery, Lodi, California.

Olive Trees—Mission, Manzanillo. Propagated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, California.

Placentia and Eureka Walnuts on black root. A general line of high grade nursery stock. A. R. Marshall Nurseries, 1212 Ross St., Santa Ana, California.

For Sale — Choice young, thrifty Citrus Trees. W. W. Burns, 631 Security Bldg., Los Angeles.

Apricots and Olives. Good thrifty stock and carefully grown. C. E. MOYER, Hemet, Riverside County, California.

Eureka and Placentia Perfection Walnut buds for sale. E. Holve, Fullerton, California.

TREES, TREES, TREES.
No War Prices.
Cash Nurseries, Sebastopol, California.

For Sale—8000 Mission and Manzanillo olive trees. Bed rock prices. York Nurseries, Highland, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited

LIVE STOCK

For Sale or Trade—The Imported French coach stallion "Croissant." He is a beautiful brown color, sound in every way and weighs 1650 pounds. A city ordinance prevents us using this horse, therefore we offer him for $600 cash or trade. Sawtelle Livery, Feed & Fuel Co., Sawtelle, California. Both phones.

PIPE

"TESTED" and "GUARANTEED" screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.
PACIFIC PIPE CO.,
Main and Howard Sts., Est. 1906, San Francisco.

HOGS

BERKSHIRES BERKSHIRES
ANCHORAGE QUALITY
We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

Registered Duroc-Boar Pigs—We have four boar pigs, four months old, weighing 150 lbs., out of a King's Col sow and sired by King Orion himself. Sow is a sister to Citation, $5,000 boar, and is herself one of the best sows in the country. This blood won more prizes for get of sire than any others west of the Mississippi. These pigs are the classiest boars for sale in California. Write for one or call and take your pick. $150. Hog Dept. Elliott-Brant Rancho, Owensmouth, California.

BERKSHIRES GUERNSEYS
GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
A. B. HUMPHREY,
Escalon, San Joaquin County, California.

"BILLIKEN" CHESTER WHITES.
The San Francisco Fair being called off allows me to offer some of the stock I had intended showing. This offering will consist of 3 boars and 8 bred sows and gilts. These will be priced right; also have a few weaned fall pigs left. Every animal is cholera immune. C. B. Cunningham, Mills, California.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

Plant Jerusalem Artichokes—The cheapest of all winter hog feed. Will produce fifteen to twenty tons per acre. The hogs do the digging. Plant now. Tubers $5.00 per 100 lbs., 1000 lbs. and over 3½c per lb. Address W. B. Kirk, Niles, California

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

Castleview Berkshires are the typey, modern, quick-growing kind, choicest blood lines. Prices reasonable. Castleview Ranch, Berkshires exclusively, Santa Rosa.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Young Duroc—Jersey boars Orion Cherry King and Pathfinder breeding. Reasonable. Sterling Smith, Route 1, Box 220, San Diego.

Masterpiece-Superbus strain Berkshires. Choice stock from prolific breeders. Geo. A. Stingle, San Gabriel. Ranch Garvey Ave., two miles SW. of El Monte.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

At Service—D's Wonder, the large type Poland China boar. Sows called for, fed and delivered. M. Hayward, 4 blocks east of P. O., Hawthorne, California.

FOR SALE: REGISTERED POLAND-CHINA BOARS. J. R. CARHART, FULLERTON, CALIFORNIA.

MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Duroc-Jerseys — We breed the champions. Peter, Lamson & Walker, Devore, San Bernardino County, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

REGISTERED BERKSHIRES, FAIR OAKS RANCH, WILLITS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

FOR EXCHANGE

For Exchange — Our close in Pasadena home with flowers, fruits, garage, all in perfect order, for a smaller house or land well situated. Address F. E. P., 145 N. Mentor Avenue, Pasadena. Colorado 6937.

Exchange—Beautiful home in Berkeley for country realty. Address 5809 Ocean View Drive, Oakland

GOATS

Largest Herd Swiss Toggenbergs on the Coast. 100 grade does bred to my $1000 Buck, Captain No. 256, A. M. G. R. Association, due to kid in February and March, $40.00 each, lots to suit. Crating $2.00 extra. Stamp. Rae P. Williams, Oakland, California.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC.,
The Yellow Front. Established 1892
112-118 S. Los Angeles St., Los Angeles.

POULTRY

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially Interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

Thoroughbred Barred Plymouth Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Limited number settings December and January $2.50 for 15 eggs, chicks March, April and May 30c each. Call mornings. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California. Phone 5599.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Baby "Chicks" and Eggs for Hatching from pure bred McFarland strain S. C. White Leghorns. Carefully culled and Hoganized for heavy egg production, not simply "CHICKS" but stock as well. Sonoma Valley Hatchery & Poultry Yards, Sonoma, Sonoma County, California. R. D. 2, Box 48. F. J. Hansen, Prop.

Baby Chicks—Ready in January. Order early and get the date you want. White and Brown Leghorns, Black Minorcas, R. I. Reds, Barred Rocks. Safe delivery guaranteed. Write for circular. Stubbs Poultry Ranch and Hatchery, Palo Alto, California.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale, also first class breeding cockerels. Our prices are right. W. C. Smith, Prop. Corning, California.

Bankrupt Stock of brooders, Cypher incubators, fancy corrugated paper egg boxes, roup and other medicines, galvanized feeders. Sell whole or part less than wholesale cost; 1716 Filbert Street, Oakland.

Baby Chix — Barred and White Rocks, Reds, Buff Orpingtons, Black Minorcas, Buff and White Leghorns from Hoganized stock bred to lay. Reasonable prices and pleased customers our aim. Tohene Hatchery, Washington Avenue, San Jose

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. JANUARY Chicks, Eggs, cockerels. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

White Leghorn Chicks, $13.00 per hundred in February from stock bred for fifteen years for vigor and winter egg production. A. P. Ward & Son, Calistoga, California.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Our Single Comb White Leghorn hatching eggs and baby chicks need no fancy name nor our praise. They will speak for themselves. The Golden Rule Poultry Farm, Wessels Bros., Shingle, California

For Sale—Two 400 egg Cyphers Incubators, latest model, used two seasons $30 each. One 240 egg Cyphers, $20. All in good condition. J. H. Goodier, Paradise, California.

Sly's Rhode Island Reds—Exhibition quality Hoganized stock. Hatching eggs from six grand matings. Catalog free. Albert Sly, 9642 Middleton Place, Los Angeles.

700 White Leghorn Chicks from Hoganized stock with heavy egg records. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

For Sale: Leghorn Chicks from high quality heavy laying stock. Price right. Madera Hatchery, Madera, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Schellville, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California

Bred-to-Lay and Vitality. Rhode Island Reds, 200 egg birds. Eggs $3 to $5 per 15. Eva V. Conklin, 1445 Portola Ave., Los Angeles, California.

We Have the Large heavy laying S. C. White Leghorns. Order now for early chicks. Tupman Poultry Farm, Ceres, California.

Heavy Laying S. C. Reds, Cockerels descended from winners at National shows, $10 C. O. D. W. M. Marquam, Bishop, California.

Choice White Wyandotte breeding cockerels $5.00, eggs $3.00 and $5.00 per 15. R. W. Stawetski, Route B, San Jose, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS

It's our business to improve egg production for you. We have the stock planned for your success. We hatch our own eggs and sell chicks and eggs from our own hens only. We have 1500 chicks yet to sell for middle of March, otherwise we are all sold out. Hatchery eggs from our high record hens at $5.00 and $10.00 per 15. Write us for prices on second season hens and yearling cock birds for April first delivery. These males are all bred from 200-egg hens or better and by hatching from them in May and June you will get eggs next December. If you really want the best in Leghorns, let us hear from you. ENGLANDS EGG RANCH. The home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

"Best Chicks I Ever Bought; Greatest Layers We Ever Had." Why? Bred 20 years to lay 200-290 eggs yearly. Brown, White, Buff Leghorns; Barred, White Rocks; Reds; Anconas; Minorcas; Orpingtons; ducks, turkeys; clearing customers $5. Valuable circular with proof free. Chicks; half booked to April, reasonable. 40,000 egg hatcheries full now. Many repeat orders, monthly, yearly. Breeders, pullets. James Beeson, Pasadena, California.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Setting Eggs from the Sunny Slope Poultry Ranch is sufficient to warrant quality of production. We will sell setting eggs only during 1919. If you want birds that will produce quality and quantity, place your orders with us. You will then ever be a satisfied customer. Sunny Slope Poultry Ranch, Longden Ave., Box 789, San Gabriel, California.

THE MISSION HATCHERY
Quality Chicks——Economy Prices
White, Brown, Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred and White Rocks.
Circular on request.
BREEDING COCKERELS FOR SALE
The Mission Hatchery, Box 27, Campbell, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for twenty years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Baby Chicks, Anconas, Barred Rocks, R. I. Reds, Black Minorcas, White Minorcas, Buff, Brown, and White Leghorns (Macfarlane Strain) hatching each week. Write for circular. SPECIAL PRICES if ordered this month. Poultrymen's Co-operative Hatchery, D. E. Doke, Mgr., 732 So. Spring, Los Angeles.

Golden Rule Poultry Farm, P. O. Box 740, Fresno. For White Leghorns, Rhode Island Reds, Plymouth Rocks and Anconas. Baby chicks 15c, hatching eggs 10c. By thousand lots 13c in February; 12c, March; 11c, April. "The largest and best equipped poultry farm in San Joaquin Valley."

White and Columbian Wyandottes, Single Comb White and Buff Leghorns and Single Comb Rhode Island Reds, Anconas. Exhibition and utility stock and eggs for sale at reasonable prices. Circular free. George Aumock, Palo Alto, California.

Book Your Orders with the Stevenson Hatchery, 19 Center Street, Watsonville, California, for Day Old Chicks Black Minorca, Barred Plymouth Rocks, White Leghorn or Anconas from first class utility stock.

White Wyandottes: Large vigorous cockerels from heavy laying strain. Satisfaction guaranteed. My price is right. Eggs $3.00 per 15. J. W. Nicholson, Wasco, California.

Wanted—1000 Poultrymen to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Maschweiler, Box 70, Inglewood, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, 8 Reservoir Pomona Cal

Baby Chicks from our first class White Leghorn stock. Prices on application. J. L. Russell, Gardena, California.

CATTLE

Registered Guernsey Bull Calves—High class, registered Guernsey bull calves out of Advanced Register cows with five, six and seven hundred pounds of fat records and sired by "May Rose" bulls of the richest strain for sale at reasonable prices. These bulls will be priced right for quick sales, every dairyman should have a Guernsey bull to raise his butter-fat test and give his milk the rich yellow Guernsey color. Write for prices or better call and inspect. If you buy a bull by correspondence and he is not satisfactory upon arrival you can send him back. Dairy Dept. Elliott-Brant Rancho, Owensmouth, California.

SHORTHORN CATTLE, SHROPSHIRE SHEEP. Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., California. W. P. Dwyer and W. S. Guilford, Owners.

For Sale—About 70 head of No. 1 two year old dairy heifers grade Holsteins, well marked some springers. To be sold all together or divided in equal lots. Priced to sell at $75.00 per head. A. T. Lewis, Box 54, Riverdale, Fresno Co., California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

CATTLE

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Registered Shorthorns (beef) calves and yearlings for sale. Both sexes, rede and roans. Choice goods breeding. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

Registered Guernseys for sale. P. J. Weisel, Santa Fe Springs, California.

MACHINERY

USED RANCH MACHINERY
Guaranteed to do same work as new.
WE SELL FOR LESS. CALL AND SEE.
WINDMILLS: 8-ft., $29.00 to $35.00; 10-ft., $39.00 to $45.00; 12-ft., $55.00 to $65.00; 16-ft., $135.00; 12-ft. Aermotor and steel tower $110.00.
REDWOOD TANKS
New and used GALV. TANKS, all sizes. 1000 gal., $39.00; 2000, $53.00.
1000 gallon, $19.50; 2000 gal., $26.50; 3000 gal., $33.00; 4000 gal., $39.00; 5000 gal., $48.00; 50,000 gal., $250.00; 100,000 gal., $350.00.
RANCH TOOLS: 10-ft. Hoosier Drill $95.00; mowers, $45.00; Fresno, $16.00; beet drills, $35.00. Fine 2-gang disc plow, $75.00; Avery tractor only used month $450.00, runs like new. Deere 14-in. riding plow, $35.00; brand new P. & O. tractor plow, $230.00; 3-gang disc, $85.00; 3-4-gang disc plows $120.00 to $150.00; spike harrows $10.00 to $18.00; cable 10c; 2-row Killifer bean cult. $25.00 to $45.00; weeder $8.75; 500 ft. 2-in. galv. pipe 27c; discs for plows.
PUMPS. Another double acting Ames 20 inch stroke, capacity 25 inches at 100 feet, $175.00; Bulldozer pump jack, $49.00; large size, $98.00; No. 6 horiz. Gould centrifugal, $95.00; No. 4 two-step, $150.00; No. 7 vert. cent., $150.00; many others, also rods, pipe fittings. Also buy good serviceable material. DEMMITT CO. Upstairs, 120 No. Main. Yard 816 Yale, Los Angeles.

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale—B. J. 2-stage No. 4 pump and equipment, two 12-inch steel pulleys, 52-inch wooden pulley, nearly new 15 h.p. vertical G. E. motor. R. C. Patton, R. D. 2, Orange, California.

For Sale—30 H. P. Best Tractor. All track model and 6 disc Saunders engine plow, also Clark 8 foot double Cutaway disc harrow. H. J. Warr, Perris, California.

A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D. Co. California.

For Sale—Bean Tractor in best condition with new improvements. L. F. Raftery, Owensmouth, California.

TURKEYS

Giant Bronze Turkeys — Gold Nugget strain. Prove their superiority by winning Gold Special Sweepstakes for best turkeys at the following great shows: Arizona State Fair, 1916; Texas State Fair, 1917; California State Fair, 1917-1918; Los Angeles Show, 1917-1918; Pacific Coast Land and Industrial Exposition, Oakland, 1918. An unequaled record. Large turkeys can be raised at practically the same cost as small ones. Toms for sale that will increase size and improve any flock. I am the originator of the Gold Nugget Strain. J. Will Blackman, 607 East Third St., Los Angeles, California.

Breeding Stock for Sale — Mammoth Bronze Young Tom Turkeys. Orders booked now for Bronze, also Mammoth Bronze turkey eggs in season. Robinson Turkey Ranch, San Dimas, California. Covina Phone 902.

For Sale: Mammoth Bronze baby turkeys with hints as to rearing. Palo Pino Turkey Ranch, Box 503, Monterey, California.

Turkey Eggs—For sale, eggs from thoroughbred Mammoth Bronze Turkeys. Gobblers from the famous "Gold Nugget" strain. Carrie Andrews, San Gorgonia Ranch, Banning, California.

For Sale—Golden Bronze Turkeys.—Big boned breeding Toms of America's best strain. Eggs in season. M. M. Reiman, Planada, California.

For Sale: Bourbon Red Turkeys.—Eggs for hatching $5.00 per setting of 13 eggs. Book your orders early. Albert E. Balmer, Martinez, California.

Mammoth Bronze Toms and hens for sale. Large and well marked, satisfaction or money back. Albert M. Hart, Clements, California.

WANTED

Wanted—Thoroughly capable and experienced citrus grove man. Must understand irrigation and pruning. Man with wife who would be willing to board one or more men as required. Good house supplied. Address giving references and stating salary required, Box 97, Ducor, Tulare County, California.

Wanted — Live wire representative in each fruit growing section on Pacific Coast. Splendid opening for men, with acquaintance among orchardists who wish to convert their spare time into money. Write immediately H. S. C., Box 105, Oakland, California.

Have Two More Salary positions to offer first to returned soldiers, sons of farmers preferred. Agreeable work. References exchanged. Have employed two at $112 per month. State business experience. Address No. B-14, Care Cultivator.

Wanted—To hear from owner of good farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minnesota.

WANTED

Wanted—Position as Ranch Manager U. S. or Mexico; experienced executive in general farming, cattle, hogs, irrigation and development work; speak Spanish. References. Address R. G. P., care of California Cultivator.

Wanted Second Hand Small power hay baller without the power, must be in good condition. Route 1, Box 8, Cloverdale, California.

Wanted—Permanent Position by experienced tractor operator. Caterpillar preferred. Can do all repair and upkeep work. Box 1, Cultivator.

Want to Hear From Owner of Farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minnesota.

Wanted: Subsoiler for 75 Holt. Must be strong. Will F. Phillips, Terra Bella, California.

MISCELLANEOUS

You are Losing Money if you farm without a soil analysis. Write me today for free proof of this statement. I can show you. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, California. Phones: Office Pico 843, Residence West 702.

BEST OF BUSINESS TRAINING.
Munson School
for
Private Secretaries.
600 Sutter St., San Francisco.
Send for catalog.

Pure and unadulterated leaf tobacco. Comes to you exactly as it leaves the farmer's hands. Hand picked 60 cents pound prepaid parcel post, 10 pounds $5.50. Order today. Duke Bros., Dresden, Tennessee.

Wanted — Free Homes for attractive, healthy, normal boys from seven to eleven years of age with privilege of adoption. Apply Children's Home Society, 2414 Griffith Ave., Los Angeles.

If You Want to Earn Money during spare time at good pay at home or traveling, write J. H. Yetter, Manager of Salesmen, 115-117 North Broadway, Los Angeles.

Long Distance Hauling. Anything, Anywhere, Anytime. Household movables a specialty. Write, what, where from and where to. Wagner's Transfer & Storage, 551 Main St., Watsonville, California.

Walnut Grafting Wood For Sale—Selected Franquette, Mayette, Eureka and Payne, 5 cents foot. Bowman-Kuhn Ranch, San Jose, California.

For Sale — Ranchers attention. Store your grain in tanks about 6000 bushels capacity, $250; 12,000, $350. Cheapest, quickest. DEMMITT, 120 N. Main, Los Angeles.

Extra Fancy Dried fruits in 10 and 20 pound boxes by parcel post. Write for prices. Banning Fruit Co., Banning, California.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Postal Card Views Exchanged. Geo. E. J. Lenz, Hopewell, Mercer County, New Jersey.

CAPON SPECIALIST

Every Farmer can make money by caponizing his cockerels. Instruments $4.50. Caponizing cockerels 20c each. Send stamps for reply. Mrs. H. Ament, 1923 18th St., Santa Monica, California.

SEED POTATOES

We specialize in selected **SEED POTATOES;** Certified White Rose, American Wonders, British Queens, Burbanks, Garnet Chilis, and other varieties. Also fancy, recleaned Alfalfa Seed. Write for prices.

Wm. A. Curtis Co.
San Francisco . . Cal.

There is no argument as to the best and cheapest source of available nitrogen for worn out frosted orchards. Where

Nitrate of Soda

is used the fruit never fails to set. Apply to orchard now for best results.
Mention crops interested in when writing for free information and literature.

Nitrate Agencies Co.
W. S. SPARR, Agent
321 Stimson Bldg., Los Angeles, Cal.

MACHINERY
OF EVERY DESCRIPTION
BOUGHT and SOLD
BUTTRESS & McCLELLAN
205-7 N. Los Angeles St. A-5473-Bdy. 8098

Big Moneymaker

You can make $180 a week with fruit and vegetable apparatus. Write at once. Sahara Drier Co. New way fruit and vegetable drier. 20 Eighth Street, San Francisco, California.

GET THAT SQUIRREL

Continued from Page 131

Poisoning can be done very effectively by a boy or man on horseback.

Carbon can now be purchased at about 85 to 90 cents per gallon. This will treat about 55 to 60 wasteballs. Wasteballs can be bought at $3.00 to $4.00 per 1000. Very good wasteballs can be made by cutting useless barley sacks or old cloth into strips four inches wide, tying a knot and cutting off the knot.

The rodent control division of the state commission of horticulture recommends the following formula originated by the United States biological survey for mixing poisoned barley for the destruction of squirrels. In many places the farmers get together and mix the formula in large quantities. Get the ingredients through the horticultural commissioner, who can furnish them at cost in large or small quantities.

Barley	16 qts.
Strychnin (powdered alkaloid)	1 oz.
Bicarbonate of soda (baking soda)	1 oz.
Saccharin	1/10 oz.
Heavy corn syrup	¼ pt.
Thin starch paste	¾ pt.
Glycerin	1 tablespoonful

In a clean vessel mix thoroughly one ounce of powdered strychnin (alkaloid), one ounce of common baking soda and one-tenth ounce of saccharin. Crush all lumps of the soda with mixing spoon. To this add one-fourth pint of heavy corn syrup and stir thoroughly to a smooth, creamy paste free from lumps. Over this pour three-fourths pint of thin hot starch paste and stir well. (The starch paste is made by dissolving one heaping teaspoonful of dry gloss starch in a little cold water which is then added to three-fourths pint of boiling water. Boil constantly until a clear thin paste is formed.) Add the tablespoon of glycerin and stir thoroughly, making sure that none of the heavy syrup paste still sticks to the bottom of the container. Pour this mixture over 16 quarts of good cleaned barley and mix well so that each grain is coated.

For mixing small quantities an ordinary galvanized wash tub is convenient. For larger quantities a tight smooth box may be used, and the mixing done with a spade. Each quart of the poisoned grain is sufficient for 40 to 50 baits. This quantity scattered along squirrel trails or on clean hard places on the surface about the holes will not endanger stock. Strychnin in any form other than the powdered strychnine alkaloid is not effective in the above formula.

Caution

All poison containers and all uncleaned utensils used in the preparation of poisons should be kept plainly labeled and out of the reach of children, irresponsible persons and live stock.

SING A SONG OF SWEET CORN

Sing a song of sweet corn,
A garden full of chard,
Four and twenty egg-plants
Growing in the yard.
When the crops are gathered
The folks can have some lunch;
Isn't succotash a dish
To set before a bunch?
Father's tending the beets and chives.
Saving up some money;
Mother's out among the hives
Taking off the honey;
The kids are in the garden
Pulling out the weeds.
Don't we get a lot of food
From half a peck of seeds?
—Farmer's Guide.

Blythe, Riverside County, will have need for two new cotton gins before the next crop is ready for handling. There are now three gins in operation.



For style and comfort wear

Mayer

HONORBILT SHOES For all the Family

Ask your dealer for Mayer Shoes. Look for the trade-mark on the sole.

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Milwaukee, Wis.

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Citrus Products Co., Inc.

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Manufacturers of

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We are always in the Market for Lemon Culls

Save 1-2 on Fuel

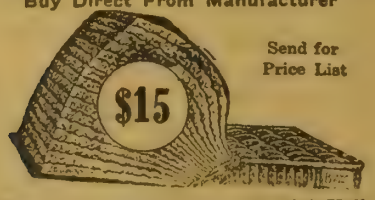


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The Sievert Oil Burner burns distillate costing only 7½ cents per gallon in cook stoves, heaters, furnaces, pasteurizers, boilers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Install it yourself. Write for circular and prices on different sizes, address Sievert Oil Burner Co., 710 North Main St., Los Angeles.

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Guaranteed 100 per cent Imperial Valley Staple Cotton.

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$35 to $165

2 and 4-wheeled AUTO WRECKERS

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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Household Department

AND LET LIVE

By Strickland Gillilan

A thready root of a peachtree grew
Where the roots of pear trees wandered, too.
And a tulip poplar sent its shoots
To mingle in with the other roots.
Then locust, maple, oak and pine
Put out their nerves to intertwine
One with the other in common soil—
To build trunk, bough and leaf their toil.

But the peachtree rootlet always found
Peach-making stuff in the very ground
Where each of the others shrewdly chose
The sap from which its own kind grows.
Although they fed from the selfsame dirt
None gave or received the slightest hurt,
They never quarreled or glared or fought
As there in a tangled web they wrought.

For one was a pear and one was a peach;
The kind soil sated the wants of each.
Where the locust roots found stuff for pods,
Long tulips came from the clever clods
When the poplar called; and acorns grew
As the want of the oak the moist soil knew.
Slim needle and resin and cones for the pine
Were digged from the same, exhaustless mine.

Here's a business lesson for you and me
(And for nations, too, if they could but see);
God isn't a dolt or a copy-cat—
Dont ever believe such a thing as that.
This world He has given will amply feed
The lives of us all, to our utmost need.
Your share and mine lie side by side
And each may take till he's satisfied.

And none is robbed if the others know
The stuff that will make their ownselves grow
And take but that, as the sapient roots
Have tutored their frailest, farthest shoots.
The sap that the tulips soft discard
Will turn into oakwood fine and hard.
Though toiling together, let each his own
Use freely—and let the rest alone.

—Retail Public Ledger.

TEENY'S INSPECTOR

By Hilda Richmond in Youth's Companion

LOOK out, Miss Schmidt! There goes the mucilage bottle!" cried Mr. Wallace, with exasperation in his voice. He grasped at the rolling bottle, which was leaving a stream of sticky fluid on the clean blotter he had just tacked to the money order desk. "Never mind," he added, as Christina jumped, and clutched awkwardly at the bottle, only to complete the destruction. "I can clean it up in a few minutes."

"Isn't she the limit?" said one of the rural carriers outside the window. "I don't see why the P. M. ever took her."

"I suppose he felt sorry for her," sighed the assistant postmaster, as he mopped up the mess after declining Christina's offers of help. "Her mother has a hard time of it, and Christina is the only one old enough to help her. She is so awkward that she upsets everything. Just imagine any one of the other clerks we've had doing a trick like this."

"Yes, but you said the other clerks were rattle-pated, and you can't say that about Teeny. She is bright as a dollar."

"Oh, she's bright enough," admitted Mr. Wallace. "Her marks at the examination were the highest on the list."

In the general delivery, just out of hearing, Christina, or Teeny, as she was called by the rural carriers, who had known her all their lives, was wiping away a few stray tears and resolving anew to be careful. Somehow she was unlucky with everything she touched, but she was so desperately afraid of Mr. Wallace that she could hardly be blamed. She knew that he disapproved of her, and it so weighed upon the poor girl that her natural awkwardness was increased.

Teeny wore large shoes that made her clump about the place like a man; and although her clothes, chosen by her hard-working German mother, were always neat and clean, they left much to be desired in the way of style and fit. Contrasted with the pretty young lady who had left the general delivery three months before in order to get married, Teeny was like a baby elephant, the carriers said, but they considerately said it out of her hearing. Mr. Dillon, the postmaster, was a kind man, with granddaughters almost as old as Teeny, but the others made life wretched for her without meaning to.

"Is the postmaster in?" inquired a voice, as Teeny sat thinking of her woes. The sudden start she gave sent the "nixie" letters flying in all directions.

"Mr. Dillon is at home, sick in bed," she managed to say.

"That's too bad," said the stranger, with concern in his tones. "Perhaps the assistant postmaster is here? I am James Greshom," he went on, as Mr. Wallace came up. "I am an inspector sent to examine the office."

"Will you show me your commission?" inquired the assistant.

"Certainly." He opened his satchel and produced his credentials, and then Mr. Wallace admitted him to the office.

"If the postmaster is too ill to come down we will go ahead with the inspection, for I want to catch that four o'clock train south," said the inspector, briskly. "No doubt everything is in good shape, so that it will not take long. We will begin with the stamps, if you please. Just spread them out in the private office, and I will count them. In the meantime you may get out any other supplies you have. Do you keep anything in your local bank?"

"We have fifty thousand stamps there," said Mr. Wallace, as he opened the safe. "That is, fifty thousand twos; and there are some broken lots of other denominations."

"What time does your bank close? Can you send for them at once?"

"It will only take a few minutes to get them," said Mr. Wallace. "Miss Schmidt, can you look after both windows while I am gone? Trade isn't very brisk this afternoon."

Christina promised, and everything settled down to quiet in the office. The rural carriers, seeing the inspector at work, silently finished their tasks, and then slipped out into the gloom of the dull November afternoon. The girl watched both windows nervously for possible customers; she felt sure that something would go wrong, and the more quietly she tried to move about, the more noise and confusion she made. She had heard that newly appointed clerks might be removed at the end of six months' probation if not efficient, and she became convinced that the inspector would recommend her removal that afternoon. She had been teased so much that she jumped every time she was spoken to.

By the time Mr. Wallace returned from the bank, the inspector had finished counting the stamps. "Seventeen thousand five hundred and fifty two-cent stamps," said the inspector, jotting down some figures on his pad. "Now for the twos from the bank."

"There ought to be more than that," said Mr. Wallace.

"Well, maybe I have made an error. You look them over while I take the ones."

But when Mr. Wallace counted the stamps, he found the number recorded by the inspector to be correct. He was getting worried, but the inspector urged him to keep cool. "You probably have some stock in another part of the safe that you have forgotten," he said. "Look the place over carefully."

The inspector, the assistant postmaster, and even trembling Teeny counted the stamps again, but they found that the shortage was the same. According to the inventory at the close of September and the record of the daily sales, there should have been more than seventy-five thousand two-cent stamps. The one-cent stamps were short also.

Teeny forgot her fear of Mr. Wallace in feeling sorry for him. Nervously he raked and scraped every corner of the desks, the safe, and even the boxes in the general delivery, but no stamps appeared.

"Who are the bondsmen for the postmaster?" asked the inspector, thoughtfully, when the search was ended. "We'll have to send for them if you think Mr. Dillon is too ill to be told of the condition of affairs. Mind you, I think there is only some mistake in misplacing the stock, and though my daily report will have to recommend a reprimand for the careless way you keep things here, I will give you a little time to straighten up matters."

"If there is any shortage, I will take care of it out of my personal bank account," said Mr. Wallace, firmly. "I wouldn't have Mr. Dillon know of

The Cultivator Patterns



8985—Boys' Suit. Cut in sizes 2, 4 and 6 years. The blouse is double-breasted and the straight trousers are separate.

8980—Ladies' Shirtwaist. Cut in sizes 36, 38, 40, 42 and 44 inches bust measure. The graceful frills are gathered under the collar at each side.

8992—Children's One Piece Dress. Cut in sizes 2, 4, 6 and 8 years. The neck is slashed at the front so that the dress goes on easily.

8996—Misses' and Small Women's Dress. Cut in sizes 16, 18 and 20 years. The dress has a simple, rather close-fitting waist with fastening at center back.

8997—Misses' and Small Women's Long Waisted Dress. Cut in sizes 14, 16, 18 and 20 years. The dress fastens on the shoulders and is to be slipped on over the head.

8975—Girls' Dress. Cut in sizes 6, 8, 10, 12 and 14 years. The skirt is gathered to a plain underwaist which buttons at the front.

8994—Ladies' Two Piece Straight Gathered Skirt. Cut in sizes 24, 26, 28, 30 and 32 inches waist measure. The front of the skirt is plaited to give the effect of a panel.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
CALIFORNIA CULTIVATOR
Los Angeles.

this for anything. He is one of my best friends, and the shock might kill him. I am sure everything is perfectly straight and honest, and if you will give me time to look things up, I think we can find the stock or the money. I'll own it looks bad, but if you can get along without sending for the bondsmen, I'll be greatly obliged to you."

"Well, I might take charge of the office myself, and give you a chance to look up the shortage, though I take a chance of getting into trouble by doing so. You know how strict the department is with us, and my report should be mailed at once; but if you think you can look it up tonight, I'll wait till morning. It's almost too late for that four o'clock now, and I might as well stay over. Isn't that bank closed? How are you going to get the money for the shortage?"

"I'll go this minute and get every penny I possess, and put it here as a guarantee that I mean what I say when I tell you things are all right," said the assistant, warmly. "I'm honest, and I can vouch for Miss Schmidt. I know it's all right, and I want to prove it to you. I don't want this to get all over town, either."

(Continued next week.)

WOUNDED IN NO MAN'S LAND

Some of the sufferings endured by wounded British soldiers in removal from the dugouts behind the lines to hospitals in England are suggested by 17-year-old Tommy Kehoe, England's youngest veteran, in the final installment of his war story, "The Fighting Mascot," which appears in Boys' Life:

"I had been in the dugout three days when the M. O. told me that before night they were going to start me off toward Blighty.

"A little later I was carried out with a number of other wounded and put into a 'shaker,' and away we rolled for the railroad. I learned then why they called the ambulances 'shakers'. The The life was almost shaken out of me before we had gone half a mile. Every time the thing bumped or lurched a chorus of groans went up, and one chap fainted and did not come to all the rest of the ride. It took two dreadful hours to get to the railroad, and we were all half dead by that time.

"The train was not much better than the 'shaker', though being full of wounded it traveled slowly. At last they carried us out and into the base hospital at Boulogne.

"Two weeks I lay in the Boulogne hospital and then on a fine, clear day, with a breeze blowing strong and salty from the sea, and the wounded all happy, for the time had come when they were to see their friends and families again, they shipped me for old Blighty.

"It was a hard crossing for us all as the boat rolled up and down in the big sea swells till I wished myself back at Boulogne. I was in bed on the upper deck, strapped down with weights, with not a soul to talk to and nothing to do but listen to the chugging of the engines and the splashing of the sea. Out in midchannel I overheard a nurse say that three operations were going on at that very moment and that a wounded man had passed west a few minutes before. Then people came hurrying past me talking of a submarine that was chasing us, and I did not know for a time whether it was Blighty or the bottom of the sea I was going to. But the submarine dropped out of sight and at last we steamed into Dover. There we landed but we were soon on the way to Folkestone and London, and I heard the little river steamers chugging as we went up the Thames and breezes from the fields of old England were in our faces and I felt like a lad coming out of a dream, a bad one, with the war so far away and home so near."

BIG HOMINY

In nutritive value, corn ranks next to oats as a breakfast food. Big hominy or hull corn prepared at home is an old time favorite. Select sound white flint corn. Remove chaff by pouring from one pan to another. Do this where there is a strong breeze. Wash grain thoroughly in water. To a pint of corn add a heaping tablespoon of soda. Cover with water and soak overnight. Drain and wash thoroughly in two waters, rubbing the corn with the hands. This removes the hulls which will rise to the top and may be poured off.

Boiled Hominy

Salt and boil corn slowly until thoroughly tender. This can be served instead of potatoes for breakfast, dinner or supper. With milk and salt it makes an excellent breakfast food.

Brown Hominy

Heat in an iron skillet a teaspoon of fat. Fill skillet with boiled hominy and press down tight. Bake in oven until a thick rich crust is formed on bottom and sides. Loosen from skillet and turn out on flat dish, brown side up. Serve at any meal; it is always good.

Hominy and Cheese

Put in greased baking dish alternate layers of boiled hominy and grated cheese. Pour over it enough milk to come halfway to the top. Cover with buttered crumbs and brown. Serve this as a substitute for meat.

A RATHER NOVEL COMPLAINT

An English traveler once met a companion sitting in a state of the most woeful despair and apparently near the last agonies by the side of one of the mountain lakes of Switzerland. He inquired the cause of his sufferings.

"Oh," said the latter, "I was very hot and thirsty and took a large draft of the clear water of the lake and then sat down on this stone to consult my guidebook. To my astonishment, I found that the water of this lake is very poisonous! Oh, I am a gone man! I feel it running all over me. I have only a few minutes to live. Remember me to—"

"Let me see the guidebook," said his friend. Turning to the passage, he found, "L'eau du lac est bien poissoneuse" (The water of this lake abounds in fish).

"Is that the meaning of it?"

"Certainly."

The dying man looked up with a radiant countenance.

"What would have become of you," said his friend, "if I had not met you?"

"I should have died of imperfect knowledge of the French language."

SHE KNEW HIM

President Taft was out for his afternoon walk in Washington one day when a flaxen-haired little girl ran out in front of him, held up her finger, and exclaimed in a shrill baby voice:

"I know who you are!"

The president, thinking it not at all unusual that she should possess this information, but willing to gratify her, asked:

"Well, who am I?"

"Aw," she said teasingly, "you're Humpty Dumpty."—Everybody's.

Try stewing your dried fruit in the oven when you have a baking or ironing fire. Cover tightly to improve the flavor.



CROP PRODUCTION

Is controlled by the kind and quantity of plant food furnished the tree or plant.

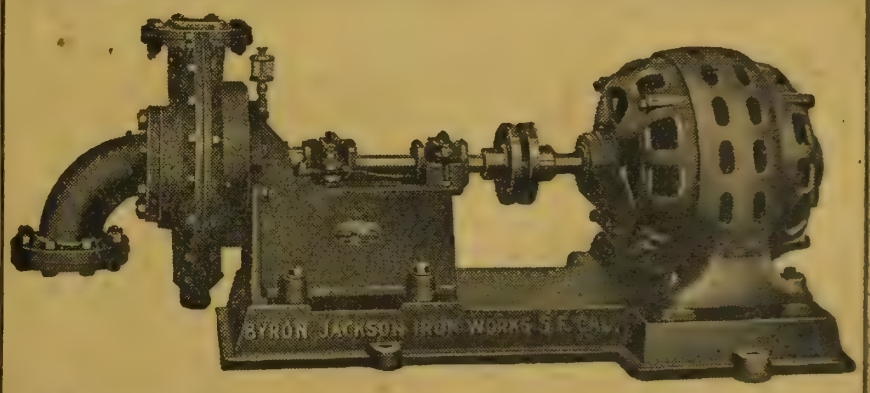
It is not enough to merely fertilize. It is important that the tree be fed material giving maximum results under California conditions.

These materials are furnished in

Hauser's Organic Fertilizers

Correct fertilizer for California conditions.
Send for fertilizer booklet, tells you why.

Hauser Packing Company
Los Angeles



Have You a Producing Ranch?

If not, Why not?

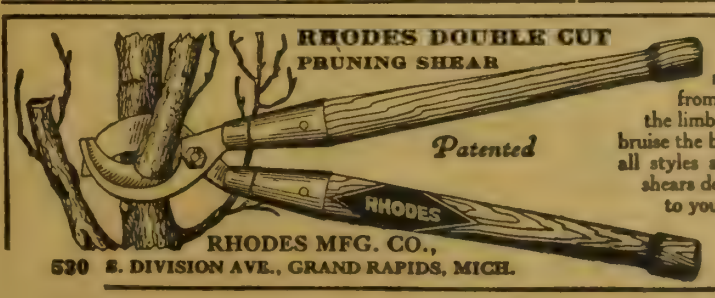
The difference between a "live" and a "dead" Ranch is "Water" and "No Water."

"Byron Jackson" Pumps meet every water condition

Write us giving your water conditions and requirements.
Our New Catalog No. 60-B for the asking.

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Los Angeles **San Francisco** **Visalia**
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THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

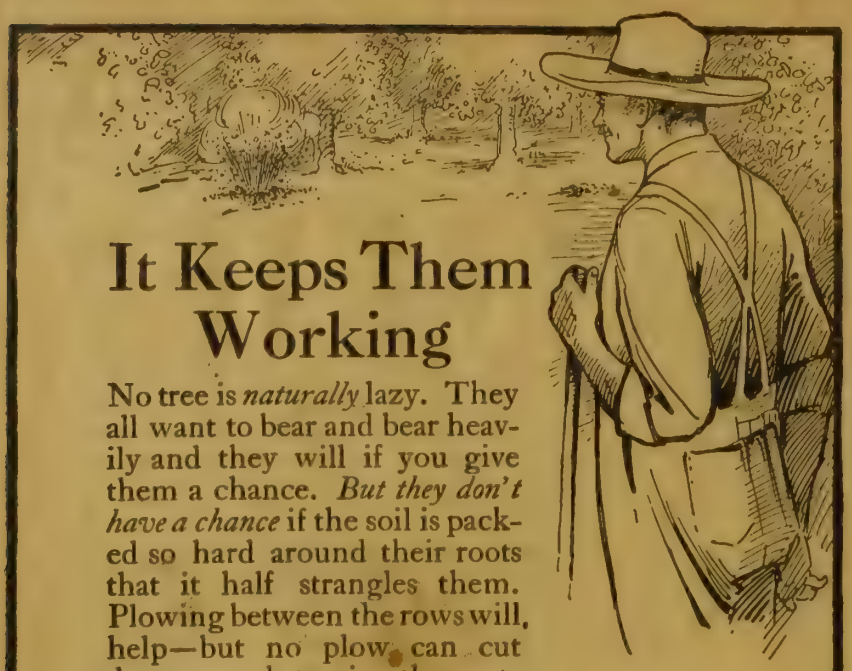
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It Keeps Them Working

No tree is *naturally* lazy. They all want to bear and bear heavily and they will if you give them a chance. *But they don't have a chance* if the soil is packed so hard around their roots that it half strangles them. Plowing between the rows will help—but no plow can cut deep enough to give the roots the "breathing space" they need.

HERCULES DYNAMITE

exploded between the rows of your bearing orchards thoroughly loosens the soil around their roots without disturbing the roots themselves. It pulverizes the soil many feet lower than any plowshare can reach. This gives the delicate roots a chance to spread and helps to nourish them by freeing the plant food and moisture that is deep in the earth.

Our 68 page illustrated book "Progressive Cultivation" tells you how to cultivate your bearing orchards by blasting between the rows. It tells you, too, of many other uses of dynamite on the farm and in the orchard. Sign the coupon printed below and send it to us *today*. We will send you, by return mail, a copy of this interesting and instructive book.

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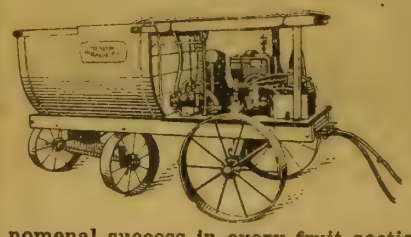
Gentlemen: Please send me a copy of "Progressive Cultivation."

I am interested in dynamite for _____

Name _____

Address _____

The Famous Hardie Junior is a Real Power Sprayer



It has sufficient capacity, for two lines of hose. It has plenty of power for high pressure effective spraying. It is little in first cost, engine power, pump capacity and ability to do successful spraying. WE believe this is the greatest small power sprayer ever manufactured, and placed on the market with phenomenal success in every fruit section in United States and vouched by thousands who own the Famous Hardie Junior. Equipped with one and one-half horsepower engine, battery ignition, 150-gallon tank with mechanical agitator, capacity of four gallons per minute with a steady working pressure of 200 pounds, and two 25-foot of the best spray hose, fitted with spray rods and nozzles; 4-inch tire truck with pole or shaft.

ALL FOR $300. DELIVERED ANYWHERE IN THIS STATE.

If truck is not needed, deduct $55.00.

These prices are subject to change without notice. The wise buyer will place his order now.

This low price is made possible by big production.

If you are interested in other types and sizes of the HARDIE POWER SPRAYER write us for the big spray catalog, and learn why we can offer more spray pump value than any other spray pump manufactured.

The Hardie Orchard Gun Is Now $12.00

none better, all guns are guaranteed to satisfy the user or their money refunded. The Hardie spray hose is the safest hose to buy.

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Office 1023 Leighton Ave. Los Angeles

Hardie Agent, A. F. George Co., Los Angeles
Hardie Agent, H. V. Carter Motor Co., San Francisco.

Los Angeles Market

Los Angeles, Jan. 29, 1919.

BUTTER

Produce Exc. Quotations.
Prices to trade 1½ to 2½c higher.

Cal. Extra Creamery 48

Jan.	22	23	24	25	27	28
'19	47	47	47	48	48	

CHEESE

Brokers' prices:
California fresh, lb. 26

EGGS

Exchange quotations. Price to retailers 2 to 3 cents higher.

Fresh extras 47
Case Count 42
Pullets 44

Jan.	22	23	24	25	27	28
'19	52½	51	51	48½	47	

POULTRY

Hens: heavy, 30@32; light, 30; colored, 32; broilers, 40@43; fryers, 35; roasters, 30; old cocks, 20.

Ducks, 30; ducklings, 32; geese, 28; turkeys, 34@35; squabs, 40-43; Belgian hares, 20.

LIVESTOCK

Receipts of live stock have been a little more liberal in the past few days, more especially hogs. Steers and cows are a little easier at this writing but future prospects of a much higher market are in evidence. Hogs are about steady with prices ruling at last week's close. The agreed minimum of $16.50 is being paid f. o. b. Los Angeles for No. 1 hogs. Lambs are fully steady; mutton is weak with a very light demand. Receipts in Los Angeles from California, Nevada and Arizona the past week of all live stock, 228 carloads, as compared with a year ago, receipts 204 carloads.

Following are the live stock prices Tuesday, January 28 in Los Angeles, f. o. b., packers' yards. Prices at country points are $1.00 to $1.50 per hundred weight less than those quoted:

Good steers, 13.00@14.00; medium steers, 12.00@12.50; common steers, 10.00 @11.50.

Good cows, 10.00@11.00; medium cows, 8.50@9.20; common cows, 6.50@7.50.

Hogs, No. 1, 150 to 225 lbs., 16.00@ 16.50; No. 2, 250 to 350 lbs., 15.00@15.50.

Lambs, 65 to 80 lbs., 15.50@16.00; wethers, 11.00@12.00; ewes, 8.50@10.50.

Twenty-one cars of live stock were loaded January 27.

POTATOES

Wholesale selling prices:

Supplies moderate. Demand and movement good; no change in prices. Stockton, Burbanks, quality and condition good, sacked per 100 pounds, special marks 2.55@2.60. fy., 2.35@2.40; ch., 2.15 @2.20. Idaho, Russets, quality and condition fair, best 2.25. Oregon, seed stock, White Rose and Red Rose, sacked per 100 pounds 2.75@3.00. Homegrowns, White Rose, mostly 2.75@3.00; few fy., 3.25.

ONIONS

Wholesale selling price, cwt.

Demand and movement moderate, little change in prices. Stockton, sacked per 100 pounds; Browns, best 2.25; White Globes, 8.00@9.00; Lompocs, Browns, 2.25 @2.50.

VEGETABLES

Wholesale prices:

Beans—String 15
Limas, lb. .....9@10
Cabbage, cr., best .....1.50@1.75
Carrots, doz. 45
Cauliflower, best 1.75@2.00 cr.; poorer and small, 1.25@1.50.
Celery, cr.: Homegrowns, best, 7.00@ 8.00; poorer, 5.00@6.00; Northern, best, 8.50@9.00.
Lettuce, cabbage cr., best .....2.50@2.75
Parsley, doz. 20
Peas, Tel. lb. .....15@16
Peppers, Chili, lb., best .....22@44
Bell, lb., best .....22@23
Pumpkins, lb., best .....1@1½
Radishes .....15@20
Rhubarb, Strawberry, bx. .....2.00@2.25
Spinach, doz. 30
Squash—Hubbard, best, lb. .....1½@2
Tomatoes, Mexico, condition generally good; best 3.25@3.50 lug bx.; locals, quality and condition poor, 1.50@1.75 lug bx.
Turnips, doz. 25

FRUITS

Apples—Bellefleurs, fy. best, 2.10@2.25; loose, 4@5 lb.; Yellow Newtons, fy. medium size, best 2.00@2.25; loose, 4½@5 lb.; White Winter Pearmains, medium size, fy., 1.85@2.00. Oak Glen, Rome Beauties, 2.75@2.85; Yucaipa, Delicious, fy. large size, 3.00; medium and small size, 2.25@ 2.50; King Davids, fy. small size, 2.00@ 2.10; Rome Beauties, fy., 2.00@2.50.
Pears: Winter Nellis, lb. .....5@6

CITRUS

Lemons: Fancy packed, 4.00@4.25; local pack, 3.00@4.00; loose, some tree ripe, 2.00@2.50.

Oranges: Navels, medium and large size, fy., 4.00@4.50; local pack, 3.00@4.00; loose, 2.50@3.25; Tangerines, 1.50 lug.

Grapefruit: No carlot arrivals. Tulare County, Seedless, medium and large size, fy., 2.75@3.00. Arizona, Seedless, 3.00@3.25 packed bx. Imperial Valley Seedless, 3.00@3.25; locals, 2.25@2.50.

HONEY

Little change in prices, very little honey left in producers hands, carloads f. o. b. usual terms, Extracted light Amber Alfalfa 20½-21 lb.; Light Amber Sage 23 lb.; Inyo County Comb: Fy. Light Amber $6.25 cs.; No. 1, $6.00 cs.; Beeswax, best 40 lb.

BEANS

Practically no demand or movement. Prices slightly lower. Warehouse cash to growers. Choice recleaned basis, sacked per 100 lbs. Limas 9.00@9.50; Small Whites 8.00@8.25; Large Whites 7.75@ 8.00; Pinks 6.25@6.50; Henderson Bush 8.00@8.25; Blackeyes 4.00@4.25; Teparies no sales reported, nominally 3.50@4.00.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....21.00@26.00
Barley .....19.00@24.00
Alfalfa .....17.00@21.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:

Market active, buyers numerous, and offerings light.

Choice dairy hay .....27.00@28.00
No. 1 dairy .....25.00@26.00
Choice Alfalfa .....24.00@25.00
Standard dairy .....21.00@22.00
Standard Alfalfa .....20.00@21.00

GRAIN

Prices on local grain exchange. For government prices see San Francisco market.

Wheat .....44.00@46.00
Bran 44.00
Shorts 47.00
Middlings 54.00
Milo .....2.61¼@2.63¾
Barley .....2.12½@2.15

San Francisco Markets

San Francisco, Jan. 28, 1919.

BUTTER

There was an upward trend in the butter market the past week and active trading was reported on all markets.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½c to 2½c; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extras 51

Jan.	21	22	23	24	25	27
'19 ...	54½	54	50	45	50	51
'18 ...	54½	54½	55	..	..	..

CHEESE

Dairy Exchange quotations:

Cal. Flats 26½
Ore. Triplets 40½
Jack, full cream 30

EGGS

Dairy Exchange quotations:

Extras 52½
Extra Pullets 47

Jan.	21	22	23	24	25	27
'19 ...	58	57	57	55	53½	52½
'18 ...	66	67	66	..	..	..

POULTRY

We quote to producers, lb.:

Hens, 35@38; broilers, 40@45; fryers, 40 @45; old roosters, 24@25; young roosters, 37@38.

Ducks, 29@31; geese, 29@31.
Belgian hares, live, 20@21.
Jack Rabbits, doz., 2.00@3.00.
Squabs, doz., 3.00@4.00.
Turkeys, dr., 39@42; live, 33@35.

LIVESTOCK

Prices gross weight:

Cattle: The following prices are for grass fed stock. Hay fed brings ½ to ¾c more.

No. 1 steers, weighing 950 to 1100 lbs. alive, 12¾@13; 1200 to 1400 lbs., 13@13¼; second quality, 11½@12; thin steers, 9@ 10. Cows and heifers, No. 1, 9@9½; second quality, 8@8½; common to thin, 6@ 6½; calves, 10½@11½.

Sheep — Lb. gross weight: Wethers, 11½@12; ewes, 8½@9¼; lambs, 14; yearlings, 12½.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 16; 150 to 250 lbs., 16½; 250 to 300 lbs., 16; 300 to 400, 15½.

POTATOES

Wholesale selling prices at wharf, cwt.: Deltas, 2.00@2.15; Red Shima, 2.35; Oregon Burbanks, 2.00@2.15; Gems, 2.00@ 2.25; British Queens, 1.75@1.90; sweet, per 100 lbs., 3.65@3.75; new potatoes, lb., 5@7.

ONIONS

Wholesale selling price on wharf, cwt.: Australian, Brown and Yellow..1.75@2.35

VEGETABLES

Wholesale selling price:

Artichokes, doz. .....50@1.00
Beans, String, lb. .....25@30
Beets .....1.00@1.50
Brussels Sprouts, lb. .....7@9
Cabbage, lb. .....¾
Carrots, sk. .....1.50@1.75
Cauliflower, doz. .....75@1.00
Celery, cr. .....5.50@7.25
Cucumbers, hothouse, bx. of 30..2.50@3.00
Egg Plant, lb., Southern .....20@25
Lettuce, cr. .....1.75@2.00
Southern Iced, cr. .....2.75@3.25
Egg Plant, lb. .....5@10
Peppers, Chili, lb., 12½@15; Bell ..15@20
Peas .....15@17½
Pumpkins, sk. .....1.00@1.25
Rhubarb, bx. .....2.75@3.25
Squash—Cream .....75@1.00
Hubbard, sk. .....1.50@2.00
Marrowfat .....1.00@1.25
Spinach, lb. .....5@5½
Tomatoes, cr., Southern .....2.75@3.25
Mex., cr. .....6.50@7.00
Turnips, sk. .....1.00@1.55

FRESH FRUITS

Apples—Newton Pippins .....2.00@2.50
Pearmain .....1.25@1.65
Bananas .....7@8
Olives, lb. .....10@12½
Winter Nellis .....3.00@3.50
Persimmons, bx. .....1.00@1.25

CITRUS

Box: Lemons, 2.50@4.75; lemonettes, 2.00@3.00; grapefruit, 2.00@3.00; limes, 2.00@3.00; Mandarins, 1.75@2.50 cr.; tangerines, bx., 3.00@3.50; Navel, 3.00@4.75.

BEANS

Per cental:
Practically no demand and movement.

Prices slightly lower. Carloads f. o. b. California common rate points sacked per 100 lbs.: Limas 9.40@10.15; large Whites 7.75; small Whites 8.00@8.15; Henderson Bush 8.80@9.25; Blackeyes 4.75@5.00; Red Kidney 12.00@12.50; Red Mexicans 6.50@7.00; Pinks 6.25@6.50; Garvanzas 9.50@10.00; Bayos, 7.25@7.50; Teparies 4.00@4.25; Cranberries 7.10@7.50.

SEEDS

Flax	8@8½
Millet	5@5½
Rape	2½@5

HAY

Fancy Wheat hay (light 5 wire bale)	24.00@26.00
No. 1 Wheat or Wheat and Oat hay	22.00@24.00
No. 2 Wheat or Wheat and Oat hay	16.00@20.00
Choice Tame Oat hay	21.00@23.50
Other Tame Oat hay	16.00@19.00
Wild Oat hay	16.00@18.00
Barley hay	16.00@18.00
Alfalfa	18.00@22.00
Stock hay (in order)	14.00@17.00

No. 1 Barley straw, bale .....50@80
Damaged hay (all kinds), according to condition.

Citrus Fruit Market

Los Angeles, Cal., Jan. 29, 1919.

Florida has now shipped approximately 10,000 cars and Central District Brights are quoted around $3.60-3.85 f. o. b. shipping point, but leading auctions have usually brought them $3.75 to as high as $4.75. California shipments are increasing rapidly and most shippers are manifesting a desire to ship only fruit from known uninjured orchards. Prices have been shaded somewhat but a fairly firm condition prevails. Water separators are being installed in many packing houses and under present weather condition the injured fruit will soon lighten so as to readily separate. There is still around 12,000 cars Navels, and a total of about 14,000 cars of Valencias is anticipated.

The lemon market may be considered in fair condition. There are but few of foreigns arriving and it is thought that the reduced California supply will command satisfactory prices.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 4337 cars, lemons 1551, total 5888. To same date last season; oranges 3053, lemons 706, total 3759. Central California this season; oranges 2915, lemons 299, total 3214. Last season to same date; oranges 1860, lemons 94, total 1954. Northern California; oranges 244, lemons 1. Last year same date 202.

AT THE AUCTIONS

January 23
New York: 11 cars Nav. 3.65-4.80, Val. 3.25-4.00, lem. 3.60-4.30.
Boston: 8 cars. Nav. 3.15-5.05, Seedlings, 2.65-3.00, lem. 2.70-4.30.
Philadelphia: 1 orange, 1 lem. Nav. 3.75-4.90, lem. 1.40-1.80.
January 24
New York: 9 oranges, 2 lem. Nav. 3.75-4.95, Val. 3.40-4.65, lem. 3.95-4.85.
Boston: 6 cars. Nav. 2.75-5.10.
St. Louis: 6 cars. Nav. 2.70-4.50, Bloods 3.45-3.55.
Pittsburg: Nav. 3.20-4.30, lem. 2.75.
Cincinnati: 1 orange, 1 lem. Nav. 4.10-435, lem. 4.05-4.25.
January 27
New York: 16 oranges, 2 lem. Nav. 3.90-5.25, lem. 4.35-5.25.
Boston: 12 oranges, 2 lem. Nav. 2.80-5.20, Bloods 3.00-3.45, Seeds. 3.05, lem. 3.80-4.60.
St. Louis: 8 oranges, 1 lem. Nav. 2.10-4.10, Seeds. 2.40, lem. 1.85-3.30.
January 28
New York: 13 oranges, 1 lem. Nav. 3.55-5.30, lem. 4.70-5.00.
Boston: 6 cars. Nav. 3.20-4.65, Val. 3.40.

WEATHER CONDITIONS

San Francisco, Cal., Jan. 25, 1919.

Stations	Rainfall — Wk.	Season.	Norm.	Temp. Max.	Min
Eureka	2.03	19.57	23.05	64	46
Red Bluff	1.31	17.27	13.31	60	36
Sacramento	1.40	9.24	10.01	60	38
San Francisco	2.12	13.50	11.72	62	44
San Jose	.80	11.02	8.49	68	32
Fresno	.36	4.29	4.88	64	38
San Luis Obispo	1.34	8.90	9.61	72	44
Los Angeles	.03	4.14	7.32	78	46

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Dependable Power that does not fail when your farm work has been delayed and you must take advantage of favorable weather and ground conditions.

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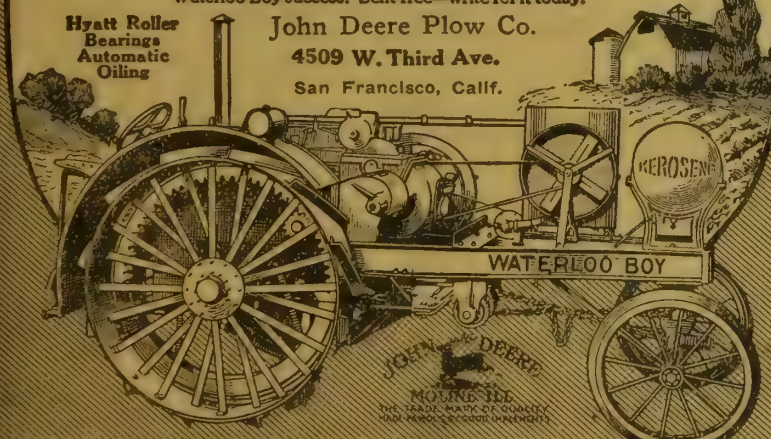
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BEAN TrackPULL Tractor

The TrackPULL turns in a 10-foot circle with full power — tools deep in the soil. You turn back in the same row. No getting out. No stopping.

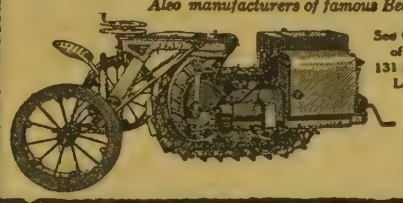
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Makes no difference how far off-center tools are hitched.

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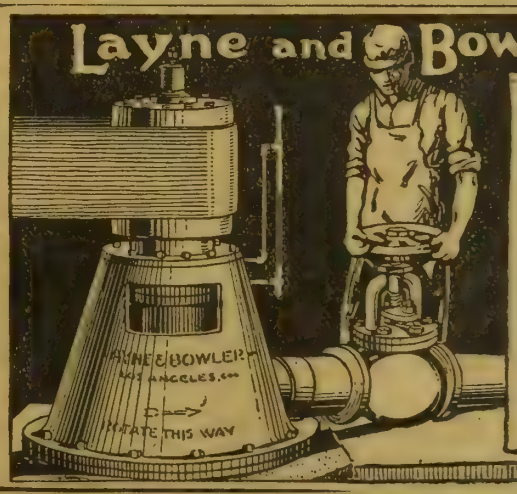
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Clean Potato Seed

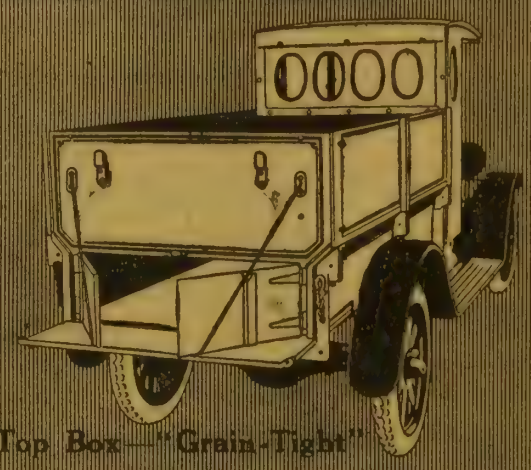
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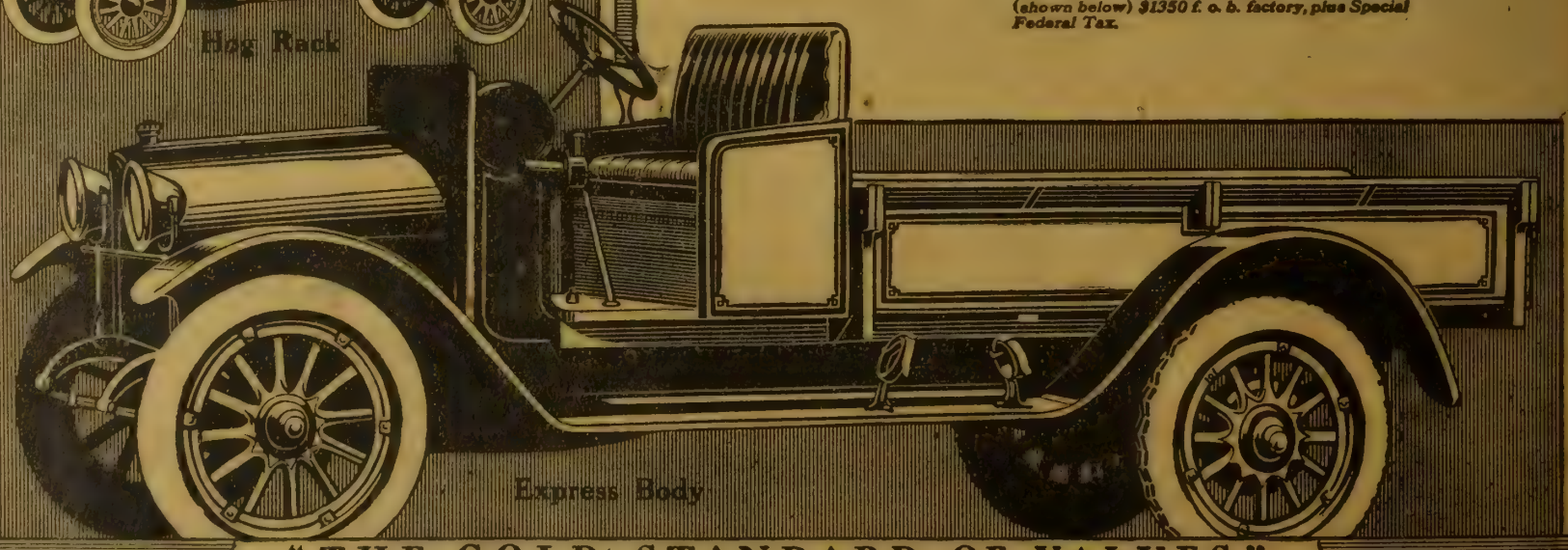
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There has existed a great need for a more adaptable motor truck.

The need was not for a chassis, for the Reo "Speed Wagon" had proven, in several years of use, that this chassis is ideal for every class of farm hauling.

But there was great demand for a body that would enable you to carry a maximum load of any commodity regardless of its density.

Many attempts have been made to develop a body that would be readily convertible into several practical forms.

Some of these have been successful to a degree.

Fault with all of them, however, was too much complication—too many adjustments and connections to get out of order.

Such construction also ran into a lot of needless weight to be carried all the time.

It remained for the Reo engineers to solve the problem in the simple, direct, substantial Reo way.

And they did it, not by making a convertible body that would fold first into one form and then another, but by a set of sectional units with one basic body as a foundation.

This basic body itself performs fully fifty per cent of all delivery service.

No user will need all the extra sections.

Each user will, however, need one or several of them.

You buy the Reo chassis equipped with the basic—low express—body shown below.

Then, to fit your special service, you select such other attachments or sections as you find most applicable to your work.

This Reo body in its several forms meets every requirement of speedy, economical hauling—in city and suburban as well as rural service.

There are seven forms in all.

On the left we show four forms of this body.

The other forms you may obtain at a few dollars extra cost.

Need we add that the chassis on which these body types are mounted has been longer in service and has been more conclusively proven than any other?

It is, in fact, the pioneer of its class—the first motor truck to be mounted on pneumatic tires.

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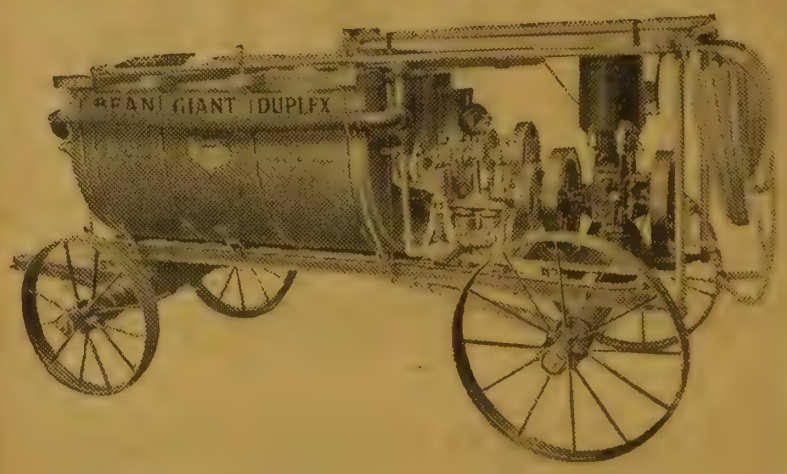
Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — February 8, 1919 — No. 6



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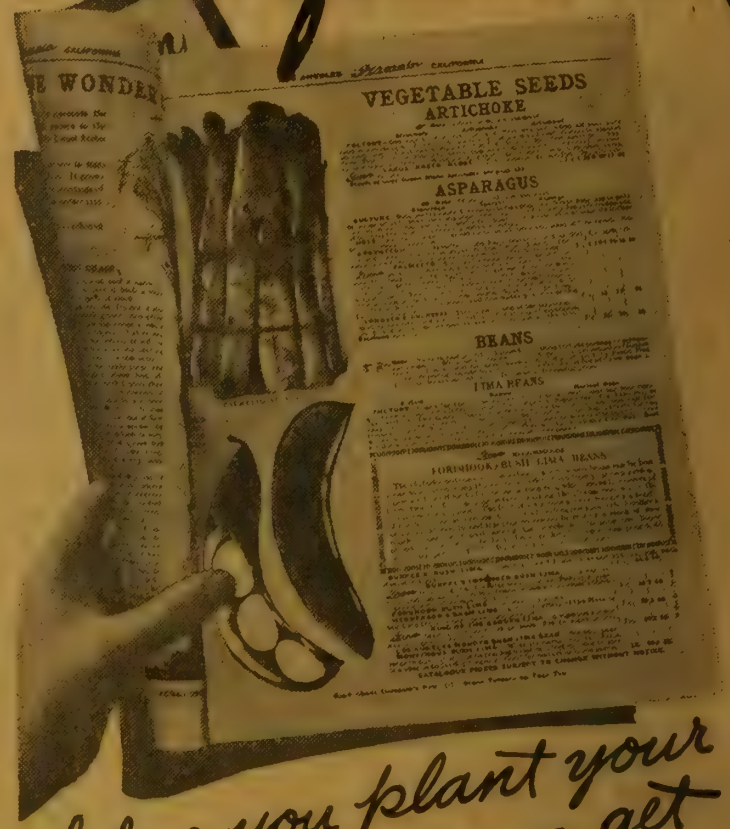
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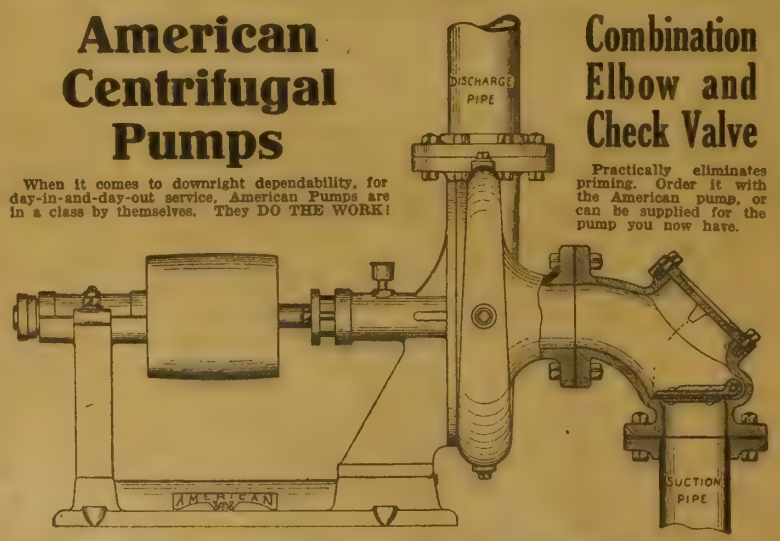
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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

California Cultivator

Vol. LII, No. 6 | Los Angeles: February 8, 1919 | One Dollar Yearly

The Commercial Value of Beauty

By Ernest Braunton

I'VE often wished that I had clear,
For life, six hundred pounds pounds a year;
A handsome house to lodge a friend;
A river at my garden's end;
A terrace walk, and half a rood
Of land set out to plant a wood.
—Jonathan Swift.

Thus did the brilliant Dean Swift, best known to young and old as the author of Gulliver's Travels, bemoan his fate, a few years before the year 1700. He died quite wealthy, however, and possessed ample means to gratify his expressed desire for a fine country home. This longing for a quiet and pleasant home in the country comes to all men at some time of life. The bustling captain of industry yearns just as strongly for such a refuge as those in other walks of life, but usually he waits until hard business cares and advancing age force him to desist, and he then, for the first time, turns to look for repose in a home as far removed as possible from the scenes of active business life. To such a retreat he may have gone, on occasion, when near a breakdown from weight of cares and woes incident to every busy life. He may have taken time by the forelock and provided a charming rural home, but the percentage of those making such provision is indeed small.

The question then arises: Where? Where will he spend his declining years in the midst of peace and comfort? Where may he get the greatest amount of joy and recreation every day in the year? He has been a busy man six days each week for long years. He must still be busy every day in the year. To coop such a man up in a house for the duration of a long Eastern winter is to send him to his grave in a comparatively few years. He must find a climate where he may enjoy outdoor life at all times, in that period of life that Burns describes as "When bones are crazed and blood is thin." The hand of destiny points to California, and here he comes. Herein has been pointed out the brief life history of but one class, but all share in common that desire for peace and comfort and much enjoyment toward the end of life. For he spoke truly who said, "Once a man and twice a boy." This boy of mature years will seek a home as good as his purse will provide. He will seek it in the best climate he can find. He will go to that country or state reputed to be the most beautiful and most enjoyable. Arriving there (which is here) he will look for a section given over to beautiful homes. (In California he will find some everywhere.) He will either purchase a home fully equipped or a suitable site either with or without a house. Thousands of cases may be found where a beautiful rural site has been bought that has for years been occupied by a farmer of very ordinary means but who has had the foresight and taste to plant trees and shrubs in proper place and order. The old house has been moved back for the occupancy of manager, superintendent or other help and a fine residence erected in its place. The site is all that was considered at the time of purchase. I wonder how many of my readers have a fine site, but little means with which to improv it.

The cost of beautifying fine building sites is not heavy. It is not expected if you are looking merely for an investment that you will build ponds, garden houses, rockeries and put out a great flower garden to make a heavy annual expense. These will, each and all, add to the value of the place and to your own enjoyment of the same, but for the moment we are considering an investment of a limited amount. All of the things listed may be built in a year, but trees and shrubs require many years' growth before they are effective in the landscape or provide a proper and attractive site for a fine rural home. If, then, we offer no other advice, let all plant trees and shrubs so that, while ministering to your own pleasure and comfort you may build that that will have an ever increasing commercial value. Many years ago, by request, I wrote an article for the Cultivator entitled: "A Landscape for a Dollar." I had in view the bare building sites now far less common in California—not a tree, shrub or flower to be seen. I told how a box of blue gums, at an investment of one dollar, could be planted about the house and other buildings, and made to provide shade, shelter and an anchor on the general landscape that would proclaim the place a home site. The notice taken proved the article struck a responsive chord. But the first comment was from a well to do business man of the city, who said: "I don't believe many ranch owners of California who live on their own place are so devoid of taste and foresight as not to provide shade and shelter afforded by trees, but I have two ranches occupied by tenants where I can see I could mightily improve them by spending a few dollars for small trees." A rancher wrote: "I fear you have misjudged the standard of the Cultivator readers. The man who could improve his place by spending one or a few dollars does not take the Cultivator and therefore you did not reach him. His numbers are few anyway; give us something a little higher up the scale." But the article opened the eyes of all to one fact, evidently overlooked: that even one dollar, rightly applied, will improve a place, run down, or insufficiently supplied with shade or shelter, or both. It also emphasized the fact that but a small expenditure is needed, based on good judgment, to make any place more attractive, and therefore of greater market value.



Save the Oak Tree for a Beauty Spot on the Ranch

Monster oak on the ranch of Dr. F N. Reasoner, Guinda, Yolo County. The circumference of the tree four feet from the ground is 28 feet and one inch; 16 inches from the ground, 36 feet and four inches; height, 99 feet; spread of branches, 121 feet.

Courts of law have always placed a high value on ornamentive vegetation into which decisions age has largely entered. Where fires have been allowed to get beyond control and destroy trees and shrubs only, the awards have run into thousands. A single tree has been adjudged to be worth a thousand dollars. A few years ago, in Los Angeles, a street was to be cut through private property. Within the proposed street line there stood a tree known as Pircunia dioica, which experts agreed in court was worth six hundred dollars. I was not one of the witnesses at that trial, but was present, and much as I love trees, I would say no tree of that species in California is worth that sum. But it was a rare species in those days. Such decisions nevertheless prove that trees have a heavy value in the eyes of the law. A visitor from Nebraska, looking at a large palm in my yard, said: "If I buy a home here, I would give five hundred dollars more for a place with a tree like that." A Pasadena Avenue, Highland Park. It man and wife last winter arrived from the East during the night and were taken in a taxi to a friend's house on was their first visit. As they left the conveyance they walked toward a fine large specimen of this Canary Island palm. They walked round and round the tree, forgetting their friends and relatives inside, and uttered such exclamations of wonder that a man and wife living next door came out to see what was wrong, but found all was right. Curiosity may prompt many to so express themselves, hut this newcomer said: "No wonder California homes are high in price when they have such things growing outdoors in the front yard." This speech was reported to me by the man who was called out by the exclamations of wonder and admiration. A place on the corner of Figueroa and Twenty-third Streets was a few years ago purchased by a man at present a state official. He stated he gave $5000 more for the place than he otherwise would have done, because of the presence of two of these large palms in the front lawn; and they are two of the finest in the city. But is it necessary to present argument as to the value of trees and other plants? I think not; for all over California instances are known of heavy monetary considerations being given in the purchase price where finely decorated grounds surrounded the house site. That nearly all are impressed with values is evidenced by the very few indeed who do not beautify.

But why do all so value ornamental vegetation? First, because it is natural, just as much a part of nature as ourselves, but in a far more primitive or natural state, and one of the very foundations of the world, so far as man is concerned. It is part of that nature of which man is the highest expresson, and, try as we may, we cannot resist the call of nature. For are we not, in common with the tree, a part of creation? The tree is not of our creation, therefore is it a fellow creature and the love for it but a natural expression. We surround ourselves with the beauties of nature in order to get the greatest enjoyment out of our homes and lives, while

Continued on Page 189

Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The use which may be made of a piece of waste hillside is shown in the cover illustration. This view is on the place of Mr. Spinks in the foothills of the Sierra Madre. The mesa or rolling sections were used for orange and avocado planting and the rocky and more forbidding portions for the residence and grounds. And wonderful use has been made of these rocky hillsides.

If this place should ever be offered for sale we doubt not these beauty spots would add as much to the real selling value as the more immediately profitable fruit bearing trees. More general discussion of the subject of the commercial value of beautification of the ranch or home place is given in the article on third page of this issue.

HIGH FINANCING HOGS

One of our readers writes to inquire whether we would advise investment in any of the so-called hog raising syndicates, companies or associations offering stock for sale to the California public.

He refers to one outfit that agrees to sell a sow, care for her and her litters (she is to produce two litters, averaging six pigs, a year), feed them and deliver half the produce weighing about 200 pounds at six months, to the investor without further cost. All of which sounds very good if they could make good their proposition—but they can not.

Hogs can be raised at a profit and when properly managed will make money for the producer, but there is no possible way to produce 200 pound hogs in six to eight months at a cost per pound that would enable any concern to give an investor half of the hogs free of cost and stay in business.

In order to make good, the company would have to charge the entire overhead, feed, labor, equipment, insurance, etc., to their half—thus increasing their production costs 100 per cent.

California has a blue sky law that is supposed to head off wild cat, get-rich-quick propositions and it strikes us that it could be applied to these concerns.

Heretofore these outfits have been "getting by" through the fact that they have not offered stock, but have operated on the unit plan, but one layout has just been issued a permit to sell stock. Our advice to our readers is to put their money in the next Liberty Loan—they will be safe and net more than such schemes.

BEANS

With prices for California beans dropping daily; with Japanese beans being daily landed at Pacific Coast ports, our bean growers are asking why the bean market has been handled as it has this year.

We note that the Pacific Rural Press of February 1 presents, under the title, "The Bean Situation — An Explanation," a statement by the food administration office in San Francisco, of why the California bean grower is not receiving—and probably will not—cost price for his beans, which "explanation" may or may not soothe to rest the bean grower's apprehensions of failure. Here is the statement:

"All beans supplied to the United States army and navy are American grown beans. Imported beans have been bought by the government men for the allies and only on orders from them. These beans, which our government has been commissioned to buy for the allies, come to the United States in bond and are reshipped in bond."

The "explanation" in the Press ends with "Some of the foreign beans are brought in by importers, as they always have been, and distributed here. It is a legitimate business and there is no law to prevent it."

Perhaps it is legitimate and perhaps there is no law—neither ruling—to prevent it, but in view of the fact that Californians were appealed to to produce beans for food for ourselves—and for our allies—and have produced those beans at heavy cost, and the government agents (the United States Grain Corporation) have seen fit to make importations from China and Japan, even if they are later to be transported to our allies, the bean grower naturally has one big question, and that question is: If the ship builder is protected in his profits; if the wheat grower and the pork producer are given a measure of protection, why deliberately import beans at prices below the cost of production in California when warehouses are filled and the market flat? Note these quotations in the last two reports issued by the bureau of markets:

"Dragginess and tendency to declining values continue the chief characteristics of the bean market. About the only brisk demand is for export, the United States Grain Corporation having bought over 1,500,000 hundredweight for this purpose, but even in this outlet there was competition of Asiatic beans at lower prices." "Practically no demand or movement, very few sales, market weak. Practically all stock in growers' hands."

Mr. Serres showed in last week's Cultivator his cost production. Read it, then note quotations on market page this week.

SACRAMENTO STOCK YARDS

Announcement has been made that a $5,000,000 packing plant and stock yard will be established at Sacramento. Chas. E. Virden, one of the promoters, states that the necessary capital has been secured and that work on the project will start early in the spring.

In a published interview it was stated that all classes of live stock would be handled, and an open market would be made for live stock producers. There is little doubt but that an open market is a very vital problem in this state, but we are wondering if such a plant at Sacramento will correct the weak places in our present system.

We believe that the weakest points in the existing plan of marketing center around the fact that there is slight competition among the buyers for any particular lot of stock and that our markets, speaking generally, are not based on grades.

The reason we say there is slight competition is due to the fact that each packer receives his country consignments direct. If a central yard were established the shipper could send his stuff to a commission firm who would be in contact with all the buyers, and the killers would be on the market every day. Of course there is always the danger of price agreement, but we believe that enough independent plants are in operation to serve as a powerful check on the much talked of "Big Five."

Now granting that modern yards are established at the proposed Sacramento plant, would the situation be much different from that now existing? Practically, each packer is operating his own "yard" now and it is hardly probable that the established plants in the bay district or at Los Angeles would come to Sacramento to get their supplies. They might, but we doubt it. If they bought there the stuff would be unloaded and shipped to the home plant—and the added expense would be figured in the price. If all the plants could be moved to the proposed yards, well and good, but they will not be moved. Therefore would it not be easier to take the yards (which are only on paper) to the plants? Then if a new packing plant could be financed it could be built near the yards, and if operated independently, it would furnish competition.

We believe that the established plants would welcome a union yard. As a matter of fact some of them would like to finance such a plan if they could keep the contract. But the live stock producers want an uncontrolled yard.

We are not opposing a Sacramento yard and plant, but we doubt if the announced plan will afford much improvement over the present system, and because we believe that yards, without packer control but properly located so that they would be accessible to the greatest number of buyers, would prove a great boon, is our principal reason for questioning the soundness of the Sacramento proposition.

If the interests back of the proposed plant would enter either of the established centers, secure the cooperation of the producers and the other packers, build a modern union stock yards and erect their own plant, the live stock development of this state would be pushed ahead a good many years.

MARKETING

Many a farmer has concluded that the job is only half done when the crop is raised and harvested. The other half consists in marketing. Unfortunately that is often the end of the job least successfully done. The farmer who has spent his year combating the elements is in no position and has neither the information nor the training to combat the methods employed by many a shrewd dealer. Hence the necessity of cooperation and the employing of one thoroughly conversant with market conditions and market methods. But the purpose of this paragraph is not to discuss cooperation; rather one phase of marketing methods, that is, quotations made in this and other papers. These quotations are often entirely misunderstood and we fear sometimes purposely used to mislead and misinform rather than give a fairly accurate view of the market. In the first place there are some farmers who expect to turn to the paper and find the figure which they will receive for their pound of butter or pound of beef or other product providing they bundle it up and send it into market. Such market quotations will never be had. The best that possibly can be done is to give the range of prices and the conditions so far as possible under which those prices were paid, and then the farmer must use his judgment as to whether these conditions will prevail when his products reach the market. A good explanatory note is given in a recent bulletin sent out by H. H. Warner, Assistant in Market Surveys, in charge of the Los Angeles office of the federal bureau of markets:

The prices in the reports you have been receiving from this office have in some instances been misunderstood. The prices we report cover three kinds of sales, namely: Sales to Jobbers and Other Large Buyers; Carlot Sales, and Sales Direct to Retailers. All information represents actual sales made by original carlot receivers in these markets to jobbers or various buyers.

"Sales to Jobbers and Other Large Buyers" refer to sales in jobbing lots of the commodity in question when the car is first broken. By jobbing lots is meant wholesale quantities in which the commodity is sold by the original carlot receiver to the jobber and other large buyer, such as 25, 50 or 100 bushels, barrels, crates, dozens, baskets or other unit of container or measure by which the fruit or produce is sold. "Sales to Jobbers or Other Large Buyers" must not be confused with "Carlot Sales" or "Sales Direct to Retailers" in small lots.

By "Carlot Sales' 'is meant those sales made by the original carlot receiver in a terminal market to a jobber or other large buyer, who is able to handle his purchases in carload lots. In only the larger markets is this kind of sales consummated, and then only upon the more staple commodities.

By "Sales Direct to Retailers" is meant sales made by the original carlot receiver in small lots direct to the retail stores, peddlers, etc., in those smaller terminal markets where the volume of business is too small to justify the operation of a jobbing business as such.

In no cases do the quotations based upon any of these terms of sale represent prices paid to growers. For the grower to estimate what he should expect to receive for his product in a given market on a given day, he should consider the grade, pack, quality and condition of his product as compared with the bulk of that product reported for that day, and then deduct freight or express charges, commissions and other regular charges usually incurred in distributing such farm products.

Sales to jobbers or other large buyers are given in the market reports whenever available, because they more truly represent the actual market conditions. Sales of this character respond to increased or diminished supply or demand more rapidly than either carlot sales or sales direct to retailers, and are usually made the basis for returns on consignments after the usual deductions for expenses.

More About Bean Market---or Lack of Market

THE article by Anton Serres on "The Bean Situation" in the issue of the Cultivator of February 1, also the editorial in same issue, are calling forth comment on the part of bean growers in California. Of the 17 or 18 million bushels of beans produced in the United States in 1918 California produced close to 50 per cent. In fact, we have seen the statement that California produced 65 per cent of the beans of the United States.

Be that as it may, there are millions of bags of beans stored in warehouses and costing for storage and protection thousands of dollars. The people of Europe are hungry for beans — are actually starving—and yet the bean situation seems to be bantered between broker and big jobber until the growers are—some of them—discouraged; others good and mad.

Meantime the brokers are allowed to bring from Asia shipments of beans produced by cheap labor, and these are used to hold down the prices for California beans below actual cost of production, as was shown by Mr. Serres' article last week. Bean producers are smarting under the injustice which has been imposed upon them by these importations. In this matter of importations and production in China we refer to quotation from "The Bean Bag" on another page of this issue.

This is a California question and must be settled largely by California growers, and we believe it may be through cooperation, at least if our government will give some consideration to American produced goods. The rice growers have a committee in Washington appealing to congress for protection. The poultry people are confronted with the problem of importation of large quantities of cheap Chinese eggs and are also asking for protection of their industry. (See letter to poultry men in the poultry department of this issue.)

The rest of the country cares little for the affairs of the producer on the Pacific Coast; it is up to him to insist on justice and to inform the country what the injustice is in the present situation. The temper of the growers is well shown by an article just received from Knute Norswing. He says, in effect, in the following article: "Let's stop sitting tight and do something."

Knute B. Norswing

Editor California Cultivator: You have thousands of readers that are bean growers, and what you say about beans nowadays proves intensely interesting, because others too are getting interested in the predicament of the bean growers. The sooner these gentle rumblings develop into a substantial roar that producers, consumers, Democrats and Republicans, will take cognizance of, the better it will be for people who eat beans.

That was an admirable statement on the bean situation by Anton Serres in the February 1 California Cultivator. Anyone that has raised beans knows Mr. Serres has managed most economically, and even then, the beans cost to produce over eight cents per pound. The writer raised beans, too, but had to pay higher prices all along. Interest cost us six and seven per cent instead of his five per cent. Hay cost $23 to $33 per ton against his $20; threshing 75 cents per sack instead of his 50 cents, and so on. Surely Mr. Serres gets off easy on expenses for this season as any bean grower will know, and still the cost mounts to over eight cents per pound. Most of the 1918 crop cost nearer 11 to 12 cents per pound to grow than any other figure. Read the article again!

Now what is wrong? Is it not that we are not organized? Are we not now where the orange growers and the walnut growers were about 25 years ago? At that time the orange grower was lucky to get 25 cents to 50 cents a box for his fruit and the shippers got rebates enough to make them millionaires. The walnut growers got four and a half cents per pound for walnuts if they could sell at all. You say what has that to do with this? It shows the work of the broker before the orange and walnut growers organized. It shows precisely what these fellows, who produce nothing and render no real service, always do if they can get a chance. It shows exactly what they are doing to the bean growers today. Yes, and were not the raisin and peach growers in the same fix until they organized? Bean growers, we must organize or quit. We have to get away from these brokers, as the orange and walnut growers did, or they will get us.

In 1917 these bean brokers got the best of us by contracts. In early spring their agents combed the country to get contracts for beans. For 1917 crop we contracted at what we thought were good prices but, when threshed, the beans were worth about twice as much as they were contracted for. The brokers made millions. That was in 1917. What did they do in 1918? Not a contract. They were not heard of. Now the state council of defense urged us to plant, to produce food; and the experiment station suggested that we in such an emergency plant beans between the rows of trees and so on. We did. The market reports from the bureau of markets, Los Angeles, show that thousands of tons of Jap and China beans have been coming to Seattle and Tacoma this fall and winter and are shipped east. Certain it is there is a market for these Jap-China products. There is not for ours. Possibly the brokers are getting the Jap-China beans for little prices so they clean up their millions on them this year. Are we holding ours until they have their oriental products sold?

But you say you have an organization. Is that so? Where is it? What is the street and number? I have been growing beans the last six years and wanted to find a bean association but couldn't. But there is one. California Cultivator, February 1, explains it, and that it is going to "sit tight." Is their object, their purpose to "sit tight" now until the brokers' oriental beans are disposed of? Looks that way, doesn't it?

"Sit tight." Isn't that what they have been doing? Why don't they get out and "cackle" and sell the growers' beans? The warehouses are full of them. There are more housewives in this country and in Europe that want the good California beans than that Jap-China stuff. Give them a chance to get them. Don't "sit." Get out and "cackle," advertise how good, wholesome and cheap they are and move them. Find new uses for them. The Exchange for instance would find a way to make drinks out of them should that be necessary to market them, or Carlisle Thorpe would get up a cracking plant that would process the beans so confectioners would buy them to make fancy confections out of. The beans would be sold and without a slump in the market too. These fellows don't "sit" not even "tight," but are ready to "cackle" (advertise) on the slightest occasion. And things are merry and joyous among the orange and walnut growers. I belong to both associations, so I know.

And there is that state market commission. Does not that "sit tight' too? Has it ever "cackled" so a producer or a consumer heard it? Adios.

The Association That is Laying Golden Eggs

WE MAY deplore the fact that farmers are not as shrewd in handling financial matters as the money changers in the larger markets of the world. We fear it is true as a general thing, but there are certainly exceptions, for instance, the Poultry Producers of Southern California organized less than two years ago.

On a capital of less than $25,000 this association now has assets of $79,000 and did a business during the 12 months of 1918 aggregating over a million dollars. According to the report of President Davison:

"Your organization rendered its marketing service to 422 members. There were handled for these members 2,433,612 dozens of eggs, for which they received $1,089,410.24. It is very gratifying to be able to report that these eggs were handled at a cost considerably less than the two cents per dozen deducted for handling charges. Our accounts are now being closed, and as soon as the exact operating expenses have been determined, each of you will be advised of the total of such expenses, and of the amount of refund to be made to shippers, namely, the difference between the two cent deductions and the actual cost of operations.

"During the past season we have stored 43,304 cases of eggs, all of which have been sold, and have realized a profit from storage operations of $18,143.96. From this and the miscellaneous profits, your board of directors will recommend to you that you in turn recommend to the incoming board that a dividend be paid to stockholders. This extraordinary showing was made possible only because of our contract with our manager, H. W. Stanley, by the terms of which he was to finance the purchase of our eggs for storage purposes. An increased capital is absolutely essential to the future success of our storage operations."

Doing a business of over a million on almost no capital certainly calls for some shrewdness and no little nerve—nerve, because in this particular case credit was liberally used to the extent that if the market had gone absolutely wrong at one particular moment disaster would have come, not only to the association but especially to the directors who hypothecated their personal credit.

Not good business? Perhaps not, but it shows the determination on the part of some of our producers to carry through to success an organization which is being attacked or at least obstructed by "business tactics". But the venture has won, is winning, as was shown by the large attendance of the membership at the last annual meeting held last Friday.

This organization is the first to ship carlots of eggs and broilers to New York City markets. It has taken the eggs at a time when they were becoming cheap here and saved them from storage and put them into a far better market and not only made money for its members, but has cleared the market so that all local poultry producers have benefitted.

On this particular point President Davison, in his informal talk at the opening of the annual meeting, remarked that if these eggs had been pressed on the local market without the relief secured from shipping to the East in carlots, he had every reason to believe it would have resulted in the taking of at least six or seven cents less per dozen on every dozen marketed in Southern California.

Besides these shipments, when the Eastern market becomes indifferent or when prices drop below the profit point, then cold storage is resorted to and, as noted in the quotation from the president's address, thousands of cases are stored until the higher prices of the next fall. Our local producers are looking with regret at reports of thermometer readings in the Eastern centers at the present moment. The Eastern winter has been exceptionally mild and Eastern hens have generally shown little respect toward California hens and gone on laying, so that little call is made for California produced eggs. This has resulted in a slump in the New York market, the price being shaded daily, some days to the extent of over seven cents.

The success achieved by the association has not been due to the accident of good markets so much as it has to the standardization and delivery of honest goods honestly marketed. On this point Manager Stanley made a strong appeal to producers in the matter of delivery: "Don't wash eggs." "Don't even wipe off." "If they are dirties, let them take their proper place." Of course when classed in the lower grade the price is shaded, but perhaps not more than one cent per dozen, but when washed and accidentally slipped into another case which goes into cold storage, the loss may be far greater.

Connected with the marketing association is a supply association. This is conducted on an entirely separate financial basis and as yet has no capital. It is only handling feeds and supplies for members who advance the cash for every purchase. It is hoped this will be placed upon a more solid basis.

Directors are elected from various districts of the southern portion of the state. Los Angeles County has five representatives. They are: Pomona, C. G. Ross; Van Nuys, B. R. Holloway; San Gabriel, A. J. Neimeyer; Gardena, A. C. Olsen; Burbank, L. W. Prewett. Riverside County's representative is J. M. Davison; San Bernardino County, T. C. Browning; Orange County, W. L. Grubb; San Diego County, T. M. Hurley; representative state market director, Austin O. Martin. These directors elected officers as follows: President, J. M. Davison; first vice president, W. L. Grubb; second vice president, B. R. Holloway; secretary-treasurer, L. A. Brooks. The directors also elected the following as executive committee: C. G. Ross, B. R. Holloway, A. O. Martin. The attorney for the association is Judge Willis T. Morrison.

Agricultural News Notes of the Pacific Coast

Northern California

Turkeys are bringing Yolo County growers some long prices.

Glenn County reports many applications for national farm loans.

Ukiah reports sales of 70,000 pounds of hops at 19 and 19½ cents.

Prof. E. C. Voorhies is again at University Farm after service in the trenches.

Sacramento Valley bean growers are getting impatient over market conditions.

Hayward, Alameda County, is now one of the largest shippers of fresh vegetables.

The biological survey now has three official coyote and lion hunters in the Trinity national forest.

Vegetable farmers throughout Alameda and Santa Clara Counties have formed a marketing union.

Auburn, Placer County, olive growers are selling off their next crop to a packing concern at Corning.

The 11th annual meeting of the California Sheep and Wool Growers' Association was held at Davis, January 22.

The forest service has been grubbing out poisonous larkspur on the ranges of Pyramid Peak in the Eldorado national forest.

The El Dorado farm bureau association recently elected officers for the coming year. F. W. Goff is president and John Harris secretary.

The state fish and game commission has a fish hatchery in Inyo County which is giving a large quantity of young fry to the streams of the Sierra Nevada.

The irrigation and drainage system installed at the state land colony at Durham was recently inspected by Frank L. Adams, federal irrigation expert stationed at Berkeley.

The state legislature is to be asked to send a memorial to the tariff commission urging that the tariff of six mills on Japanese rice be raised to at least two cents in order to protect California growers.

H. C. Dunlap of the California Prune and Apricot Growers' Association reports that he found both the governor and the state board of control favorable to the proposed state appropriation of $150,000 for experiment work in nut and deciduous fruit culture.

Humboldt County and the federal government have completed arrangements whereby each will pay half the cost of constructing seven miles of road connecting the Klamath River with the Salmon in Siskiyou County and thereby open direct communication with Eureka and the coast.

Capitalized at $5,000,000 a stockyards has been erected at Sacramento. The company is headed by Charles F. Virden, president of the Sacramento chamber of commerce and of the California Fruit Distributors. A meat packing plant in connection will be established in West Sacramento.

Manager Barber of the Poultry Producers of Central California has informed members that Chinese eggs are coming in by the shipload since the war stopped and urges them to write their congressmen and senators insisting on a protective tariff on the Chinese eggs that will enable the American poultrymen to make a living profit.

Central California

Lindsay, Tulare County, has shipped 1000 cars of navels.

Watsonville Creamery is now making record shipments of butter to San Francisco.

Squirrel extermination is the effort of a large district near Chowhilla, Madera County.

Prof. F. T. Bioletti has given olive pruning demonstrations at several points in Fresno County.

Apple growers of the Pajaro Valley are hoping for the passage of the new standard apple pack bill.

The farm center at Ducor, Tulare County, recently met and discussed plans for the next year's work.

A recent auction sale of dairy cows in Tulare County averaged $115, the higher priced cows going at $157.

A Fresno County fig grower reports the nematode a serious pest on the roots of some recently planted trees.

The planting of Tuscan and Phillips Cling peaches in the San Joaquin Valley has been more general than for years.

Merced County's sweet sorghums for forage yielded so heavily that the planting for the coming season will be extended.

Watsonville is shipping out storage apples rapidly and there is considerable movement of dried apples also from that point.

Pajaro Valley apple growers are contemplating an 80 cent per hundred rate on apples to New York by way of the Panama Canal.

Prof. J. E. Doughterty of the University Farm gave an address at meeting of poultrymen, Tulare, February 3. The topic was "Feeding for Egg Production."

Cotton men of the San Joaquin Valley recently met in Fresno and discussed cultural and marketing plans for the coming year. The planting in the valley will be greater than in 1918.

County Horticultural Commissioner Roulard of Fresno is giving demonstrations in spraying of peaches. Motion pictures have been taken of these demonstrations within the last week.

A Fowler, Fresno County, raisin grower has invented a dryer which enabled him to save 84 tons of wet raisins after the fall rains. The dryer is 24 feet long, 20 feet wide and ten feet high.

The fourth farm bureau hog auction of Merced County was successful, the first car selling at $16.10 per hundred. This was one dollar above the buyers' offering to ranchers the day preceding the sale.

Stanislaus County dairymen met in Modesto Saturday, January 25 to consider oleomargarine legislation and to appoint delegates to the annual convention of the California Dairy Association at Sacramento.

The bureau of soils of the United States department of agriculture and the University of California united in making a soil survey of the lower San Joaquin Valley. A report of this survey is now being issued.

The board of supervisors of Tulare County has decided to secure the services of an experienced citrus culturist to give advice to orchardists whose trees are showing lack of best thrift and health. He will be under the direction of the farm adviser.

Southern California

The bean market is generally looking up.

Redlands shipped about 1000 cars of navels.

Imperial Valley has a 600 acre wheat field.

Brawley, Imperial County, is shipping carlots of spinach.

The Escondido cannery put up a total of 75,000 cases of tomatoes.

There were 80 students enrolled at the recent tractor training center at Hemet.

Imperial Valley growers of Pima cotton are discouraged because of the extreme slowness of the ginning.

Riverside and San Bernardino Counties beekeepers recently met at Riverside and held annual election.

The marmalade factory at San Dimas is now employing 170 workers, turning out 114,000 jars of marmalade a day.

W. L. Russell of Garden Grove, Orange County, reports extension of orange planting in frostless Garden Grove.

A lemon and orange packing house is to be built for the North Whittier Heights section on the Salt Lake railway.

Riverside County's greatest crop is citrus fruits, $3,500,000. Alfalfa is a close second, however, valued at $3,250,000.

Artesia, Los Angeles County, claims the erection of more silos during the past season than any other section of like scope.

The California Lima Bean Growers' Association recently filed an order for 2,860,000 pounds of Limas at $10.15 per hundred.

A plan of organization of mutual water companies in Oceanside, San Marcos and Vista is being perfected, the water to be brought from the San Luis Rey River.

Frost protection will be the question discussed at the coming citrus institute at San Bernardino, February 20 and 21, in conjunction with the National Orange Show.

Senator King has introduced a bill into the state senate making provision for the formation of a district organization which will provide frost insurance for citrus districts.

Imperial Valley citrus growers propose to make an exhibit at the National Orange Show. In addition bolls of cotton will be given as souvenirs to attendants at the show.

Walnut growers of Southern California are asking for an appropriation of $10,000 to be used by the University of California to investigate methods of control of the codling moth or worm affecting growing walnuts.

Riverside County farm bureau is furnishing waste balls for use in the application of carbon bisulphide to squirrel holes at cost, which is about 45 cents per hundred balls. The carbon bisulphide is furnished at 35 cents per quart.

Irrigators who have filed request with the state water commission to store waters in the upper San Gabriel and San Dimas Canyons have withdrawn these applications and filed new ones asking permission to divert flood waters below power diversion. It is possible the storage may be secured in Puddingstone Canyon reservoir.

The Coast and General

Cablegrams from England indicate exceptionally strong apple markets.

Tractor schools are being conducted by the state college of Washington.

Sugar beet growers of Colorado received $9,000,000 for sugar beets last season.

The national forests of Arizona will spend $54,410 for roads during the next fiscal year.

It is expected that the work of all draft boards in Arizona will be completed inside of a month.

The Arizona Live Stock Sanitary Board is planning a revision of the 20,000 brands now on record.

The "Produce More Food" slogan of war times has resulted in a vast increase of irrigated lands in Utah.

Arizona may have a special term of legislature in order to consider fully the matter of the state highway system.

It is expected that the Grand Canyon National Park will have an extensive system of highways similar to that of the Yellowstone Park.

A concrete highway between Mesa and Tempe, Arizona, is being built and will probably be completed in about 60 days. The road is 18 feet wide.

The water table in the city of Phoenix, Arizona, is to be lowered by tiling. A complete gravity drainage system for the city will cost, it is estimated, about $125,000.

The L. L. Bates Cattle and Land outfit in Yavapai County comprising 1000 acres of land and 800 head of cattle has recently been sold to Wm. Wilkinson of Bethany, Illinois, for $60,000.

Colorado has a law permitting the formation of pest districts within the boundaries of which is permitted the cooperative effort to control grasshoppers, prairie dogs, ground squirrels or other pests and diseases.

Architects are now working on a plan for a new court house for Maricopa County to cost $500,000. Funds for building this will be secured through the sale of bonds and an election may be held at an early date.

The Phoenix, Arizona, chamber of commerce has requested all farm organizations in the Salt River Valley to appoint representatives to form an agricultural committee to discuss legislation needed by the agricultural industry.

The Arizona state game warden Joe E. Prochaska states that "predatory animals constitute the greatest menace to game in Arizona." He says further, "mountain lions, cats, wolves and foxes destroy more wild game than all the hunters."

Governor Campbell of Arizona has recommended that an agricultural building be erected on the state fair grounds. The governor says that the state needs and the great agricultural industry deserves a large fire proof building at the fair grounds.

The Water Users' Association composed of more than 4000 land owners in the Salt River Valley of Arizona has arranged to furnish all members of the association with cement and lumber for the improvement of irrigation ditches, building checks, etc., at wholesale rates, material to be supplied from the warehouses of the association.

Grafting Over Peach Trees

Written for California Cultivator By Claud D. Tribble

THE question is often asked: "Can a peach orchard be successfully grafted to other fruits?" All advice on this subject is to discourage the inquirers. Why?

We have grafted over many peach trees, ranging in age from four to 20 years, with perfect success. If the work is properly done there is no excuse for failure. To begin with the tree must be grafted as low as possible. In most California orchard practice trees are headed back at 18 inches or lower and three laterals are branched at this head. We saw off these laterals about eight inches or less above where they start from body of tree, and use the frame pruning saw to cut off and saw for the cleft, cutting out the cleft with a half circle harness knife and cut scions to fit or cut out cleft according to size of scions used.

Under no circumstances split a peach tree for cleft grafting as the center will decay no matter what precautions may be taken, and as we use three or more scions in each limb splitting could not be done, and care must be taken to place one of these on the southwest side of each limb grafted to bring up sap on this side as it tends to resist sunburn.

When our tree is grafted and carefully waxed, we wrap every portion of trunk, limbs and above the wax with burlap or other cloth and tie or tack it to the limbs and at bottom. If this is followed the owner will have a full bearing orchard in three years when he would have to wait six or seven years to attain the same result if he had pulled out his trees and planted nursery stock.

A peach orchard that has reached its decline can be grafted to prunes, plums or apricots and made profitable for many years, even though the trees have been sunburned so badly that they have decayed and broken off. In our experiments we have grafted side suckers from base of trees that had broken off at the ground and in four years we had trees of plums, apricots and almonds larger than the original trees which were approximately 20 years old when grafted. In one instance where a tree had died back to the ground a sucker was grafted to an almond and this tree is now over 25 feet high.

Another method of grafting the peach (also other fruit trees) is not to cut off the tree the first season but saw in the side of each limb at about the height mentioned. In sawing make a diagonal cut of about one and a half inches and three inches long and use half circle harness knife to cut out the cleft. In all instances where the saw is used in making the cleft the scion must be tapped in lightly so it will hold. It is well to make clefts on the inside of the tree as the scions will be better protected from being knocked out. In peach trees grafted by this method the first year there should be an average growth of six feet from each scion. The season following the tree can be cut off just above the union, the cut waxed, grafts properly pruned and the tree wrapped as before mentioned, and the job is complete. In expetimenting with new fruits we have grafted over peach trees as many as four times and these trees are still in good condition.

When a peach orchard begins to show signs of sour sap trees can be cut below the ring of sour sap, grafted to any variety of prune or plum, the tree saved and a good orchard result. Sour sap rarely goes below the surface of the ground more than four inches and does not affect the roots till growth starts when the air is cut off by the ring of dead cambium or sap layer. To get best results the tree should be grafted as soon as it shows signs of sour sapping.

ELIMINATING WALNUT MOTH FROM SACKS

We recently made note regarding Mr. Mackie's recommendations that the walnut moth may readily be eliminated from walnut sacks by running between heated rollers. The Anaheim Walnut Growers' Association has, during the past season, followed the plan of destroying every form of insect life in their orchard sacks by heating in steam chest. The sacks are placed in small bundles on shelves and dry steam released under them. The actual cash cost, not including labor, for sterilizing these sacks is not over $25 for the entire season. In addition to this there has been spent a few dollars, less than $100, for setting up the steam box and pipes which will be in use for years. This simple outfit has processed 13,000 sacks. The account of labor has not been kept because of its being done at odd moments by the regular help in the packing house. In any case it is estimated that the entire job would not require more than two days of one man's time.

Frosted Fruit

THE amount of frosted fruit is still a matter of conjecture, at least of very rough estimate. Water separators are being installed and the weather has been favorable to making the frosted fruit prove its own case, so that separation will be fairly accurately done. Deputy State Horticultural Commissioner Geo. P. Weldon has made examination in the citrus districts and makes the following notes on his observations:

A trip through some of the frosted sections of Los Angeles, Riverside and San Bernardino Counties, as well as through many packing houses where oranges are being packed at this time has furnished convincing proof that the damage to citrus fruits while possibly not as bad as the public feared immediately following the freeze, must not be minimized, and that the packing interests as a whole are recognizing their obligation to the industry and are packing fruit only from groves where the injury was lightest and from which the fruit will pass both government and state regulations.

While the packing interests as a whole recognize this obligation, there are a few money grabbers who would pack anything the color of an orange regardless of the condition within the skin. These few selfish individuals

La Crosse TRACTOR

IN buying your tractor think not only of today but also of tomorrow. The value of your tractor tomorrow depends upon whether or not it is standard today. This is the day of standardization.

The new La Crosse Tractor is the standard three plow tractor. It contains every feature which has made the La Crosse Happy Farmer Tractor so successful. It is the tractor which is up to date in every respect.

The tractor situation today is much like the automobile situation a year ago. The man who bought a standard automobile a year ago, can sell it today for more than he paid for it. To purchase a standard La Crosse Tractor today is to purchase a tractor which is not only the most practical type of farm machine but which is in addition a good financial investment.

12-24 Horsepower for $1250

The new La Crosse Tractor at its minimum rating offers you 12-24 horsepower for $1250, or practically one drawbar horsepower for every $100 invested. In the La Crosse Tractor you secure full three plow capacity under all ordinary conditions, with a guaranteed drawbar pull of 2000 pounds.

In buying a La Crosse Tractor you profit directly by the size and strength of this Company. Our immense buying and manufacturing power make it possible for us to offer you maximum power for the minimum price at which a successful tractor can be built.

The La Crosse is the real one-man tractor. You can run it, together with La Crosse Tractor Implements, single-handed. You can reach every working part of its engine from the driver's seat.

The La Crosse is the tractor which is self-guiding in the furrow and which turns in its tracks to right or left within a radius of nine feet. With its wide tread and perfect balance you can't upset it. Either front wheel will clear an obstruction 23 inches in height. Its double brake differential makes it especially fitted for hillside work.

The La Crosse Tractor is the perfect kerosene-burning tractor. It is exceptionally economical on fuel, holding the year's lowest average record for fuel consumption; does not overheat and is in every way reliable.

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The right implements are important. With your La Crosse Tractor, use La Crosse Tractor Plows, Disk Harrows and Power-Lift Grain Drills. All of them can be handled by the use of a rope from the driver's seat on the tractor. Ask your dealer to show you these well-made implements.

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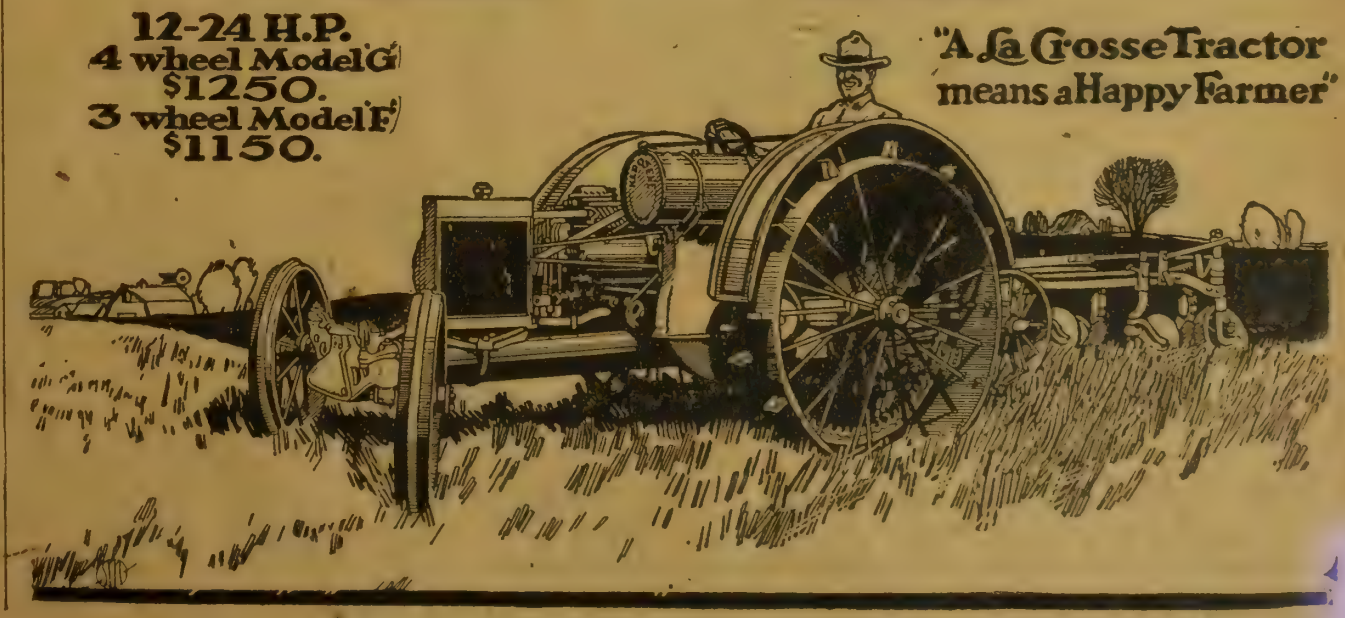
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Peace and Prosperity
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Citrus Trees

With the present demand for feed stuffs, the return of peace and normal economic conditions there will be a growing demand for all orchard crops and a corresponding larger demand for nursery trees. Already this return is finding expression in an increased demand for Teague Quality Citrus trees, which leads us to advise intending planters to book their orders early, as the available supply of really good, bud-selected (pedigreed) trees is rather limited. For this reason we invite correspondence. Prices cheerfully furnished.



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The
Killefer
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Working Position

Without doubt this is the most important development made in the manufacture of farm tools to-date. This is the only Automatic Disc Harrow on the market. It was designed and built in our own shops completely. We are therefore the originators and have it fully covered by patents.

In the development of this, our latest triumph in Disc Harrows, we have not only maintained the greatest strength and durability as originally designed but have added additional valuable features, namely our

Automatic Shifting Device

controlled by the operator from the seat of the Tractor and a greater flexibility so desirable in a tractor disc harrow, but not found in other makes.

This Harrow is built in all sizes from 5 to 12 feet inclusive.

Orders should be placed now to insure delivery.

The Killefer Manufacturing Company
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will come to grief just as surely as their methods will be discovered, and whether or not the country horticultural commissioner succeeds in his efforts to secure a prosecution, the red ink sales will disclose their short-sighted policy and condemn their dishonest practices.

For the present the state commissioner of horticulture will use every effort toward bringing about united effort on the part of the southern county horticultural commissioners in an attempt to prevent the picking of fruit from groves when considerable frost injury is apparent, until such a time as it may take for the cells to dry when the damage can be better known, and when the water separation process for the elimination of the frozen fruit may be applied effectively. In case it becomes necessary for the county horticultural commissioner to cause arrests for violations of the fresh fruit standardization act the office of State Commissioner of Horticulture Hecke will support the county commissioner when the evidence is such as to justify his stand.

From the National Orange Show

California citrus fruit growers are preparing the final details of their annual exposition, the Ninth National Orange Show. The exposition will open on the night of February 14 and will close on the night of February 23. There will be two Sundays and one holiday, Washington's birthday for the big days of the show.

The citrus institute, to be held February 20 and 21 is in charge of Dr. H. J. Webber of the citrus experiment station at Riverside. This will be of intense interest to growers for Dr. Webber is arranging an excellent program including some of the most prominent growers in the state. There will be particular reference made to frost damage. Dean Thomas F. Hunt of the University of California will be present and will deliver one of the lectures.

One of the elaborate features of the exposition this year will be the tribute of the California growers to the victorious conclusion of the war. A pageant of peace will be staged on a platform in the main fruit exposition.

Many districts, particularly in Orange, Riverside, Los Angeles, San Bernardino and Imperial Counties, are arranging extensive displays of their choicest fruits. The exposition will, in a measure, be a demonstration to the Easterners, who have arrived in large numbers all over Southern California, that the frost damage is not serious to the industry as a whole.

The decorative and illumination scheme will be brand new. One of the big features will be a court of victory at the entrance. Spanning the entire streets will be an arch and wall supporting Victory, mounted on the world, which is in turn supported by the California bear. The interior decorative scheme is entirely changed, and will center about great peacocks, the plumage of which will shine with varied lights. At night there will be a rainbow effect in indirect lighting throughout the exposition.

There is little change in the awards system this year, the most important being the adding of the grapefruit to the sweepstakes class. Sweepstakes honors will be given to Washington navels, lemons and grapefruit.

The industrial show will include all the latest devices in the care of the orchard and farm and the automobile show will demonstrate the latest models.

Tractor Course at Citrus Experiment Station

Registrations for the short course on tractors to be held at the citrus experiment station, Riverside, February 24 to March 1 are coming in rapidly. Applications are being received from all of the southern counties of the state and as far north as San Francisco and Oakland. The interest taken in this course would seem to indicate that the applications for enrollment will exceed the number that can be accommodated. This was the case last year when the enrollment for the course was 207 while fully 40 applicants had to be turned away as they could not be accommodated. For this reason, applications for enrollment are filed in order of receipt, when accompanied by the registration fee of $1.00.

Arrangements have been made for the following makes of tractors: Best, Cleveland, Fordson, Moline, Samson, Sandusky and Yuba. These machines will be available for demonstrations and practice work, while various parts and models will be used in the class room demonstrations. Class room work, for example, will be given on valve grinding, adjustment of carburetors, timing of ignition systems, babbitting and adjustment of bearings, while lectures will be given on all phases of traction engineering. This course is a practical one and will be of benefit to tractor operators and owners alike, and many owners employing tractor operators are taking out enrollments for their operators.

Application blanks and general information may be had by writing the Dean, Citrus Experiment Station, Riverside.

The lecture subjects cover practically every topic of gas engine principles and operation. In addition there will be demonstration and practice work in carburetor adjustment, ignition timing, valve timing, ignition troubles, clutch adjustment, gas engine testing, inspection and operation of several tractors covering several periods, belt lacing, babbitting of bearings, pipe fitting, rope and cable splicing, soldering, field practice with tractors, plows, and other tillage machines, forge practice, welding, sharpening plowshares.

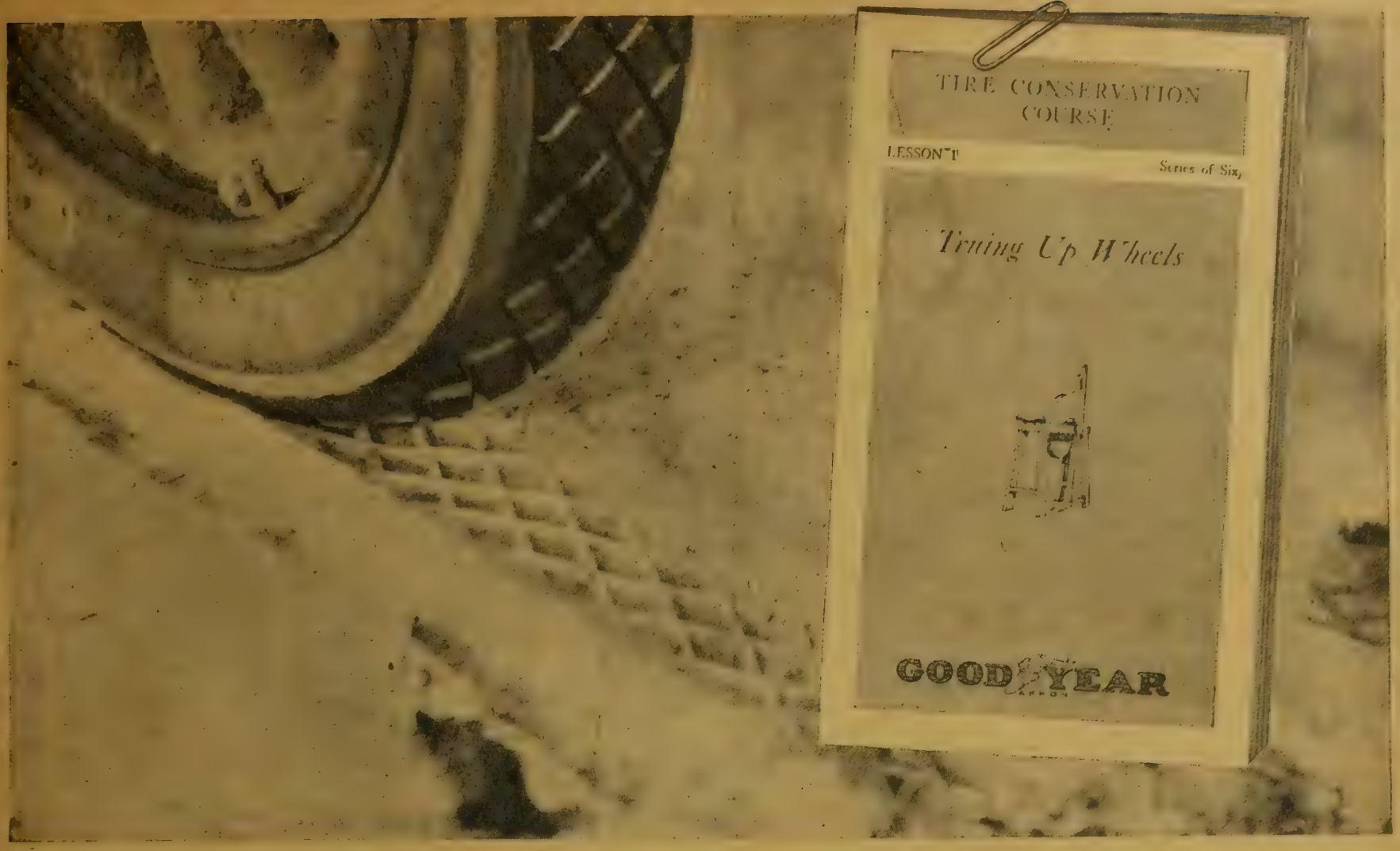
Peaches in the South

Written for California Cultivator By Ernest Braunton

SOUTHERN California has much to learn about peaches. We do not grow enough; we do not grow a sufficient variety; we do not grow them good enough. Probably the most serious problem we have to solve is that of adaptability, in regard to varieties. In the South we have not experimented with the half a hundred sorts to be had, nor have we tried peaches out in all the southern sections. One Fresno catalogue now before me lists 43 varieties. The largest and best peaches I have eaten in California were at Newcastle, growing on rather steep hillsides. We have identical soil, climate, and other conditions in the South, while our canneries ship in trainloads of peaches annually from north of the Tehachapi.

A few days ago I called upon E. J. Kitterman, superintendent of the large cannery of the California Packing Corporation at Los Angeles. I asked him, first, what varieties he preferred. He gave them in their order of desirability as follows: Clings; Tuscan, Phillips, Sims, Orange. Sims Cling is a new one to this gigantic cannery, but Mr. Kitterman says it is apparently the best of all but he has received so few that he did not wish to be quoted as saying it is the best. In the freestones first came the Lovell, the grandest of all peaches for canning and the only one this firm

Continued on Page 193



Saving 5,000 Miles
by "Truing Up" Wheels

A LARGE multi-cylinder car recently came to a Goodyear Service Station in Chicago with the treads on two Goodyear Cord Tires showing evidence of recent rapid wear. The tires had run 8,500 miles, but in the last few days the treads had been wearing down alarmingly. It was found that a recent accident had twisted the front wheels seriously, so that they were out of line. The grinding action due to this misalignment was cutting down the treads so rapidly that in a few days more the tires would have been out of commission. The wheels were re-aligned. The tires ran a total of more than 13,500 miles. 5,000 miles of tire wear were saved in this case by "truing up" the wheels in time. Have your Goodyear Service Station Dealer test your car today for wheel alignment.

ONE car in three has wheels out of line that rob their tires of thousands of miles.

Not even the Goodyear All-Weather Tread can long resist the grinding wear that such wheels inflict on tires.

They grind down a tread precisely as if it were held squarely against a revolving grindstone.

Misalignment is most common on the right front wheel, because it is most frequently run into ruts and gutters and against curbings.

On others a rim improperly applied, a bent steering knuckle, a worn bearing, or a warped axle may cause a like condition.

A misalignment of only three-quarters of an inch is enough to reduce by 5,000 miles or more the life of the best tires.

Only the most careful measurements can detect the condition.

Ask your Goodyear Service Station to inspect your car today.

Ask also for Lesson 1 of the Goodyear Conservation Course, dealing with the detection and correction of wheels out of line, so that you or your chauffeur can in future make inspections when you delay too long your calls at your Service Station.

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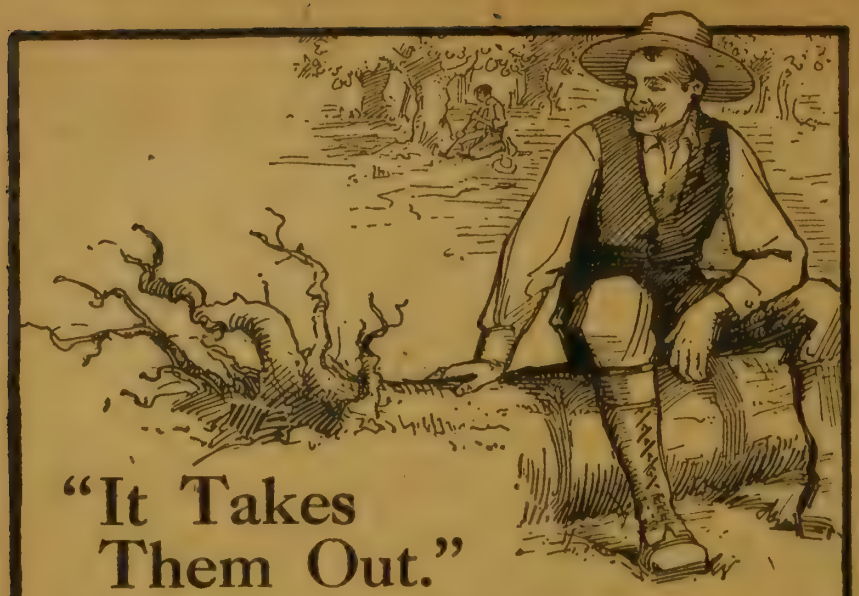


Notice the misalignment of the Right Front Wheel

Ask your Goodyear Service Station, or us, for Lesson 1 of the Goodyear Tire Conservation Course, explaining the effects and detection of misaligned wheels.



The Worn Tread on a Tire from a Wheel ¾ of an inch Out of Line



"It Takes Them Out."

"Look at those roots—dusted *clean!* I just stuck a good charge of low grade dynamite under her, lit the fuse and—*bang*—out she came as clean as a whistle, roots and all. Why—it's as easy as pulling weeds. No more stump grubbing for *me*."

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"The best day's work that I ever did was when I sent to the Hercules Powder Co. for a copy of their book, 'Progressive Cultivation.' This book has taught me a heap about the uses of dynamite on the farm and in the orchard; how to plant my trees, how to keep my bearing orchards in good condition, how to clear my land, dig ditches, blast post holes and do a lot of other things. Every farmer in this section should have a copy of this book."

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We can still supply a few thousand each:
FRENCH on Myro., almond, apricot and peach roots.
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NOW BEST TIME TO PLANT

Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb or Berries, write J. B. WAGNER, Specialist, Pasadena, California

This Month in the Ornamental Garden

Northern California

Written for California Cultivator By A. R. Gould

THERE is always plenty to do in this department as the subjects are so varied and many so hardy that even the frost does not harm them. Soon the Snowdrops and other bulbs will be showing through and the earliest of the flowering shrubs will be out in their full glory. Any plant moving, which is often necessary where subjects have been planted close together, should be carried out this month, and any new trees or shrubs which might be brought in from the nurseries should be planted. Every care must be exercised to see that the hole is dug large enough and the soil at the bottom loosened up to give the new fibrous roots plenty of chance, and where the soil is poor manure should be dug and mixed well in. Never plant too deep, but see that the ball or whole roots are covered. Newly planted flowering shrubs can be cut back but conifers should not be so treated. Always water shrubs immediately after planting and if you handle your plants roughly when planting or neglect them afterwards do not blame the nurseryman and above all do not buy cheap, small stock and expect it to produce large specimens in 12 months. Your home grounds are worth beautifying and are worthy of the very best, as choice shrubs and graceful trees add to the value of your property as well as making you feel happy in your home surroundings.



The Australian Bunya-Bunya
Araucaria Bidwillii from Braunton's Garden Beautiful.

Bulbs

A little bone meal raked in the surface of the beds and borders will help the bulbs, as also will a slight dressing of nitrate of soda. Gladiolus may be planted this month. There are quite a few named varieties on the market, good, bad and indifferent, and let us mention here that from our experience the higher priced are not always the best. Gladiolus have been developed to a high state of perfection in this country and owing to the fact that many varieties set seed so readily quite a number of new varieties are now in existence embracing almost every shade of color. They are easily raised from seed and some even flower in 12 months. The resulting "bulblets" or young seedlings are very small and need careful handling, but by growing these one can often secure a choice hybrid. The point desired in a good gladiolus is a tall spike, self supporting, with most of the flowers on the spike open at the same time. Their flowering season is not a very long one, hence they should be planted in a bed or border which is also planted with some subject having a long season of bloom. Gladiolus could be planted through a bed or border of gaillardia or myosotis. A few good named varieties of gladiolus are: America, light flesh pink; Peace, almost white; and Mrs. Francis King, one of the very best, light scarlet. Lemoines and Childsii hybrids give a good range of color and often many splendid types are secured from these strains.

Annuals

Many of these useful subjects should be sown at once on a finely prepared border of sandy soil in the warmest place in the garden. Among the best are the African Golden Daisy, dimorphotheca, clarkia Vesuvius, calliopsis, Tiger Star, browallia, dianthus lacinatus, godetia double pink, lobelia celestial, marigold, African and French, the fragrant mignonette, nemesia and nemophila. There are others which should be sown later as they are somewhat tender. Seeds should be sown very thinly.

Ipomeas

The morning glory, evening glory and the moon flower are all very popular climbers and most useful for covering fences in a single season. Seeds should be soaked a few hours before sowing, in pots or boxes of garden loam. Care should be taken in transplanting these to their flowering quarters.

Roses

These should be sprayed with Black

Leaf 40 if the green or black fly are in evidence on the young shoots. Sulphur should also be applied when mildew appears. Clean out all the dead wood and finish pruning.

Perennial Borders

Existing clumps of campanula, Michaelmas Daisy, heuchera, delphinium, etc. may still be divided and replanted. Your nurseryman can probably supply you with some newer types of perennials. There are a few new beautiful delphiniums and Michaelmas daisies and quite a number of single chrysanthemums.

Violets

After these have finished flowering the bed should have a good coating of manure, which may be dug well in between the plants. New beds may be formed by planting and subdividing the existing clumps.

Southern California

IF THE LAWN ever looked brown and ugly in former years it is far worse this year. It has been cold and dry so long that the sprinkling of Bermuda which gets into pretty much every lawn has lost every spear of green. A double handful of nitrate of soda thrown into the sprinkling can and dissolved in two or three gallons of water and sprinkled over the lawn will aid in giving it an earlier green than will be secured if left to itself. Still better and more permanent is the application of well rotted stable manure two or three times during the next week or two, then the surplus raked off and thrown onto the compost. Or, if preferred, a liberal dressing of complete fertilizer, or at least bone meal, is a wonderful help. Before the fertilizing a severe raking with a sharp garden rake will pull out many of the longer of the Bermuda runners, which may then be mowed off with the lawn mower, and this will give the blue grass an opportunity to get another start.

Gladiolus may be planted, or if the negligent gardener has allowed them to stay in the ground until this time since last season's growth they should be taken up at once and divided, and the little corms—if the variety is valuable—may be taken and put into seed bed. Some of our finest glads are easily multiplied if one is careful in saving these little corms.

Take up and divide cannas and calladiums! also plant most of the lilies, anemones and ranunculus, callas and dahlias.

If one has iris which should be divided at this season they should be handled at once, though it is really too late to get best results in dividing. But this plant is so extremely hardy that it will stand for almost any treatment. One may still sow California poppies though these should be almost ready to bloom. Practically all the annuals, such as poppies, corn flowers, calliopsis and asters and other annuals may be sown this month. It's a bit late but sweet peas may be planted during the next week or two.

It is a trifle early yet, but later in the month will be perhaps the best time to divide golden glow, Shasta daisies and chrysanthemums and other hardy perennials. But as to dividing chrysanthemums, we may say that it is usually claimed that better plants and more satisfactory flowers may be had by using the tender herbaceous tips and growing from these cuttings.

Use fertilizer everywhere, and in shady positions good results may be secured by careful application of nitrate of soda. This is recommended where the gardener usually claims better results from the use of blood or meat meal because in these shady conditions the soil remains cold longer and best results are not had from the organic forms of fertilizers so quickly as from the nitrate.

Leaves and dead weeds should be entirely cleaned out of the garden and made into compost heap. These with a little poultry manure, ashes or other house refuse make after a few months of composting one of the best potting soils. It is also excellent for use close to the young plants just set in the open.

LEGGY RUBBER PLANTS

Much complaint is heard from owners of rubber plants that they become long-stemmed or "leggy." But this is one of the easiest of all plant problems to solve. Simply cut it down to within a few inches of the pot; it will quickly sprout again. A much better disposition of the top is to propagate it and thereby gain one or more new plants. Make a slanting cut upward, about half through the stem and put in a piece of wood to keep the cut open. Pick a large handful of sphagnum moss to pieces until finely divided, drape it around to cover the cut portion, wind it about with string so it will stay firm and keep the moss moist, watering every day. When roots appear through the moss, cut through remainder of stem and pot the separated plant in as small a pot as you may without injuring the tender brittle roots.

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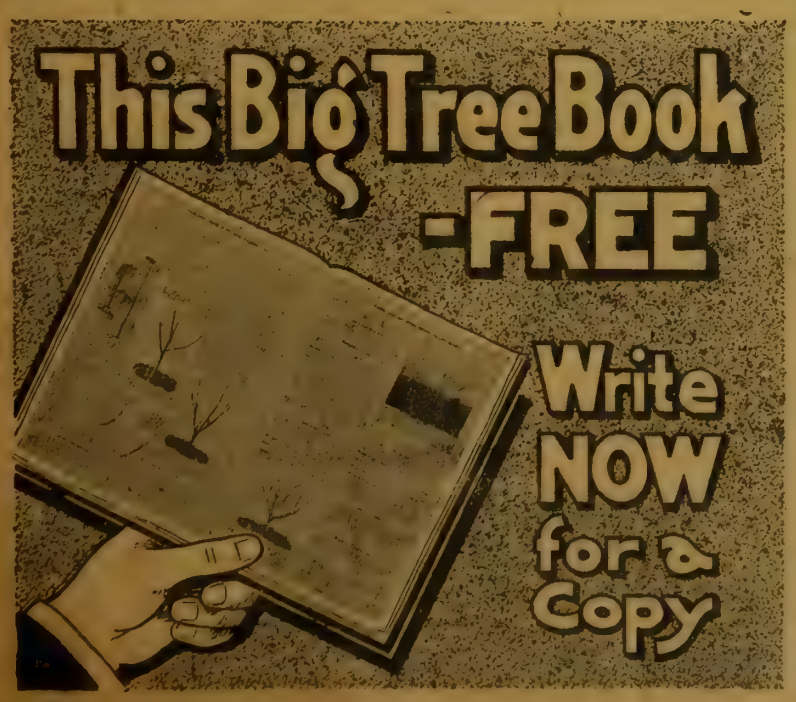
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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Pruned Walnuts Bleeding

The sap is running very freely from my recently pruned walnut trees. Will this injure them, and if so what is to be done? Should the pruning be continued?—Subscriber.

Cold nights and warm days makes the sap flow from recent cuts on walnut trees but does no harm, and in fact is sometimes an advantage if late frost should occur as it delays the opening of the leaves and may prevent frost damage. Sap is likely to flow from fresh cuts on walnut trees at any time during the dormant period and until new leaves are formed. This excessive flow of sap is often very troublesome when top grafting of walnut trees is undertaken as the scions will not grow unless all cuts are kept covered with wax and are airtight which cannot be done when there is a strong flow of sap uncontrolled.

The flow of sap from the stubs in which the scions are placed can be controlled by boring small holes in the trunk of the tree near the ground. By using a brace with a one-quarter inch bit and making one or more holes two or three inches deep the worst cases can be controlled.

The method we have followed is to bore one hole and wait a few minutes to see the result. If this is not enough bore another hole and continue, with a few minutes wait between borings until the flow over the top stops, but do not make holes after the flow stops as it is necessary that some sap reach the scions. Then clean off the cuts, wipe dry and wax thoroughly. It sometimes happens that the holes stop and the overflow begins again. In this case clean out the holes with the bit and rewax the scions.

Walnut pruning can be continued all through the month of February and into March until the buds open, and in fact might be done after the new leaves form if it was not for the difficulty of removing the prunings without breaking off the fruit buds.—J.B.N.

Three Year Old Leghorns Profitable

We have S. C. White Leghorn hens that will be two years old in May. Is it advisable to keep them another year?—Subscriber, Porterville.

Many White Leghorn hens are profitable for three years. Some are not. You can judge something of the class to which yours belong by their record the past year. If they laid so well that they would still be profitable with the record reduced ten per cent, keep them at least till fall. The chances are that a hen will lay fewer eggs in her second year than in her first, and fewer in her third than in her second. They will probably lay well this spring. As production begins to decline with the coming of summer you can cull out the hens that are not laying and get rid of them. You may find in the fall that some have done so well they are worth keeping through another winter as breeders. The early molters and those that do not pass the color test in October and November, if you have kept them that long, can be culled out. We thought some years ago that a hen was hardly worth keeping after her first year. Now we find it costs so much to raise a pullet that old hens are just as profitable if they lay fairly well and breeders are working for the hen that will lay profitably for five years.—J. A. K.

Hoeing About Old Trees

What advantage is there in hoeing old trees?—Subscriber, Winters.

It is impossible to give specific answer to such a general question. Whether our subscriber is referring to live oak, lemon or other varieties of trees is impossible to imagine. If lemons or oranges are referred to, or any other variety of tree which is of low growing, spreading habit to the extent that it is impossible to get next to trees with cultivator or weed cutter, then it is perhaps necessary to cut out the big weeds and to loosen the soil underneath these trees so that the air may enter and keep the soil sweet and pure. In case of trees like pears, walnuts or others where it is possible to work with plow or cultivator clear up to the trunk such method of handling is much cheaper.

Branches Growing Downward

What makes limbs of the fruit trees grow downward?—Subscriber, Trowbridge.

Because it is the habit of some trees to do so. On the other hand it is the habit of other trees to send the branches upright until the weight of fruit carries them over and downward until young buds come out on the top and again start upward. We have seen prune branches upright and with almost every branch pointing to the sky, carried over so some of the longer branches literally lay on the ground with the weight of the fruit.

Citron

How is citron grown and what process is used to prepare it for market?—Subscriber, Trowbridge.

The citron is grown as is the lemon or grapefruit or others of similar citrus fruits. It is usually very large with thick skin which is the only part of the fruit used. The small amount of pulp in the center is waste. The tree will not endure the frost which the orange will and scarcely even as much as the lemon. We know of only one orchard in California and that is near Riverside. The main reason why

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citron has not been produced in California is the labor question. Most of the supply for this country is shipped from Italy, pickled in a brine and the curing is done here. When the fruit ripens, pick, cut in the middle and soak in a brine. Later it is boiled, the salt water removed and candied.

Skunk Farms

Will you please furnish me with the address of one of the most reliable skunk farms in my section? — Subscriber, Kingsburg.

Do any of our readers know of successful skunk farms in California?

Spray to Kill Stumps

Is it practicable to kill willow sprouts and alder stumps along irrigation ditch where it is not possible to blast or pasture goats? Is there a spray which, if applied to the tender shoots, will ultimately kill out the stumps and roots?—Subscriber, Grass Valley.

We question whether such a spray could be used which would be very economical. A method of controlling weed pests has been explained by Prof. G. P. Gray, chemist in insecticide laboratory of the University of California, who can give more complete information.

Sprouted Barley

I note in last week's issue, answering a subscriber from San Diego in regard to a grain ration for poultry, you advised barley for one cereal and stated that part should be sprouted. I would like to know what proportion should be sprouted and what the object is. I am feeding corn in the morning, barley in the evening, keep a dry mash before them and feed greens twice a day, mostly cauliflower and cabbage leaves and would like to know if you consider these good greens.—Subscriber, Rivera.

The object of sprouting barley is to make it more digestible and more palatable. When I said part of the barley ration should be sprouted I was thinking of the various forms in which barley may be fed. Seed barley, I believe, should be all sprouted when possible, but sometimes rolled barley is used, and sometimes hulled or scoured barley, in which case sprouting is impossible. I should have said, perhaps, that part of the barley ration should consist of seed barley sprouted from three to five days. Cauliflower and cabbage are good greens, but it is said that when used to the exclusion of other greens they are apt to flavor the eggs. Barley run through a cutter after it is a few inches high is one of the most easily raised and satisfactory greens.—J.A.K.

Ducks Not Good Mothers

My Indian Runners did not care for their ducklings, never hovered them, just let the little ones freeze. Is that the usual way with Indian Runners? Out of 40 or 50 hatched out I did not raise one. These ducks are not very extra layers. It is now almost February and they are not laying. I am a greenhorn with ducks. Should I have taken the little ones away and raised them by hand? — Subscriber, Dos Palos.

You are not the first person that has been disappointed in Runner ducks. Some of them may be good mothers—I do not know—but the average duck, except the Muscovy, cannot be depended on to hover her babies. They are usually raised in brooders, fireless or with some heat. As soon as you saw your ducks did not hover the ducklings you should have put them in a box with a hot water bag or bottle and raised them by hand. Ducklings do not require a great deal of heat and are raised successfully in the coldest weather we have in fireless brooders when a sufficient number are together. Perhaps one reason why your old ducks are not laying is that they have not sufficient animal food. They should have a moist mash of corn meal and bran with about ten per cent beef scrap added twice a day and cracked corn or other grain for the noon meal.—J. A. K.

Marmalade Factories

Will you kindly tell me how many factories there are in Southern California that make marmalade from citrus fruits?—Subscriber, Porterville.

We believe there are only two factories that make an exclusive business of making marmalade from citrus fruits. These are at San Dimas and at Anaheim. There are others of course handling waste products of citrus fruits. Of these are the W. H. Bush Company, National City; Kingsbury plant at Redlands, large exchange plant at Corona.

Alkali Land

I have a piece of alkali land about three acres, and would like to know how to get rid of the alkali. It is only about two inches thick. Below the alkali it is sandy. What crop would be best to raise, trees or vines? — Subscriber, Hanford.

If your subsoil is sandy to a depth of several feet and the drainage is good, flooding will leach out most of the alkali with a few irrigations and in time will take it all out. If the drainage is not good, you cannot wash the alkali out unless you tile it. The tile should be at least three and one-half or four feet below the surface. I would plant grapes in preference to peach trees. Alkali land is usually very rich in plant food and if the alkali is properly removed the soil is as good as any, provided too much common salt is not present. A large percentage of common salt leaves a bad effect on soil long after it has been removed.—J. W. M.

Almonds not Bearing

We have several almond trees that do not bear hardly at all. They have plenty of water, cultivation, pruning, etc. Neighbors have advised us that the linnets and sparrows have a great liking for the buds, and probably strip them. In that case what would you advise to do? We have tried poisoning with fruit, poisoned wheat, etc., but don't seem to get many of them.—Subscriber, Delano.

This may be because of the birds, but perhaps it is because you have planted a variety not suited to the section or because of lack of pollenization. If almonds generally bear well in your section, then this variety may be one that blossoms early and is caught by late spring frosts. Investigation in other orchards of the same variety may help to solve the question.

Overbearing of Apple Tree

I have an apple tree in my door yard which has very long branches and is so loaded every year the limbs have to be propped. An early summer variety ripening in July. Last year the apples were of a very inferior quality, worm eaten and shriveled. What should be done to it? Should the long limbs be cut back? How many main branches should there be? I suppose it should be sprayed; when?

Continued on Page 177

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Chinese Production of Beans

IT IS only within the past ten years that the outside world has become acquainted with the soya bean of China. It is probably safe to say that the sudden rise of the soya bean from a position of comparative obscurity to a position of prominence in the world of trade, during a period of little more than a decade, constitutes one of the commercial wonders of the world. In the Far East soya beans are used for the following purposes: (1) For bean sauce or soy ("soya" is a corruption of the Japanese "shoyu"), known to the Chinese as "chiang-yu" and made "by boiling the beans, adding an equal quantity of wheat or barley and leaving the mass to ferment; a layer of salt and three times as much water as beans are afterwards put in when the liquid is pressed and strained." The sauce is clear, resembles Worcestershire sauce, and is used in a somewhat similar way. (2) For "chiang" or bean paste, eaten with fish, meat, and vegetables, and made by boiling together one part yellow beans and two parts water, grinding the mass into the shape of a pancake, and laying it in a cool place for fermentation; completed after two months, after which salt is added from time to time as the water evaporates, making the mixture ready in two weeks for consumption. (3) For "toufu" or bean curd, made from green or yellow beans by steeping the beans in water, grinding in a stone mill, passing through a strainer (which retains the epidermis of the beans), then boiling in a pot, after which the preparation is poured off into a jar and a well-diluted brine added, which, being stirred in, causes coagulation of the proteid compound legumin or vegetable casein; the mixture is then ready to be drained off and cut into blocks for sale. (4) For a form of flour, extensively used for bean vermicelli, which is tasty and nutritious. (5) As a table vegetable. (6) For soups. (7) For making confectionery (in Japan). (8) For oil, as a substitute for lard, as a lubricant, as an illuminant, and to make waterproof cloth, paper unbrellas and lanterns.

Bean Products—Exports

Bean cake is the residue after the oil has been extracted and is extensively used throughout the Far East as a fertilizer and to some extent as cattle feed. Consul Johnson describes the manufacture of bean milk at Changsha from the small yellow soya bean. The product looks like unskimmed cow's milk, has a slight odor of beans, a fat content of 3.1, is not unpleasant to the taste, and can be delivered to customers at Changsha at 50 cents gold per month for one pint a day. In the western world the soya bean is used but little as a foodstuff. Its principal use is for oil; a refined variety mixed with other oils serves as a salad oil or in margarine. One of the principal uses to which bean oil is put in western countries is in soap manufacture, though it is not as good in quality for this purpose as cottonseed oil. It is also used in the manufacture of various edible goods, toilet powders, paint oils, lubrication and lighting oils. The soya bean contains about 18 per cent oil. There are three main classes of soya beans—the yellow, the green, and the black, each with several subvarieties. Manchuria is the center of the soya bean and the bean oil industry, with Dairen as the chief port of export. Dairen exported, during 1917, 110,000 tons of bean oil, valued at 16,000,000 taels or United States dollars, the bulk of which went to America, mostly via direct route to Seattle. This is a surprising record and one that in view of such present factors as high war freights and unfavorable silver will probably be maintained after the war. The vast bulk of the bean cake goes to Japan. Consul Williamson, of Dairen, estimates the Manchurian bean crop at 1,500,000 to 2,000,000 short tons. Consul Moser estimates the soya bean crop of northern Manchuria at more than 1,000,000 tons a year, 50 per cent of which goes to Japan.

The exports of beans and bean products from China during 1917 were as follows: Black beans, about 4,000 tons; green beans, about 15,000 tons; white beans, about 10,000 tons; yellow beans, about 530,000 tons; other beans, about 120,000 tons; total, about 679,000 tons, valued at 20,000,000 taels (one tael in 1917 equivalent to $1.02 United States Currency.) Bean cake, about 1,030,000 tons, valued at 24,000,000 taels; bean curd, about 2200 tons, valued at 270,000 taels; bean oil, about 130,000 tons, valued at 19,000,000 taels. Total, beans and bean products, 1,841,200 tons, valued at 63,270,000 taels.

In the above total of beans exported are included Hankow broad or horse beans, which are different from soya beans, but which amounted in value to less tnan 1,000,000 taels. They are shipped abroad as cattle feed.—The Bean Bag.

All Southern California was visited by a soaking rain last week.



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COTTON AT PORTERVILLE

By Martha L. Baker

That Egyptian long staple cotton can be successfully grown in this part of the San Joaquin Valley has been demonstrated by S. H. Stevenson, who has just completed harvesting a crop of two and a half acres grown on the A. M. Sanborn ranch about three miles southwest of Porterville, Tulare County.

The cotton, amounting to about 1000 pounds, was sent to Fresno to be ginned. Mr. Stevenson estimates the crop will yield him returns of about $400 to the acre.

The cotton, which was grown on soil of a sandy nature, was planted May 20. An earlier planting on April 20 was destroyed by bugs, necessitating replanting which made the crop several weeks late. Part of the cotton was grown between rows of olive trees as the Sanborn ranch is developed largely to olives.

The crop was given three cultivations and five irrigations. As high as 250 boles were found on one plant. The cotton was planted by means of a wheat drill, about six pounds of seed to the acre being planted. It came up so thick about two-thirds of the plants had to be thinned out.

Sixteen acres of kaffir grown on the Sanborn ranch yielded only about $750. The two and a half acres of cotton will yield fully $800. The cost of production of both crops was about the same.

The success of this, the initial experiment of commercially grown cotton in this district, is expected to lead to quite an extensive cultivation of this cotton in this district this coming season. Mr. Sanborn, recently discharged from army service, expects to put out ten acres of cotton this spring. Another progressive rancher contemplates planting 40 acres.

DEPARTMENT OF AGRICULTURE

Some of the leading farmers of Nebraska recently met with their new governor, McKelvie, and discussed putting the general direction of the agricultural activities of the state under one head. Then too there has been a board of managers which has handled the annual state fair, made certain reports as to agricultural activities, but done little in the matter of general direction of agricultural activities. The general recommendations resulting from the conference are extended. In the main they are:

"The first and most important thing to be accomplished is to remove from party politics the different state boards which have to do with the control of all activities pertaining to both commerce and agriculture. Any plan that fails to recognize this important thing is doomed to failure and will not be approved by the people in the final verdict."

"The different activities should be grouped under two general heads. With our present constitution the governor would have to be the head of each department. We recommend that the head of one department should be known as the commissioner of commerce and welfare, and that the other one should be known as the commissioner of agriculture."

"Under the commissioner of agriculture we would place the state board of agriculture, live stock sanitary board, and veterinary department. Stallion registration, inspection of foods, feeds, oils, seeds, dairy and similar activities, with power to enforce all laws pertaining to the same. Of the department of agriculture we wish to make more definite recommendations at the present time, which can be worked out still more in detail later."

"17-YEAR LOCUST" DUE THIS YEAR

The year 1919 is likely to be one of the worst "locust years" on record. But entomologists of the United States department of agriculture see nothing alarming in the prospect.

The periodical cicada, the real name of the insect commonly called "locust," will appear this year in the following states: Alabama, District of Columbia, Delaware, Georgia, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

The injury done by the periodical cicada consists almost wholly in chiseling grooves in the branches of trees

for depositing eggs. This injury always appears to be greater than it actually is. Popular alarm is usually out of proportion to general damage.

When the insects begin coming out, hand pick them from young fruit trees or spray them with pyrethrum powder, kerosene emulsions or a solution of carbolic acid or acetic acid.

Later, when the insects are ready to begin laying, spray young fruit trees with whitewash.

HOW TO WIN THE REST OF THE WAR

By Herbert Quick

We think we have won a great victory over Germany — and we have. Germany is so weak that an army of 30,000 Poles, as I wrote, are threatening Berlin. It looks now as if anyone might kick Germany around—the once all-powerful Germany!

Why is Germany weak?

Because the Germans have lost control of themselves.

Unless we retain control of ourselves — of our own souls — we have have not won a complete victory over Germany. If we retain or acquire complete control over ourselves we can win the rest of the war. Unless we do win the rest of the war we have not only defeated Germany, but we have defeated and disgraced ourselves!

The saddest nation, the nation most completely crushed is the nation defeated by itself; and the deepest disgrace is that which is self-inflicted. Germany can emerge from her defeat and humiliation and disgrace, after a while, by getting a new grip on her own soul. The only hope for victory for her is the hope of victory over herself.

What do I mean by suggesting that we must win "the rest of the war?"

I mean that the heaviest, if not the bloodiest, part of the task is still before us. We have that great army of which we are so proud—it seems to us the bravest, finest, most splendid army the world ever saw—still under arms and encamped on the soil of Europe. They said in Germany that we could never get that army across the ocean, but we did. They are across the ocean now, our soldiers, 2,000,000 of them. They must be supported, clothed, fed and made as comfortable and happy as boys so far from home can be made, until they can be brought back.

And they must be brought back.

When they are through with their wonderful, their epic task, they must be brought back.

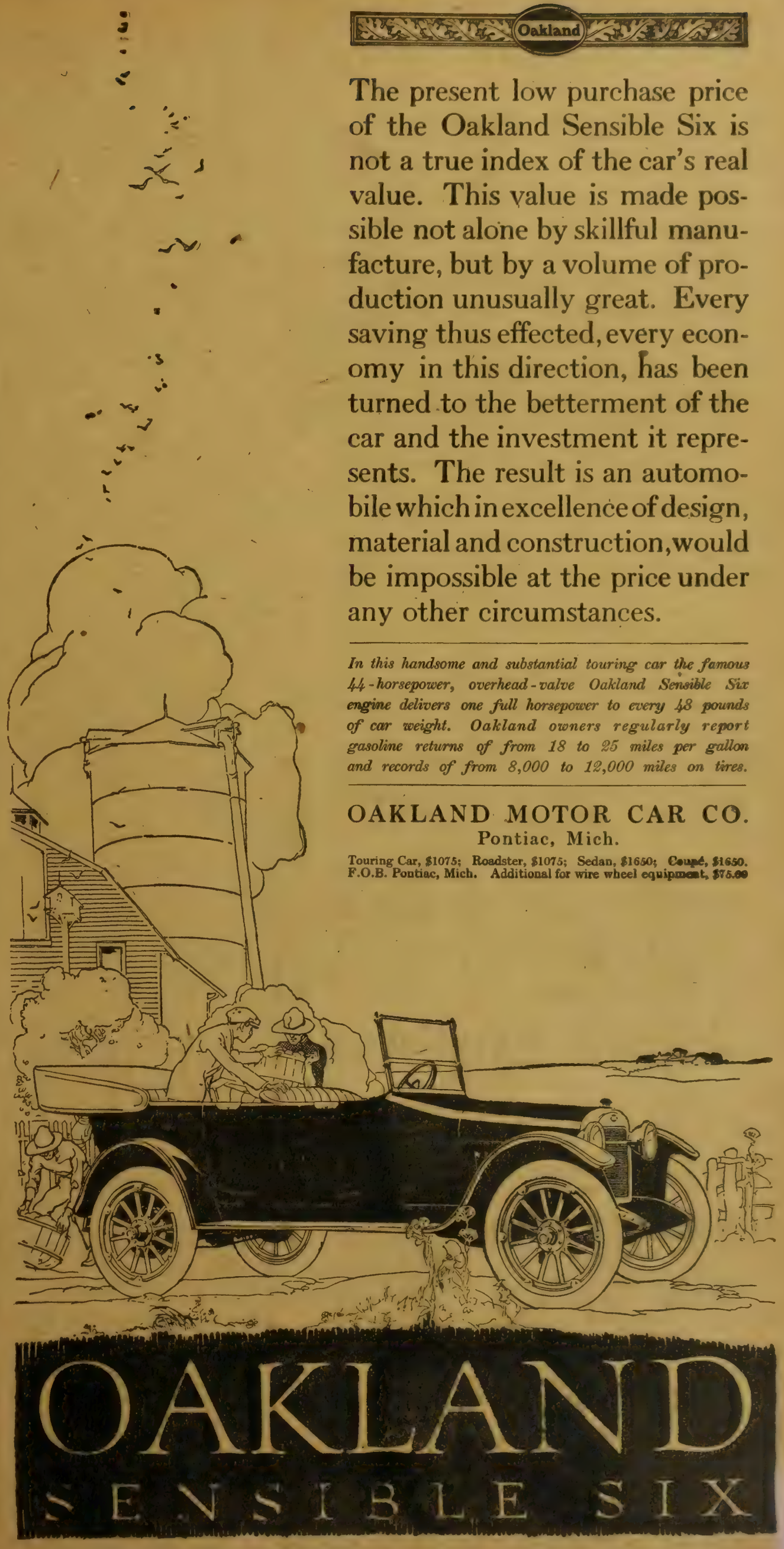
And it will cost as much to bring them back as it did to take them over. It will be in some ways a harder task; for all the world on our side wanted them to go over and was willing to help while nobody but the little old United States is especially interested in getting them back.

INSTALL A FARM REPAIR SHOP

A small farm shop, equipped to handle the simpler repairs, will soon pay for itself. It saves money, returning its original cost rapidly. F. A. Meckel of the University of Missouri college of agriculture says the shop need not be equipped with expensive tools; that some of the handiest shops have been installed at very reasonable prices.

The greater part of many winter days can be spent in putting the farming implements into good condition. It doesn't require much shop equipment to make welds and bend rods. A forge, anvil, tongs, and hammer will do it. With these tools as a start, others can be made. Old machinery ready for the junk heap can be rescued and handy tools made from its steel. Chisels of all shapes and sizes, S-wrenches and the like can be shaped from old steel and tempered to suit the use to which they are to be put. Tongs of any size and shape may be made from the wrought iron parts. Old files can be made into useful tools.

Add to the equipment a press drill, and many visits to the village blacksmith will be forestalled. The best thing about having a shop is that the more it is used, the more proficient the operator will become. Results at first may be disappointing, but the new smithy can soon develop a proficiency in handling the common repairs. And there is always the opportunity open at the university to learn shop practice.



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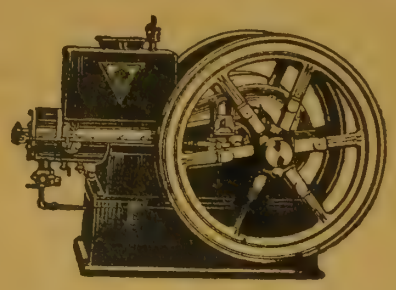
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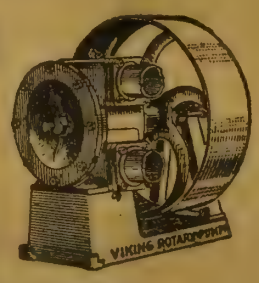
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The ideal pump for irrigation. Excels in efficiency due to low speed and positive discharge. Will pump against any head up to 150 feet. High efficiency reduces power costs—no churning of water or wasted power with the Viking.



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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Road Right

Several years ago I sold a right of way for road along the lower part of my orchard to my neighbor. Now, during my absence, he has dug a deep ditch along my side of the road which has the effect of excluding from me the use thereof and also diverts storm and irrigation water from its natural course away from my land and settles it in this ditch. What are my rights?—Subscriber, Lindsay.

Your rights are of course dependent upon the length of time this condition has been allowed to exist by you. If for five years or over you could probably do but little. If the ditch is of recent character or if it is sought to deepen it you could undoubtedly prevent the condition through injunction proceedings, providing that your grant of the right of way does not provide for such a condition. It is a matter so dependent upon the exact and detailed facts that you should take it up with your local attorney.

Division of Property

Wife has helped to accumulate a few thousand dollars and now desires a division of the property as she has nothing to say about business matters. What steps should she take?—Subscriber, Lindsay.

Apparently there is an erroneous idea in the mind of the above subscriber. Marriage is in the nature of a life contract of partnership. The law provides that upon the dissolution of the partnership by death the wife shall have one-half of the community accumulation; in case of dissolution by divorce the division is frequently made by the court according to the facts of the case. During the marriage the husband is given the management and control of the community property; this is essential as he is the business man of the firm and the general business of the community could not well be otherwise conducted. It may work hardship in some instances, but it is for the general good.

To Perfect Title

In 1912 I bought land for which the vendor sent me a deed signed but not acknowledged. I returned it for acknowledgement, but the letter was returned undelivered. I have been unable to locate him since. How can I proceed to perfect my title?—Subscriber, Los Angeles.

There are several methods which could be employed. You might bring action to establish adverse possession under the written claim of title providing the land has been usually cultivated or improved, or substantially inclosed, or used for fuel supply, fencing timber, pasturage, or the ordinary use of the occupant and payment of all taxes for the period since 1912. Or, under section 1203 of the Civil Code, you may institute an action against the proper parties for proving the instrument to be entitled to record, in which case you could doubtless serve by publication of summons. Or you could take the usual action to quiet title with publication of summons. And there are other ways.

Contract by Minor

Kindly let me know whether or not a contract signed by a minor is valid.—Subscriber, Solvang.

A minor cannot appoint an agent nor, under the age of 18, make a contract relating to real property or any interest therein or relating to personal property not in his immediate possession or control. He may make any other contract subject to his power of disaffirmance. He cannot disaffirm a contract made for the reasonable value of the things necessary for the support of himself or family entered into when not under the care of a parent or guardian able to provide, nor a contract made under express authority of statute; in all other cases he can disaffirm if made whilst he is under the age of 18 either before majority or within a reasonable time thereafter; if such contracts are made whilst he is over the age of 18 it may be disaffirmed in like manner upon restoring the consideration to the party from whom it was received, or paying its equivalent.

Defective Tractor

I bought a tractor from a responsible concern which represented it to be all right, for which I took their word and paid $500 down and gave note for the balance, with no written contract. The tractor continually broke down and although the concern continually fixed it it is clearly a defective piece of machinery. I have demanded back my money but they claim it is my fault. What should I do?—Subscriber.

It is purely a question of fact whether or no the breakdowns are by reason of your handling of the tractor or by reason of defective machinery; if the former is the case the seller is, of course, not liable; if it is defects in the tractor you are entitled to resist payment of the note and probably recover monies paid. The rule has been declared by our courts that any affirmation made at the time of sale as to the character or condition of the thing sold will be treated as a warranty, if so intended, and if the other party acquired the property upon the faith of the affirmation. The only difficulty you would experience would be in proving the representation; if proven, your measure of damages would be in excess, if any, of the value which the property would have had over its actual value with, possibly, fair compensation for the loss incurred by an effort in good faith to use the tractor.

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QUESTIONS AND ANSWERS

Continued from Page 173

When the leaves dropped in fall we found there was much of the fruit had not dropped and are yet hanging in the tree dried and shriveled. — Subscriber.

If this tree has been bearing crops it is too late to begin shaping it. This should have been done the first three years of its growth. If it has long branches they may be topped, cross limbs removed, and it might possibly be advisable to thin so as to let light and air into the interior of the tree. Then when the fruit is just setting at the close of blossoming, spray with arsenate of lead, three pounds to 50 gallons. This may be repeated every two or four weeks, using a nozzle which permits a fine fog to be delivered so as to leave some of the poison in the blossom end of the fruit. This spray is for the codling moth or worms of the apple. There may be scale or other insects infesting the tree which call for other sprays. Again, it is possible that the fruit shrivelled because of lack of moisture, for it must borne in mind that last year's supply of moisture was very limited.

Sow Bugs

I notice a great many round blue bugs, called by some "sow bugs". Will you kindly instruct me what damage they do and the best method of eradicating them. My soil is a heavy dark loam, almost an adobe and holds moisture a long time and I notice these bugs collect thickest under boards or heavy strawberry plants or in piles of rubbish where there is continuous moisture.—Subscriber, San Jose.

Sow bugs are as a rule feeders on decaying vegetable matter and unless starved to it will not attack living tissue excepting such food plants as mushrooms, and sometimes strawberries. They infest damp places and are attracted by rich soil with plenty of humus. A good poison bait is made by slicing potato, rolling in Paris green and placing under the fruits or leaves where they gather.

Dates

Can the date palm be successfully grown in the San Joaquin Valley either for home use or as a paying industry for market? What kind of soil do they require? Is the date palm dioecious or a hermaphroditic? How long before they come into bearing? How old must they be before transplanting from the nursery? Does it take much water to make them grow?—Subscriber, Reedley.

The date palm has not yet been commercially grown in the San Joaquin Valley, but there are individual trees, and an experimetnal planting has been made by W. R. Nutting near Fresno. We believe this planting has not yet fruited. Date palms are not partial as to soil but have been known to do well in very heavy soil even with a large percentage of alkali. They do require a sufficiency of water. "Their feet in the water; their heads in the burning suns of the desert" is one of the slogans of the North Africa date growers. Grown from suckers and from the right varieties they will bear in two or three years from planting. A year in nursery is sufficient, when they may be transplanted. They are dioecious so that in planting seedlings there is practically a 50 per cent loss from the male trees. One male, or pollen bearing tree, is sufficient to pollinate a great number of bearing trees.

Chlorosis or Mottle Leaf

I would like to get a little information about yellow leaves on orange trees. I have them on two different kinds of soil; about four acres is light sandy loam and two, heavy granite mixed with a little alkali. In sandy loam they are all right, green and thrifty; but in the heavy soil they are looking yellow. — Subscriber, Anaheim.

Your heavy soil needs lightening with abundance of vegetable matter such as coarse strawy manure, leaves or anything which will lighten it up, warm it and allow air to enter. Besides it is very probable those particular trees are getting too much moisture. Citrus trees require air at the roots, which means that they are easily drowned out. However, the nature and control of chlorosis or yellowing of leaves is a long problem and there may be many answers to the question as to what is the cause of the yellowing of leaves on this particular tree, but the application of lime and a great abundance of vegetable matter spaded into the soil, with raking away of the hard soil from immediately around the trunk and filling in with sand may prove beneficial.



Katydid and Its Method of Depositing Eggs

Katydid Eggs

I am sending in separate package a small peach twig with some kind of insect eggs on it. What are they? Please tell me what to do for them if they are harmful.—Subscriber, Winton.

These are katydid eggs, and unless present in great quantities are no menace whatever.

There are so many who are concerned over the appearance of the "mammoth scale" that we have made reproduction of an engraving in "Manual for the Study of Insects" by Comstock. As will be noted these are eggs and not a scale insect, but eggs which when hatched produce the comparatively harmless Katydid. Though there have been times when they have been somewhat of a pest, this is so seldom that unless present in immense numbers they may be ignored.

HIS MASTER'S VOICE

Casey: "Now, phwat wu'u'd ye do in a case loike thot?"

Clancy: "Loike phwat?"

Casey: "Th' walkin' diligate tills me to stroike, an' me ould woman orders me to ke-ape on workin'."—Western Christian Advocate.

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WHETHER plowing, threshing or doing other farm work, the Wallis Tractor gives true economy.

Wallis first combined light weight, great power and durability in a tractor; built a tractor weighing 1000 to 5000 pounds less than others of equal power.

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Wallis first enclosed all gears, including the final drive—thus saving power and protecting vital parts. The Wallis motor and transmission are as perfectly finished as an automobile motor.

The result is a tractor that burns one-third to one-half less fuel per acre plowed; that cuts the cost-per-acre of plowing to the lowest figure ever known. It made the Wallis America's Foremost Tractor.

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Two, three and four year olds that weigh a ton or better. The heavy boned, clean legged kind with lots of style and action.

The largest collection of high class Stallions west of the Rocky Mountains.

Prize winners at this year's big Eastern shows. Life Insurance and State Certificate of Soundness furnished with every horse. If in need of a really high class Stallion come and inspect my horses or write for full particulars. I can suit you in price, quality, and terms.

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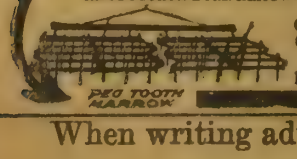
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$3,000 in Cow Testing Prizes

A. E. GREENE, chairman of the committee in charge of the contest being conducted by Sacramento-Yolo Cow Testing Association, states that $3000 worth of prizes will be distributed among the winners. The contest is similar to the one conducted by the University of California.

The contest has been arranged for the purpose of encouraging better methods of management among the rank and file of dairymen and for that reason most of the classes are for grade herds. The association defines a grade herd as one consisting of 50 per cent grade cows. Herd prizes will be based on the average number of cows tested during 1919.

The complete classification follows:

Class A—Grade herds of one to 20 cows.

Class B—Grade herds of 21 to 50 cows.

Class C—Grade herds of more than 50 cows.

Class D—Grade herds in Classes A, B and C that are headed by grade bulls.

Class E—Highest yearly record by cow, grade or pure bred, under five years.

Class F—Highest yearly record by cow grade or pure bred, over five years.

Class G—Highest monthly group of five grade cows in one herd. Winning cows barred each succeeding month.

Class H—Highest yearly average made by a grade Jersey herd.

Class I—Free for all. Herd showing greatest improvement during the last six months of 1919 over the last six months of 1918.

Class J—Champion herd, grade or pure bred.

The following individuals and firms have contributed cups, merchandise and registered dairy bulls for prizes:

The California Cultivator; Sacramento Clearing House Association; The Sacramento Bee; Patterson Dairy Supply Company; Newbert Implement Company; J. N. Blair Company; A. W. Morris & Sons Corporation; Fred W. Kiesel; Bonita Stock Farm; McCurry Photo Company; Sperry Flour Company; Ord L. Leachman; Emigh-Winchell Hardware Company; Dr. H. C. W. Litchenwalter; Geo. P. Robinson; News Publishing Company; Sandercock Land Company; Judge Peter J. Shields.

How the Horse Holds His Own

In the course of an address recently delivered by Wayne Dinsmore, secretary of the Percheron Society of America, before a meeting of Kansas horsemen some interesting facts and opinions regarding the effect of truck and tractor competition on the horse business were presented. Mr. Dinsmore said, in part:

"The competition of trucks and tractors has had a distinct influence. It has frightened thousands of farmers into a partial, or complete, discontinuance of horse breeding. Where it inhibited the breeding of mares of 1200 pounds or over to draft stallions this has been harmful. Where it stopped the use of small stallions, or the breeding of very small or decidedly inferior mares it has been a benefit. More good than harm has probably resulted, for we had a vast surplus of horses ranging from 1000 to 1400 pounds, and horses as a whole were being produced more rapidly than demand warranted. Especially was this true of the smaller, inferior kinds. A surplus of inferior horses drags down the price on good ones, so that every man who is producing good horses has reason to thank any factor which materially retards the breeding of scrubs, even though the same factor may temporarily depress interest in the production of real drafters.

"How far truck and tractor use may limit the field for drafters in the future no one with certainty can foretell. We do know that in the large cities trucks and teams appear to be reaching a balance. Teams are cheaper and more effective in short hauls, trucks superior in the long hauls. For a time trucks replaced teams at a very rapid rate in our large cities. Chicago, especially favorable to truck usage, has exact data on this. During the three years ending April 30, 1915, two-horse teams decreased 15 per cent, three-horse teams 30 per cent, and auto trucks one ton or over increased 441 per cent. During the next three years, ending April 30, 1918, two-horse teams decreased 21 per cent, three-horse teams only eight per cent, and auto trucks over one ton increased only 174 per cent—less than half as rapidly as the preceding period. Furthermore, there was an increase of two per cent in the three-horse teams in the last year, and this tallies with the statement of very competent draymen, who stated that there had been a tendency on the part of some firms to swing back to heavy drafters for more of their short haul work, for reasons of economy. In Greater New York there was during the two years and four months ending in March, 1917, a reduction of only 2100 horses, despite a great increase in trucks. This was a decrease of less than two per cent.

"The limit of profitable replacement appears to have been reached, or nearly so, and not 30 per cent of the heavy drafters have been displaced. The most experienced city transfer men who have been in the business for 20 years or more declare that teams can never be entirely eliminated in city work by trucks, as the increased cost of handling short haul traffic would be prohibitive; and these are men who have both trucks and teams in constant service, do draying on a tonnage basis, and are interested in the proposition solely from a financial standpoint.

THE BEST LINIMENT

OR PAIN KILLER FOR THE HUMAN BODY

Gombault's

Caustic Balsam

IT HAS NO EQUAL

For the Human Body — It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Boils, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

A Perfectly Safe and Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Strains, Lumbago, Sore Lungs, Rheumatism and all Stiff Joints

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. BEYER.

Price $1.75 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet E.

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HORSE OUT OF CONDITION

On page 116 of the issue of the Cultivator of January 25 Dr. Petrie gave information regarding horse out of condition, and on this one of our subscribers, Dr. J. E. Minney, comments:

"Horse out of condition" in last week's Cultivator sounds like intestinal indigestion or pin worms. If the former the feces are probally acid. To learn if acid get a dime's worth of litmus paper. Press a piece of the paper on the fresh discharge and if the blue litmus paper turns red the discharge is acid — sour. This sour condition is brought on by the food rotting in the alimentary tract, stomach or intestines, one or both.

Treatment: Give 60 grains of calomel in some corn meal or rolled barley at one dose. In four hours give one-fourth to one-half pound of salts, according to the size and known habits of the horse. After the physic acts freely test the feces and if sour give from one-fourth to one-half pound of baking soda,—not baking powder,—in one-quart of water three times a day or until the feces become alkaline or neutral as shown by the blue litmus paper not changing its color. Change feed. The soda acts as a laxative, neutralizes the acid in the alimentary tract, enables the horse in crepitus, thus relieving the gaseous pressure and rumbling noise in the intestine.

JERSEY NEWS

F. W. Eleby of Modesto has sold to Geo. A. Moore of Ripon his well known herd sire, King Polo of Bleakhouse 101114. This is one of the best bred bulls in heavy producing lines in California. His dam has a register of merit test of 521 pounds of fat in a year as a two year old. His granddam a R. of M. test of 794 pounds of fat. Mr. Moore expects to mate him with the well known cow, Empress Lass, and other good females purchased from the Locke herd. Mr. Eleby has also recently sold to Mr. Esparta of Escalon the yearling bull Marco Polo a son of King Polo, and to the Hearst Ranch at Pleasanton the Jersey cows, Ruby's Eminent Lily, a granddaughter of the noted bull Eminent, Katherine of Belleview 4th, a daughter of the well known sire Gedney Farm Girl's Oxford, and three heifers, granddaughters of the herd sire King Polo Bleakhouse.

James A. Goodall of Keyes has just sold to the Hearst Ranch seven head of Jersey cows and heifers of Sophie's Tormentor blood. The Hearst Ranch owned by Mrs. Phoebe Hearst is founding a herd of registered Jerseys under the management of Chas. A. Adams.

C. D. Hayworth of Modesto has sold to W. C. Cornwell of Modesto a son of his herd sire, Laura's Altama Interest, out of one of his young register of merit cows.

Guy H. Miller of Modesto has recently sold to Herbert G. Wylie of Los Angeles the richly bred young bull Pearl's Altama Underwood, sired by his noted prize winning herd sire Altama Interest. The dam of this young bull is the well known cow Pearl of Venadera, register of merit test 702 pounds of fat in a year. Mr. Miller has also sold to C. H. Sturges of Yuma, Arizona, the young bull Altama of Palomar, a son and grandson of Altama Interest, out of the young register of merit cow Signora of Venadera, 427 pounds fat in a year.

W. J. Hackett of Ceres has sold a three year old daughter of his senior herd sire Signora Bruce's Fox to Herbert G. Wylie of Los Angeles. Mr. Wylie is founding a herd of registered Jerseys on his ranch at Naples in Santa Barbara County.

D. F. Conant of Modesto has just sold to Heitt Bros. of Modesto three cows for a foundation of a registered Jersey herd, and to Wm. Sproul of Modesto a young Jersey bull by Pansy's Gertie's Lad, and to Yeiser Hughson, a bull by the same sire.

THE ROSELAWN HERD OF SHORTHORNS

Dr. H. M. Elberg, Woodland, proprietor of the Roselawn herd of Shorthorns, is quite enthusiastic over the manner in which his two herd bulls, Crescent Dale and Roselawn Champion, are developing.

This herd, which, by the way, is one of the oldest established herds of Shorthorns in California, has shown marked improvement during the past few years and if present plans materialize it is destined to play a leading role in the beef cattle development of the Pacific Coast.

Old time breeders are familiar with the worth of the former herd bull, Gibson's Goods, by Choice of All, who was one of the greatest sons of the champion Choice Goods. He left a strong impression on the herd and was followed by Ringleader, a son of Ringmaster, one of the most popular show bulls of recent times. As the herd stands now the majority of the females represent the blood of these two bulls. When it became necessary to secure a bull to follow the two named above, Dr. Elberg selected Crescent Dale. This bull, who will be three in March, is a dark red son of Whitehall Rosedale by Avondale, the greatest son of Whitehall Sultan. Crescent Dale was not shown at the 1918 state fair owing to a slight injury, but would have made his initial show at San Francisco this month. He is a bull with ample scale, put up on nice lines and carries a wealth of flesh laid on very smoothly under a hide that is a delight to handle. He is fronted with an attractive head and sports a coat of curly mossy hair about his head and neck that one likes to see. As yet only a few of his calves have been dropped at Roselawn, but those seen are straight lined, thick fleshed youngsters, especially good in the quarters and carrying rich coats.

Assisting the above bull, and regarded by many as being a more promising bull, is the white Roselawn Champion. Visitors at Sacramento will recall this youngster. Under the capable management of Carl Johnson, he has done well and gives every appearance that he will develop into a rare bull. He is by Eastlawn Champion, a son of Champion of Scotland. The latter bull was regarded highly in the East and a few years ago was secured by the Paicines Ranch of this state. He died but recently. The dam of Roselawn Champion was Mischief E. 3rd, grand champion at the 1918 state fair.

With two such bulls to head the herd of 45 Scotch and Scotch topped females that constitute the breeding herd it is but reasonable to expect that the Roselawn herd will assume a commanding position in Shorthorn affairs in California.

COOPERATIVE MARKETING SAVES MONEY

Approximately $2154, or an average of 11.3 cents a pound on a carload of wool, was saved by the farmers of Wayne County, New York, through a cooperative arrangement started by the Wayne County farm bureau. When the cooperative enterprise was undertaken last spring the farmers were paid 67½ cents a pound. An additional dividend of $1528.01 has recently been received from the buyers, which brings the average price of the wool a pound up to 73.8 cents. When the interest is received the farmers will have been paid 75.3 cents a pound. The farmers of the county seem to think the farm bureau is responsible for a very successful undertaking.

A lot of our people who refer to foreigners as "wops" and "dagoes," stayed at home and made money, while the wops and dagoes fought for them in France.—Pajaronian.



Get more milk!

Get more milk from *your* cows. Others have proved by actual record that Dr. LeGear's Stock Powders make cows give from one-half to three-fifths of a gallon more milk per day. I *guarantee* that

All stock do better with Dr. LeGear's Stock Powders (my personal prescription)

They tone up the animal's system wonderfully, produce perfect digestion, increase the productive *value* of the feed, drive out worms, and keep stock strong and healthy. The formula for these powders has been worked out from my twenty-six years' veterinary practice, and *tried out* by thousands of dairymen and stock raisers, with big success.

This time of the year all stock *need* help—cows, horses, hogs, etc. You should get your cows in good condition for the freshening period; tone up your horses for hard spring work; and insure healthy, sturdy spring pigs. Feed your cows and sows Dr. LeGear's Stock Powders—give it to your horses. Besides being a splendid conditioner it is an excellent remedy for coughs, colds, distemper, worms, kidney troubles, loss of appetite, hide-bound, loss of flesh, etc., because it eliminates the *causes* of these ailments.

Dr. L. D. LeGear, V.S. (in Surgeon's Robe), Graduate of Ontario Veterinary College (Toronto, Can.), 1892. Nationally famous specialist in treatment of stock and poultry. 26 years' actual veterinary practice.

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Ask your dealer today for Dr. LeGear's Stock Powders. If my Stock Powders fail to do all that I claim for them, your dealer is authorized to refund your money.

Dr. LeGear's Poultry Powder keeps hens healthy, insures winter eggs, and means more profits to you.

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Dr. LeGear's Remedies are sold by 40,000 of the best dealers—never by peddlers. Ask your dealer today for liberal *free sample* package of Dr. LeGear's Stock Powders or Dr. LeGear's Poultry Powder, and get a free copy of Dr. LeGear's Stock and Poultry Book. If your dealer hasn't samples and books, ask him to write us. We will supply him promptly.

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In the important work of preparing the seed-bed, the Cleveland Tractor *does more than merely plow.*

Any tractor will plow.

But the Cleveland because of its track-laying construction travels *on top* of the soft plowed ground with harrow, seeder or other implements.

It does its work rapidly and economically *under conditions most difficult for the ordinary machine.*

The Cleveland, with its tremendous traction surface, *rides on top* of the ground like the great battle tanks—*without wallowing, sinking in or packing down the soil.*



The Cleveland uses its power *to pull the implement*—not to pull *itself* out of the ground. That is one reason why it operates on so little fuel.

The Cleveland will pull a roller over your young wheat *without injuring the crop.*

It does the hauling, the manure spreading, the ensilage cutting, the stationary engine work and the hundred and one *other* things that every farmer expects a tractor to do.

And it does the work *better,* as well as faster than before.

Orders for spring delivery should be placed *now.* Write for booklet and name of nearest Cleveland dealer.





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LOS ANGELES, CAL.

BERKSHIRE CONGRESS AND SALE TO BE AT UNIVERSITY FARM

Written for California Cultivator
By Frank B. Anderson

Arrangements have been completed for a two-day Berkshire exposition at the University Farm, Davis, Wednesday and Thursday, February 19 and 20, under the auspices of the Western Berkshire Congress, which will hold its annual meeting and sale at that time.

One of the features of the meeting will be a fat barrow and carcass contest which will bring out two score or more of fat porkers to be judged in the showing and end with competition on the block. The Western Berkshire Congress directors have voted to place prizes of $25, $15 and $10 for pens of barrows, and $15, $10 and $5 for individual barrows. Bert Nixon, a Berkshire and Guernsey breeder of Yountville, has offered a registered Guernsey heifer as a grand champion barrow award.

A students' judging contest will be a special feature of the program. Gold, silver and bronze trophies will be awarded. Prof. J. I. Thompson has been selected to judge the barrows and place the first five breeding animals consigned to the sale.

The congress directors have arranged a combination guaranty sale of 50 bred sows, gilts and a few selected boars, representing the top herds of the Pacific Coast. The sale will be held on the second day of the meeting, starting at 1 o'clock on Thursday, February 20.

The annual Berkshire dinner will be held in the University Farm dining hall on the evening of February 19, at which time a number of leading hog men will talk on subjects of interest to swine breeders.

SHORTHORNS AND BERKSHIRES AT CARRUTHER'S FARM

W. M. Carruthers, who has transferred his Shorthorn and Berkshire breeding operations from Mayfield to his new ranch near Live Oak, is enthusiastic over the crop of calves now being developed. To date about 35 calves have been dropped and a total crop of about 50 or 60 is expected. The two herd bulls, Count Glory, grand champion at the last three state fairs, and Hallwood Villager, a white son of Village Flash, are evenly represented. It is too early to forecast accurately as to the merits of the two bulls, but the statement can be made with assurance that each has to his credit some exceptionally attractive prospects that promise much for the fall shows. Among the bull calves one of the most attractive is a red son of Count Glory out of a graceful dam sired by Ringmaster. A September calf by the same bull and out of an Evangeline dam has every appearance of developing into a bull of high order. He is a roan, very straight in his lines and a sagginess and thickness throughout that catches one's fancy.

A white-footed red calf by "the Count" out of a Fair Knight dam has a lot of good things about him. Hallwood Villager is responsible for a roan out of a good Orange Blossom dam by Fair Knight that will be a calf to reckon with. Another calf of promise is by Rookwood Monogram, the bull now in the Rossiter herd at Santa Rosa.

Several of the heifer calves show exceptional promise, but it will take time to rate them correctly. One little lady of rare quality and style is a red daughter of Count Glory and out of a March Violet dam. She has a lot of show ring attributes but is scarcely so thick or deep as two roan calves by Hallwood Villager — one out of the Hall-bred cow, Ringlet 2nd, by Prince Abbotsburn, a son of Lady Abbotsburn, one of the most celebrated show cows in the old Tebo Lawn herd; the other calf, also a roan, and very much after the same pattern is out of a daughter of Fair Knight. Perhaps one of the most valuable heifer calves on the farm is a rich coated red daughter, Hallwood Villager and out of Lady Dolly, a daughter of Lady Dorothy 5th. Mr. Carruthers regards the Dorothy stuff very highly and plans to develope this good family in the herd.

Among the older things are a number of good young bulls, several of which will doubtless find their way to good herds, as a number will be consigned in the forthcoming Shorthorn sale.

The good roan Broadhooks Sultana

2nd, shown last year has done well as has the white, Lady Ruberta. Carruthers has another heifer of the same age, and a white, Mayfield Ury by Count Glory, that has developed splendidly since the Sacramento show. She lacks the scale of the Ruberta heifer but at the rate she is developing she will be strong competition. She is rather a favorite with John Carruthers, who really deserves the credit for the condition the herd is in.

The Berkshire herd is in a strong position. Ames Rival 100th still holds his place as senior sire and is assisted by three good young boars. A son of Superbus is being used on the Ames Rival gilts with good results.

Recent sales from the Berkshire herd include a boar by the son of Superbus to the University of California.

Champions Are Bred
NOT MADE

Breeding animals that are sound in breeding, type and health make secure your future as a Berkshire breeder.

I am sending to the guaranteed bred sow sale of the Western Berkshire Congress five sows of championship blood and bred to champions.

No. 1—Princess Lee 48th.
No. 2—Princess Lee 49th.
No. 3—Princess Lee 50th.

Three litter sisters by Winona Lee Champion 6th, son of the famous Laurel Champion and out of a 650 pound litter sister to the Grand Champion sow of the world These are part of a litter of nine, six of which averaged 428 pounds at ten months. No. 1 and No. 3 are bred to Baron Duke 201st, Grand Champion boar at the Omaha National Swine Show; and No. 2 is bred to Rincon's Rival 2nd, Grand Champion boar at Oregon State Fair, 1917. Another good sow is Symboleer's Natomas Laurel, by a son of Laurel Champion and out of a daughter of the American Berkshire Congress Grand Champion Symboleer 5th. This sow is bred to Rincon's Rival 2nd, weighing 756 pounds at 22 months.

Miss Villa Rookwood, while a trifle under size, is a sow that will pay her way wherever she goes and is bred to Winona Lee Champion 6th.

THE BOAR

Winona Lee Champion 6th, a son of Laurel Champion, will also sell. This boar has good length, a well-set, meaty ham, strong in the back and feet, a remarkably good heart girth and carries his depth his entire length. He is guaranteed a sure breeder, has a very typy head and his future will be much greater at the head of some good herd. I have several of his daughters and a number of sows bred to him in my herd and this is my only reason for disposing of him.

Keep your eyes on these animals day of sale.

Sandercock Land Co.
906 K St., Sacramento

In charge of Natomas Land Sales

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Barrenness

I have a two year old heifer that has been coming in heat for the last year and I have the bull with her often without being able to get her to breed. Can you suggest any medicine or treatment that will get her with calf? I have read that one pint of hempseed given regularly for a couple of months is beneficial. If you think hempseed is good where could I get it?—Subscriber, Loleta.

We know of no value of hempseed as a medicine for man or beast. It is listed among the medicines but no action is given so it can be of little value. She may be completely barren or there may be an obstruction to the entrance of the womb. If she is of a very valuable strain have her examined by a veterinarian and he may be able to find the cause of the trouble; otherwise it would be best to send her to the butcher.

Blindness

I have a mare that went totally blind almost over night. She seemed all right when put in the stable in the evening. The next morning she stepped high and was afraid to walk out when led by the halter. The eyes are not watery nor is there any film on the surface but the pupils have a dead and somewhat milky appearance. She has a good appetite and seems well in every other way although she has fallen off some in flesh since going blind. She has not been worked hard nor had any blow that I know of. Can anything be done for her? — Subscriber, Raymond.

This is one of those unaccountable instances that occur from time to time. Something went wrong with the circulation of blood to the eyes or with the nerves that supply the eyes with nerve force. These cases are of such rare occurrence that no one has had a chance to find out anything about it. Nothing that we know of can be done for it.

PURE PORK SAUSAGE

To each 100 pounds of meat, preferably 60 to 65 per cent lean and 35 per cent fat finely ground, take one and one-half pounds of salt, four ounces of black pepper, two ounces of sage and one ounce of nutmeg. Mix all together well, sprinkle over the meat and mix thoroughly.

If the sausage is to be kept for several months it should have two pounds of salt instead of one and one-half pounds. It should also be stuffed in casings, or packed in jars and covered with lard. For convenience and to insure keeping, it can be made into cakes, fried, packed in containers and covered with lard.

Carruther's Shorthorns and Berkshires

Choice collection of breeding cows—mostly Scotch—and representing the leading families, headed by Count Glory, grand champion at the last three state fairs, and Hallwood Villager. Bulls for sale at reasonable prices. Berkshire herd headed by the noted boar Ames' Rival 100. Correspondence invited.

W. M. CARRUTHERS, Live Oak, Cal.

Buy These Berkshires at Your Own Price

We are consigning the following Berkshires to the annual

BERKSHIRE CONGRESS SALE

2 GILTS
Sire { Ames' Rival 70th No. 209850, Grand Champion boar State Fair 1918.
Dam { Winona Artful Laurel 9th No. 229354, member of first over one year herd, California State Fair 1918.
Farrowed March 2, 1918. Litter of 10

These gilts have everything in their favor and are well worth the attention of any breeder who wants better Berkshires. The sire and dam are both prize-winners at the 1918 State Fair. We consider their breeding the best in our herd.

2 GILTS
Sire { Winona Compton Champion 8th No. 250345.
Dam { Mills' Luster Girl 2d No. 255633.
Farrowed March 5, 1918. Litter of 10.

The sire Winona Compton Champion 8th is a son of Laurel Champion, who was many times a prize winner. The dam, Mills' Luster Girl 2d was raised on the Mills Orchard Ranch. She is an excellent brood sow.

2 GILTS
Sire { Mayfield Rookwood 2d.
Dam { Miss Rincon A No. 247338.
Farrowed May 8, 1918.

1 BOAR
Sire { Ames' Rival 70th No. 209850.
Dam { Forest Grove Laurel 9th No. 221278.
Farrowed April 3, 1918.

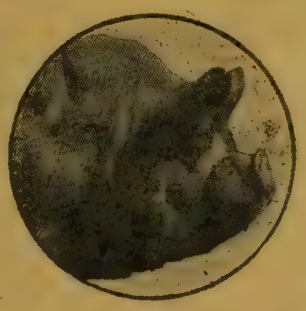
With popular Grand Champion blood on both sides this boar has a lot to live up to and he surely can do it.

All have been selected as worthy representatives from our great herd and are the sort that will prove profitable to the buyer.

JAMES MILLS ORCHARD CORPORATION, Hamilton City, Calif.

Berkshires for Profit

50---Selected Bred Sows, Gilts and Boars---50



Annual Congress Guarantee Sale

University Farm, Davis, Cal., Thursday, Feb. 20

The Offering:

Following an established precedent, the Western Berkshire Congress offers for sale 50 head of carefully selected bred sows, gilts and boars. Every animal selected for this sale represents, to a high degree, the most acceptable type of modern Berkshire—size, quality, vitality, bone and prolificacy being insisted upon. Every sow listed is guaranteed to be a breeder or purchase price refunded.

Berkshires are the profitable hog. They are money makers. There never was a better time to enter the hog business than NOW. The scrub must go, and this sale offers an opportunity to replace the low producing scrub with a profitable pure bred at a reasonable price—your own price.

Remember, every bred sow sold is a guaranteed breeder and has been immunized from cholera.

The few boars to be offered are of the highest class and fit to head good herds or go into any kind of a herd and sire the kind of pigs that will be profitable. The blood lines are the best, the type is right, the quality is first class and the price—your own.

Breed Berkshires—The Standard Hog, the Hog of Quality, Style and Vitality

The Congress Meeting:

The Annual Meeting of the Western Berkshire Congress will be held the day preceding the sale. Matters of vital interest to the hog industry will be discussed by men competent to talk on every angle of the business.

A Fat Barrow Contest will demonstrate to all the reasons why the Berkshire is the Universal Breed.

A Carcass Contest will be conducted as a demonstration of the killing qualities of the Berkshire.

A Students' Judging Contest will bring out emphasis on the finer points of this Great Breed.

The Berkshire Dinner will be held the evening before the sale.

A 2-DAY BERKSHIRE EXPOSITION

Meeting: Wednesday, February 19th. Sale: Thursday, February 20th, 1 o'clock.

Catalogs and other information may be secured by filing applications with the Secretary.

Western Berkshire Congress

W. M. CARRUTHERS, President. Live Oak, Cal. HOMER HEWINS, Jr., Secretary, Calistoga, Cal.

COL. ORD L. LEACHMAN, Auctioneer

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Los Angeles, Calif.
Dec. 10, 1918.

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Replying to your recent inquiry asking if I had any occasion to buy Hairy Peruvian Alfalfa this season and what I think about it:

Will say, that I purchased some in the San Fernando Valley which was grown from Germain's Proven Hairy Peruvian seed, and it was the best hay I ever had in this market. It not only sells for more money than the common alfalfa hay, but it also makes satisfied customers. I am looking forward to the time when this will be the only variety grown.

Yours truly, J. R. Cale
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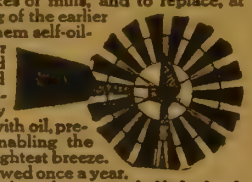
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Live Stock News Notes

Wisconsin Holstein Breeders' Sale

The Wisconsin State Holstein Breeders' Sale will be held March 12 and 13 at Fond du Lac. F. H. Everson of Lake Mills will manage the sale.

Holstein Guaranty Sale

The date of the Holstein Guaranty Sale has been set for March 27, and will be held at state fair grounds, Sacramento. The highest record cattle ever sold in the west have already been entered, according to a statement made by C. L. Hughes of California Breeders' Sales and Pedigree Company, who will manage the sale.

Black Patti on Test

Black Patti, a great Holstein cow owned by Walter F. Mitchell, Visalia, recently completed an official record of over 26 pounds butter in seven days.

New Hog Feeding Plant at Willows

The Western Rice Co., who control large holdings in the Willows district, have recently established a hog feeding plant just south of that town. Perry Garland, who formerly operated in the Imperial Valley, is in charge.

The plant, which is one of the most complete in Northern California, consists of a central house with adjacent lots. The house is a two story affair, so arranged that the feeding is done from a central alley. The sleeping quarters are on the second floor and are reached by means of an incline. The capacity of the plant is 500 head.

Mr. Garland states that hogs of good thrift and quality are purchased at weights averaging between 100 and 125 pounds. Upon arrival at the plant they are gradually brought onto a full feed, which is usually a mixture of rice and wheat by-products, barley and corn fed as a wet mixture. The cost of the feed is said to be about $60 the ton and it is claimed that eight pounds of the mixture will produce two and one-half pounds of gain. In other words, at present prices, 24 cents worth of feed will produce 41.25 cents worth of pork.

Mr. Garland also claims that hogs so fed kill out exceptionally well and do not register a heavy shrink in shipping.

New Duroc Herd for Glenn County

F. D. Barr of San Francisco, who is installing a herd of Durocs on his ranch near Orland, has recently purchased nine bred gilts from H. P. Slocum & Son, Willows. Mr. Barr plans to build up an extensive herd of pure bred hogs and is selecting his foundation stock with care.

Witherow's Durocs Now in Sutter County

H. C. Witherow, whose herd of Durocs was maintained near Palo Cedro, has recently moved his herd to his ranch south of Live Oak. Mr. Witherow's herd boar is Johnson's Defender Jr., a son of Johnson's Defender and Cherry Chief Lady. Cherry Chief Lady will be remembered as the 1917 grand champion at Sacramento.

Mr. Witherow states that he has never noted a stronger demand for Durocs and he is impressed with the quality of stuff insisted on by buyers. Several of the young sows now in the herd are daughters of Model Col—the University Farm boar.

Kounias Makes Good Holstein Sale

George Kounias of Modesto, who breeds Holsteins and Berkshires, reports a recent sale of three females and a young bull to J. R. Coons Modesto, for $2500.

The Greatest Cattle Sale

The most remarkable sale of pure bred beef cattle ever made was held last month by Mousel Bros., Cambridge, Nebraska, when 50 head of Hereford bulls and cows were sold for $192,250 — an average of $3845 per head.

Practically the entire offering represented a concentration of Anxiety 4th blood and nearly all the animals sold were direct descendants of the Mousel herd sire, Beau Mischief, thus demonstrating the value of a superior sire.

Superior Domino fetched $21,000 and the cow, Mariana 8th, brought $7200.

One of the features of the sale was the number of new names noted in the list of buyers.

More Eastern Herefords for California

Clifford B. Harris, Los Angeles, Western representative of the Hereford breeding establishment of O. Harris & Sons, Harris, Missouri, states that he is expecting a shipment, consisting of four or five carloads, of bulls early this month.

Mr. Harris recently furnished a Repeater calf to the Sierra Vista Vineyard Company of Minturn, for $2500.

For a good many years Harris Herefords have dominated the show rings of the Middle West and at the 1918 American Royal and International cattle from this establishment wrote some very brilliant records. Repeater, Jr., the two year old son of the famous Repeater was senior and grand champion at both shows, but each time he had to beat his half brother, Repeater 129th, who in turn won the junior championship only after he edged ahead of Repeater 191st. A further fact of interest is that Repeater 7th Model a son of Repeater 7th sold in the association sale during the Royal, for $24,000.

Tulare Jerseys in Demand

A. A. Jenkins of Tulare reports having sold a young son of Gertie's Son's Victor to C. W. Brown of Tulare. The calf is out of Glenwood Clara 2nd with a recently completed register of merit record of 621 pounds butter. Her sire and dam and each of her grandsires and granddams are in the register of merit. Her dam holds a record of 630 pounds butter; her maternal granddam 631 pounds butter and her paternal granddam 767 pounds 15 ounces butter.

Gertie's Son's Victor is proving a sire of merit and Mr. Jenkins states, that without exception, his daughters are producing more than their dams.

Another son of the above bull and out of Owl's Witch has been selected by Jacob Sifers of Tulare. This youngster is not only a splendid indi-

Shorthorns

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have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

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C. L. HUGHES, Sales Mgr., Sacramento, Cal.

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DUROC WEANLINGS

by "Orion-Defender" and "High-Model" boars. The best pigs we have ever raised. Price $35.00.

W. W. EVERETT,
River Bend Farm St. Helena, Cal.

vidual but is backed by high production—six 1000-pound records appearing close up in his pedigree.

Mr. Jenkins also maintains a herd of Durocs and has made recent sales of bred sows to A. V. Bennett, R. T. Trogan, and J. C. Rodgers, all of Wasco; Harry Helsey of Shafter, and Mrs. H. B. Tout of Sultana.

Fifty Durocs Average $501

Pine Crest Farm, Charleston, Mississippi, recently sold 50 head of Durocs for an average of $501. P. C. Orion Lady A, junior champion the National Swine Show was included in the offering and sold to Enoch Farms, Fernwood, Mississippi, for the record price of $2850.

P. C. Orion Lady A is a daughter of Orion Cherry King 11th and out of a Jack's Friend sow. A litter mate brought $1500.

In the same offering a 10 month old boar by Scissors, sold to Fairacres Farm, Gregory, Arkansas for $2300.

University Farm Sells Guernsey Bull

Peter Saxe and Son of San Francisco have secured from the University of California, a 17 month old Guernsey bull sired by Squire of Richneck Farm, and out of California Questa Queen. The dam is now on test and in five months has produced 300 pounds of buter fat.

Gable Herefords to Hawaii

H. H. Gable of Esparto has sold his entire crop of Hereford bull calves to James Wight who is now in this country purchasing live stock for two Hawaiian Island ranches.

The Gable bulls were bought for Harold W. Price of the Island of Maui. The calves were all sired by Donald Hope a Splawn bred bull sired by Beau Donald 31st by Beau Donald, and out of Bright Hope, a cow that was a splendid producer in the University of California herd.

Mr. Gable is president of the Pacific Coast Hereford Breeders' Association.

Eastern Offer for Champion Berkshire Sow

Castle View Ranch, of Calistoga, has been asked by the secretary of the American Berkshire Association, for a price on Rookwood Lady 100th.

This sow was made grand champion at the Omaha National Swine Show and has been pronounced by competent Berkshire breeders as worthy of the position she occupies in the breed.

Mr. O'Connor, her owner believes she will do the breed as much good by remaining in California as if she were sent East, consequently has declined to price her.

The Castleview herd, which is one of the newer herds of this state, represents very largely the top selections from the Brush herd and the Hopland herd formerly owned by A. W. Foster, both of which were purchased by Mr. O'Connor. In order to properly care for the expanded herd more land was needed for pasture and 60 acres have been added to the ranch. This land will be used for pasture and a deep well is being drilled to supply water for irrigating the alfalfa.

Guilford May Go to England

W. S. Guilford, of the Butte City Ranch, Butte City, is considering making a trip to England within a year for the purpose of visiting Shorthorn, Shropshire and Berkshire breeders. If plans materialize Mr. Guilford will perhaps make an importation of cattle, sheep and hogs for his plant in Glenn County.

Mr. Guilford is enthusiastic over the prospects for the pure bred live stock business in this state and recently expressed the belief that during the next ten years California will take a prominent place among the great live stock states.

Several years ago Mr. Guilford established a herd of Berkshires, later he added a herd of Shorthorns and more recently a flock of Shropshires were put in.

Polands Profitable

Wm. Bernstein, the Poland-China breeder of Hanford, divides his time between his business in the city and his ranch. He has found the Poland-China very profitable as his sales have totaled a little more than $14,800 the past 15 months. King's Big Bone Leader, sold in one of the previous Hanford sales was from his herd.

Buys the Toppers

W. L. Hoag & Son, Hanford, are establishing on their Lendorris Ranch what they hope to make one of the leading Poland-China herds of the state.

Mr. Hoag has been a liberal buyer at the sales and his purchases are usually the highest priced animals sold.

Holstein Bulls

F. D. Ross, of Hanford, who is breeding both Poland-Chinas and Holsteins has recently sold young bulls to C. M. Blowers, G. L. Fletcher and Ray Hall, all of Kings County.

Bountiful

Beautiful Bell might well be termed Bountiful Bell, as she has returned her owner, John Bernstein, the Poland-China breeder of Hanford, $2000 with her past three litters and is just now weaning her fourth.

Ramsay Buys Hereford Bull

R. M. Dunlap reports having recently purchased a young Hereford bull, for T. H. Ramsay of Red Bluff. The bull was secured from Miller and Lux



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How to make comparisons
How to get the most for your money

No farmer should try to decide which tractor is best until he has studied the latest offerings of the J. I. Case Threshing Machine Company, builders of power farming machinery for 77 years.

We have just published a handy little pocket manual which describes Case Kerosene Tractors and which gives a man the needed information by which he can make comparisons. This is the only way to get the facts.

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Install That Pumping Plant

In Advance of Actual Needs

If your present plant is inadequate, we can add to it—if it needs repairing, we are equipped to do the work. Your pumping plant may be worn out and no longer economical to operate—in any case, you should get in touch with our engineers and let them make you an estimate on an outfit.

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THE PUMP AND ENGINE HOUSE OF THE PACIFIC COAST
LOS ANGELES



A Farm Becomes a Home When Drudgery Leaves

A farm becomes the ideal home when back-breaking tasks are eliminated. And tasks of this kind can be eliminated. Such chores as milking, churning, wood sawing, water pumping and feed cutting may be handled with little manual labor and in quicker time if they are done electrically.

G-E Farm Motors

are giving this kind of service economically and satisfactorily. You will find that the nearest Central Station or G-E Motor Agency has complete information on motor costs, sizes required and operating charges. You will find experienced men ready and willing to offer suggestions on the best motor installation for your own particular needs. This service is freely given.

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Grand Champion Boar



Grand Champion Sow

Sacramento State Fair

Berkshires

Forty-three or our litters this year averaged ten to the litter. We sell foundation sows and boars to head your herd from our easy keeping, heavy producing strains. Write to

JAMES MILLS ORCHARDS, Hamilton City, California

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families.

Registered Berkshire Pigs

Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.

Careful attention given to mail orders.

Whittier State School

Whittier, California

VALUE TELLS

To maintain the high standard I have established I am consigning to the Poland-China sale, Hanford, February 22, the extremely high class sow King's Jumbo Lady and Betsy H, one of the best sows in Kings County. Also four gilts by the $700 boar, King's Big Bone Leader, and two growthy young boars. One by Young Jumbo and one by King's Big Bone Leader.

Careful investigation will prove these animals worthy your consideration.

BERNSTEIN'S RANCH

W. BERNSTEIN, Prop.

HANFORD, CALIF.

Brighton Farm Herds

Registered Shorthorns and Berkshires—Both Sexes

H. L. & E. H. Murphy

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Shear the Modern Way

You wouldn't allow 15 per cent of any crop to go unharvested. So why stick to old time methods of sheep and goat shearing? Shear the modern way, with a Stewart Machine. There are hand operated models for small flocks and engine operated machines for larger ones. Write for catalog No. 66.

CHICAGO FLEXIBLE SHAFT COMPANY

Dept. 191, 12th St. and Central Ave., Chicago, Ill.

and will be used on a Nevada ranch operated by Mr. Ramsay.

McCracken Buys Champion Poland

Leo McCracken of Ripon purchased King's Big Bone Leader, grand champion Poland-China boar at the 1918 California State Fair, in the Gatewood & Son dispersal sale, for $700.

King's Big Bone Leader proved to be one of the most popular champions at the fair. He is sired by Big Bone Leader and is out of Victoria Model 10th.

The general average of the above sale was $125.

Butte City Ranch Initial Sale

W. S. Guilford, who together with W. P. Dwyer owns the Butte City Ranch, announces that they will hold their first public sale of live stock, March 1, at which time they will offer 20 registered Shorthorns, 30 registered Berkshires, 20 registered Shropshires and 15 Welsh and Shetland ponies.

It is planned to make the sale an annual event. The Butte City Ranch herds and flocks have distributed a large number of pure bred live stock to farmers throughout the state.

A catalog of the sale entries may be had by applying to the secretary, Homer Hewins, Jr., Calistoga.

KINGS COUNTY POLAND-CHINA SALE

Washington's birthday will be fittingly celebrated by the Poland-China breeders of Kings County by the holding of their bred sow sale.

These sales, established some three years ago, have become a permanent fixture and are looked forward to, twice a year by those interested in this breed of swine.

Animals are being consigned to this sale that the breeder would hesitate pricing at private treaty but for the fact that, to convert new breeders to the Poland-China ranks, nothing but choice animals should be offered.

While this sale will consist mostly of bred sows it has been decided to offer a few open gilts and some young boars whose breeding marks them as excellent prospects.

The animals are from the well established herds of M. Bassett, Wm. Bernstein, F. D. Ross, W. L. Hoag & Son, W. S. Trewhitt, J. A. Crawshaw, C. J. De Raad, John Bernstein, C. A. Vaughn, W. S. Hubbard, H. C. McCune and Dimmick Bros. and the guarantee of both the breeder and the association is back of each sale.

In the sale there will be sons and daughters of King's Big Bone Leader, grand champion boar at the state fair last fall and recently sold at public auction for $700. A variety of blood lines of the most approved Poland-China breeding will be in the offering and those desiring to acquaint themselves with the individual breeding can secure a catalog by writing F. D. Ross, Secretary, Hanford.

DRY CURE FOR HAMS, SHOULDERS AND BACON

Meat cured with this formula has been found palatable and sweet after several years, says L. E. McGinnis of the University of Missouri college of agriculture.

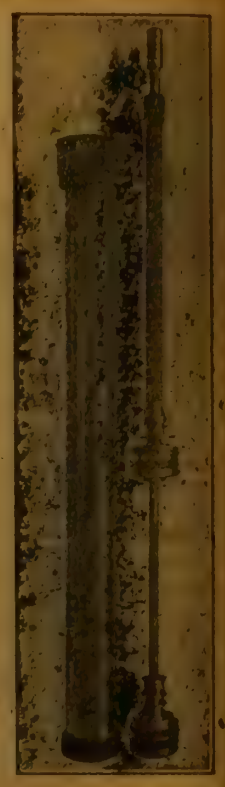
To each 100 pounds of meat use eight pounds of salt, three pounds of warm syrup, (any good syrup can be used) two ounces of saltpeter, three ounces of black pepper and two ounces of red pepper. All these ingredients should be thoroughly mixed together. It will first lump and darken. When these lumps are rubbed out the ingredients are ready to be rubbed in the meat and should make a coating over it. The syrup causes it to stick.

The meat can be put into a barrel or box, or be piled on the floor or table. There will be drainage which is best taken care of in a barrel or tight box. Leave the meat six weeks in the cure and the extra heavy pieces a week longer. If you wish to smoke it, take it right out of the pile and hang it in the smoke house without washing. Smoke it until you get the required color over not too hot a fire.

UP TO DATE

Showman: "Walk in, ladies and gentlemen, and see the Aztec giants, descendants of a long extinct race"—Meggendorfer Blaetter.

Our Double and Single Acting Deep Well Cylinders Are Marvels of Simplicity and Efficiency



They have been perfected after fifteen years of practical experience.

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GOOD FARMING PAYS

Protect your crops against drought by using the Western Pulverizer, Packer and Mulcher for preparing your seed bed and keeping a moisture-retaining mulch on your growing grain.



The Western pulverizes, packs, mulches and makes a perfect seed bed in one operation, saves time, horse power and one-third seed, still producing a better stand. Seed will start at once when seeded. Especially adapted for breaking crust on growing grain, will break the hardest crust, forming it into a moisture-retaining mulch without injuring growing grain and will raise a crop with half the moisture during growing season.

MADE IN 12 SIZES, 1 AND 3 SECTIONS FOR HORSES AND TRACTORS

This year's crop will bring high prices; make it a record breaker by using the Western. Free illustrated catalog describing machine and its principle, shows its work by pictures taken in the field, gives nearest shipping point to you, contains valuable information on up-to-date farming. Worth its weight in gold to farmers and land owners. Send for it today.

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Western Pulverizers in Stock Write For Price

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LOS ANGELES

For Sale

One Percheron Stallion and One Mammoth Jack

Colony Holding Corporation,

Atascadero Cal.

Segis Pontiac De Kol Dutch

Whose three nearest dams are 1000 pound cows that average over 30 pounds in 7 days, heads my herd. Bull calves for sale. E. E. Freeman, Rt. B, Modesto

HOLMES STOCK FARM

Registered Holsteins of best breeding. Young bulls for sale.

R. L. Holmes Modesto, Cal.

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

Imitation Milk

The state dairy bureau is after the imitation milk manufactures, at least the bureau is encouraging the passage of Senate Bill No. 264 and its companion, Assembly Bill No. 534. Chairman A. R. Bates of the bureau writes:

"These bills to recognize, regulate, and properly control imitation milks are entitled to the support of everyone who believes in pure food and that products should be sold for exactly what they are. At the present time our dairy laws, which were framed when the substitution of alien fats for butter fat in milk was unthought of, must be amended to control this new class of products. Just as the sale of oleomargarine and filled cheese is regulated the above bills will regulate imitations of milk and properly protect the public from the menace which the loss of milk fat from the dietary would be. Milk fat being absolutely necessary to the sustaining of human life, it would be a national calamity if imitation cocoanut or other vegetable oil milks are unregulated and allowed to discourage the breeding of dairy cattle and the production of high grade milk.

"The state dairy bureau, health officials, dairymen's associations, creamery officials, in fact all handlers of milk products strongly endorse these bills and feel that the production of milk in California must be protected from the assaults of such imitation products from other territories."

The title of the bill is: "An act to regulate the business of producing, buying or selling imitation milk products, providing for the licensing of said business by the state dairy bureau." Section 1 entire is as follows:

For the purposes of this act certain manufactured substances, certain mixtures and compounds shall be known and designated as "Imitation Milk," namely: (a) any mixture or compound composed of skim milk or condensed, evaporated or powdered skim milk and any edible oil or fat other than natural milk fat, whether with or without any other ingredient or ingredients; (b) any mixture or compound made in imitation or semblance, or having the appearance or semblance, of milk or condensed or evaporated milk, or when so made or having such appearance or semblance calculated or intended, whether by intent of the compounder or other person, or by reason of the appearance or other characteristic of the mixture or compound, for use or disposition as or for milk, or as for condensed or evaporated milk, or to induce its purchase, or use as or for milk or condensed or evaporated milk."

Glenn Poland Breeders to Organize

R. J. Yates, Orland, one of the pioneer Poland China breeders of Glenn County, states that the Poland China breeders of that county plan to form a Glenn County Poland China Breeders' Association and that it is expected about 25 charter members will be enrolled.

Mr. Yates, who is one of the most enthusiastic swine breeders in Northern California, is building up a first class herd and expects to enlarge his herd to 50 sows. Much of his breeding operations will be centered around his herd boar Long Jumbo, a son of Mouw's Smooth Jumbo and Extra Long 7th by Big Jumbo 2nd.

Long Jumbo was three years old last fall and was grand champion in 1917 and 1918 at the Orland Fair. Assisting the above boar is Yates' Big Orphan by Hather's Big Orphan and whose dam was a daughter of Hather's Hadley 2nd. Hather's Hadley 2nd was the sire of Varsity Hadley, the boar Professor Thompson secured from the Iowa State College to head the University of California herd of Polands. Varsity Hadley was the sire of winning barrows at the 1917 International and was also the sire of the grand champion barrow of the 1918 show.

DEHORNING OF CATTLE

Methods of dehorning cattle have been the subject of demonstrations held by cattle specialists of the United States department of agriculture. The demonstrators show how to remove horns with clippers and saws, and with the use of caustic soda and caustic potash to prevent the growth of horns on calves. Dehorning chutes, for holding cattle while being dehorned, emphasized the importance of using them instead of throwing the animals with ropes, tying them to fences, or similar methods which are unsatisfactory.

The method of dehorning depends in each case upon the age of the cattle. Demonstrations with young calves showed how the growth of horns can be prevented by properly applying caustic soda or caustic potash. Older calves and other cattle were dehorned either with the saw or clippers. While clippers remove the horn more quickly and with less pain to the animal, the saw has the advantage of not crushing the horn, especially in the case of old animals whose horns are hard and brittle. Neither does the saw cause as much bleeding, since by lascerating the blood vessels it causes a clot of blood to form quickly.

HOLSTEIN ASSOCIATION OF AMERICA

The meeting of the executive committee of the Holstein-Friesian Association of America held at Detroit late in December resolved to recognize the Canadian Herd Book, partial agreement having been made between Secretary Houghton of the American association and Secretary Clemens of the Canadian association.

"All Holstein-Friesian cattle entering the United States from Canada shall be registered in the Holstein-Friesian Herd Book of America and all Holstein-Friesian cattle entering Canada from the United States shall be registered in the Holstein-Friesian Herd Book of Canada on the strength of the official certificate of registry from the country of origin without the registration of ancestors."

The agreement will have to be subjected to the approval of the Canadian and American associations at the annual meeting of members.

LOVE POEM

Reproduced from a prize contest in which Honoria Squiggens, the child wonder of Squashville, won by a neck:

Two hearts that yearn
For love's sweet prison,
Where his is her'n
And her'n is his'n.

Holsteins | **Holsteins** | **Holsteins** | **Holsteins**

Santa Anita Rancho
Anoakia Breeding Farm
REGISTERED HOLSTEINS

A herd of fine individuals, strongly bred in the lines of great production as evidenced by both short and long time records, handled in a manner to produce sound, healthy breeding stock.



Merci Lad Korndyke Burke

Son of De Kol Hengerveld Burke who has a long list of A. R. O. daughters with records up to over 35 pounds butter in seven days, and out of Winnie Korndyke Cornucopia De Kol who made 31,034.1 pounds milk in one year and was the first cow in California to make over 1200 pounds butter in one year. A few of his good sons out of excellent dams for sale.

SANTA ANITA RANCHO — *Santa Anita, Cal.*
Anita M. Baldwin, Owner — *W. H. Taylor Supt.*

The Proof of the Pudding



KING KORNDYKE PONTIAC 20TH as a calf looked like the real bull to head our herd, adding to his great individuality the backing of a pedigree with an unbroken line of great producing dams and type of the highest character. The price of $6500.00 which we paid for him was really a minor consideration. Now that his calves are coming on we know that we made a fortunate choice, for they are certainly beauties. His oldest son in our herd was sold at 40 days of age to become the future head of a newly established Stanislaus County herd.

And the last six calves by King have all been heifers, mostly white in color, beautiful individuals, and every one of them has large well placed teats, just what we expect from the great uddered cows in his ancestry.

Better get in touch with us for one of his young sons for YOUR herd. We already have requests for reservations of unborn calves if they are bulls. Satisfaction of the buyer is our first consideration, and our prices are reasonable.

Our Entire Herd is Tuberculin Tested

Tulare Holstein Farm

W. J. Higdon, Owner TULARE, CAL. H. L. Redd, Herdsman



Prince Hiske Walker

He is by Prince Gelsche Walker and out of Hiske of Riverside, being therefore full brother to Lady Hiske Walker, 34.25 pounds butter in seven days as a junior four year old, former state record in class.

His offspring are uniformly straight, vigorous, and well marked. A few of his young sons for sale.

Packwood Farm
W. F. Mitchell, Owner Visalia, Cal.

Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average:
Milk one year....24,089.88 pounds
Butter ..... 1,105.07 pounds

This butter average is equalled by only one other bull of service age in the world. Buy your next bull from

Eldorado Herd
Alex. Whaley, Owner Tulare, Cal.

A REAL DAIRY BULL
From a 900 Pound Dam

Do you know that it takes a real cow to produce 900 pounds butter in a year? And do you know what a real bull from a producing sire and such a dam would be worth to your herd?

We can offer just such a bull and at a price within the reach of any progressive dairyman.

His dam is about to complete a year right around 900 pounds with second calf and in addition to this she has the type that you would like to breed into your herd, a show cow with beautiful level udder and large well placed teats.

For seven days she has a 26 pound record, but you will be more interested in what she did the other 358 days.

His sire has produced five two year olds (first tested) that average 753 pounds in a year.

His dam and sire's dam average 990 pounds butter in one year and over 29 pounds butter in seven days.

In addition to this he will suit you as an individual, light in color and past eleven months old. Price $300.00.

A. W. Morris & Sons Corporation
Woodland, Cal.

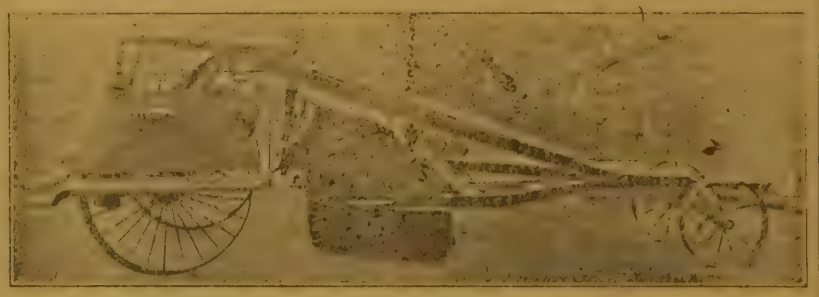
Our Senior Herd Sire is KING KORNDYKE HENGERVELD ORMSBY 7th
Five of his sisters sold at public auction for $23,800, an average of $4760.
This blood has made some of the world's greatest producers.
Our junior herd sire is TOYON KING KORNDYKE SOLDENE, son of a 33.23 pound daughter of King Hengerveld Aaggie Fayne.
Young bulls for sale. No females.
REGISTERED BERKSHIRE BOARS, sons of the $1500 boar Star Leader, for sale.
Kounias Registered Stock Farms, Modesto, Cal.

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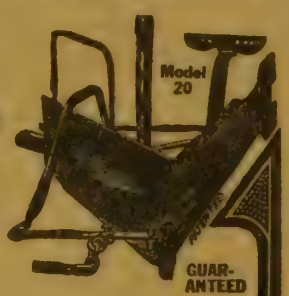
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E. F. Sanguinetti **Yuma, Arizona**

More Pure Bred Beef Herds Needed

Written for California Cultivator By R. P. Royce

CALIFORNIA offers many unusual opportunities in live stock production, but we doubt if any field is more inviting, or holds greater prospects, than will be found in the production of pure bred beef cattle of any of the recognized breeds.

One who takes time to investigate the situation will not fail to be impressed with this fact.

California will always figure as an important cattle production center. There are throughout the state thousands of acres of land that can only be used to advantage as grazing areas. There is scarcely a county in the state that does not contain such areas and it is certain that in the future much land now utilized in other ways will be turned to cattle production.

It is inevitable that sooner or later the problem of soil fertility will force many ranchers to add live stock to their operations and it is equally certain that many will find that a herd of beef cattle will fit into their plans more satisfactorily than will other classes of live stock.

Now granting that the above is true, and few will question the statements, a basis is found for confidence in the outlook for the future. But there are other reasons why the beef cattle industry is attractive. California breeders are producing only a small percentage of the bulls used on the ranges of this state. Every season there are hundreds of bulls, pure breds and high grades, shipped in from the East.

There is no accurate means of knowing the number of bulls "imported" each season, but the number will reach four figures.

In the past the great majority of bulls used on the ranges have been grades—and poor grades at that. With cheap production costs the cowman was little concerned about the quality of bulls used—he just wanted a bull—a red bull—and the cheaper the better. But times have changed. Production costs have increased to the point where many outfits are finding it difficult to show a profit. Yet these outfits are not going out of business. They will continue to operate, but they are looking about for every means that will cheapen their costs. The surest way to trim their costs is through the use of better bulls, and more advanced and business like methods of range management. And the business will develop along these lines. Nothing is more certain. As a matter of fact, the past few years have registered an increasing demand for bulls of better quality because it has been demonstrated on every hand that a well bred bull used on the average run of range cows will sire calves of better type and quality that will weigh more at a given age than calves from a common bull. If an outfit can, through the use of better bulls, reduce the age at which their steers are sold and at the same time increase the market weight, more cows can be handled on the same amount of range; more pounds of beef can be marketed and, because of better quality, sold at a higher price per pound; they are rather certain to make a wide market for well bred bulls. And that is just what is happening in the range business of this state and accounts for the fact that California breeders are always sold out of bulls and buyers find it necessary to bring in train loads of bulls each season.

We know a good many range operators and there is not one who would not rather secure his bulls in California than outside the state. They know that a home bred bull will give them better service because he is acclimated and they figure that they could buy better bulls for the same money than Eastern stuff costs laid down, because the expense of traveling or commissions and freight could be applied to the purchase price.

Another fact that should not be overlooked is the probability of this state, following the lead of other Western statees, enacting legislation relating to the quality of bulls used on the open range. Several states require that only pure bred bulls be used on open ranges and the cattle interests of this state are considering such legislation. When the law becomes a fact the demand for good bulls will be greatly stimulated.

The above facts all indicate the possibility of the future from the progressive cattleman's standpoint. With a wide and unfilled demand existing now and the knowledge that cattle improvement is inevitable, and a comparatively few men making an effort to meet the situation, is there not ample reason for urging many more herds of pure bred beef cattle?

The pure bred beef cattle business of this state could be increased ten fold and still not meet the demand. It should not be imagined that California operators furnish the only outlet—Nevada and Oregon and other Western states will absorb California bred bulls, and there is an inviting field developing in the Pacific islands, Mexico and the West Coast of South America.

During the past year some very high class cattle have been loaded at San Francisco for shipment to the islands. Most of the cattle were bought in the East for the very good reason that they could not be found in this state, yet every one of the buyers would prefer to have filled their orders from Pacific Coast herds had the class of cattle been available.

Herds of pure bred beef cattle will solve many a rancher's problem. Such herds will go far toward eliminating the acute labor problem, will furnish a profitable outlet for vast quantities of feed now going to waste on many grain farms and will prove the salvation of many ranches on which the fertility of the soil will some day be the real problem.

Stock Notes From Arizona

State Dairy Commissioner of Arizona W. A. Barr has issued a circular letter to dairymen asking for improvement in sanitary conditions.

The Maricopa County, Arizona, Dairymen's Association, cooperating with the creameries and condensed milk plants of the Salt River Valley, are offering prizes to the boy or girl in the public schools of Maricopa County who writes the best essay on the subject "Why the dairy industry should be developed for Maricopa County." Prizes of $5.00, $4.00, $3.00 are offered. The same prizes will be offered to the writer of the best essay on the "Value of Dairy Products as Food." This is under the general supervision of the state dairy commissioner and assisted by some prominent educators of the Salt River Valley.

E. F. VanKirk, a prominent Salt River Valley dairyman states that he has just sold nine pigs which were grown on skim milk until about six months of age. During the last 30 days they were fed 1800 pounds of ground milo and cotton seed in an amount of about one pound of the cotton seed meal to 100 pounds of pork together with skim milk. Estimating the value of skim milk at 65 cents per cwt., he states that the profit on finishing these pigs was about $40 or between $1.25 to $1.50 a day for the bunch. Pigs averaged 194 pounds each when ready for the butcher.

A Salt River Valley dairyman stated that during the month of December, he sold $208 worth of milk from seven cows. This milk was sold to the condensed milk factories at the prevailing price.

LIVE STOCK QUERIES

Feeds for Pigs and Sows

How many pounds of barley will produce one pound of pork when the hog is in prime condition. About how much barley should be fed to a brood sow to keep her in good condition?—M. J. M., Peelga.

The amount of barley—or any other feed—required to produce a pound of pork varies with the age of the animal, the individuality and the general plan of feeding. With pigs weighing about 100 pounds, fed in a dry lot and furnished no other feed, around five and one-half to six pounds of barley



Retained After-birth

Cows can be made to clean easily without using force.

When cows do not clean properly after calving, it indicates a germ infection which is likely to run through the entire herd and result in Abortion and Barrenness.

The after-birth should be removed at once without force by means of the B-K douche and the cow treated to prevent her becoming an aborter or sterile. Authorities state that while there is no absolute cure for abortion and sterility, nevertheless the infection can be controlled by prompt treatment and the animal saved for successful breeding.

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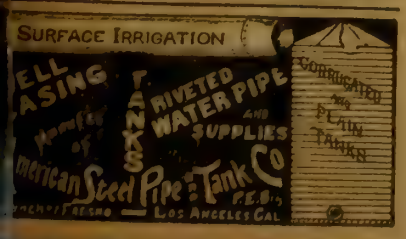
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will be required to produce a pound of pork. This amount can be materially reduced by feeding a protein supplement such as tankage, skim milk, buttermilk, middlings, or alfalfa. When tankage is fed in the proportion of one to ten of barley, the amount of barley required (dry lot feeding) will not be far from four and one-half to five pounds.

The amount of barley required to keep a brood sow in thrifty condition can only be stated in very general terms as it will depend on her size, present condition, and individuality. In feeding the brood sow one should aim to keep her in good strong condition, but not too fat and the amount of feed fed should be governed by the feeder's judgment. If it appears that she is losing weight or becoming too fat the amount should be increased or cut down as the condition indicates.

It is not a good plan to feed barley to the exclusion of other feeds. It should be supplemented with tankage or other available protein feeds and on the average ranch it will be found a good practice to furnish the sows with good quality alfalfa hay. The hay should be fed in racks to prevent waste and it is surprising how much hay a brood sow will eat. If possible, the sow should be given access to pasture, thus affording an opportunity to exercise as well as to forage.

Some mature sows in strong condition will maintain their weight on two or three pounds of grain—others will eat up to eight or nine—or even more—pounds.

An effort should be made to have the sow in strong condition at farrowing time. After farrowing little feed should be given for the first 48 hours. She should, however, have access to clear water, and it is not a bad plan to give her a light feed of bran—fed in a slop. Bran has a cooling effect on the septum and is somewhat laxative. After farrowing the sow should be brought to her full feed gradually, and she should be given sufficient feed to keep her from getting thin. Here again the exact amount of feed required cannot be stated. The amount should be increased as the litter develops. The character of the feed given should be rather high in protein. Most successful breeders prefer to feed middlings or shorts and the consensus of opinion is that middlings and skim milk fed in the form of a slop is about the most satisfactory ration.

SANDERCOCK DEVELOPING HIGH CLASS BERKSHIRE HERD

Near Sacramento, where is located the Natomorio Rancho, there is being developed a most excellent herd of Berkshires.

The dominant factor in establishing any herd is, of course, the foundation, and W. F. Sandercock, the owner, evidently had this in mind and has placed at the head of his herd the national grand champion boar, Baron Duke 201st, an extremely well sided and hammed boar.

As running mates there is Rincon's Rival 2nd, grand champion at the 1917 Oregon state fair, and Winona Lee Champion 6th, a son of Laurel Champion, a boar who has largely shared in making Berkshire history in the West.

Among the matrons maintained on the ranch might be mentioned Princess Leader, the only living sow with a world's grand champion sire and dam. She is from the mating of Grand Leader 2nd and Riverby Princess. Two litter mates to the above sow are Riverby Princess 2nd and Riverby Princess 3rd. The latter is the dam of a litter of six that averaged 428 pounds at ten months of age.

Recent sales are two boars by Baron Duke 201st, one going to Thos. A. Lawson, Kern County, and one to W. O. Robertson, owner of the Chowchilla Ranch, Chowchilla. Another by Winona Lee Champion 6th went to Harold Gish, Hanford. The entire herd of 22 sows have been carefully mated with the three boars for early spring farrow.

A man named Stone and a man named Wood met on the street one day and began talking of current affairs. A pretty young lady, wearing clothes of the latest style, passed. Stone turned to Wood, and Wood turned to Stone, then both turned to rubber.—Boys' Life for February.

Seventh Semi-Annual Sale

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For sale now: Boars; gilts, bred or open; bred sows and a few weanling pigs of either sex.

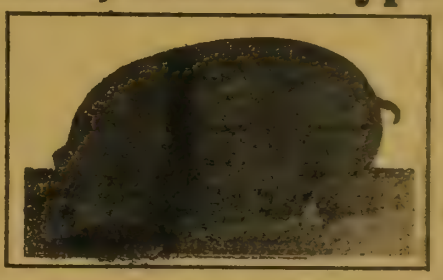
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As good as the best and better than the rest. A boar or a sow pig sired by my great herd boar Director, and out of one of my choice sows will add prestige to your herd. I am booking orders now for the pigs of March and April farrow. Write now and place your order.

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I Will Have One or Two Tons of Sorghum seed, especially selected for syrup making qualities for sale as long as it lasts. Send for list of different varieties, with description, prices and instructions for planting to get best results. Can send seed by parcel post. MARION GRABER, Hawthorne, California.

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The Garden Beautiful in California by Ernest Braunton, a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant, also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

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Cabbage Cutter, six knives, slices vegetables rapidly, excellent for potato chips. Prepaid $1.00. Three for $2.00. Lusher Brothers, Elkhart, Indiana.

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To introduce my world and national grand championship blood to farmers and breeders, I will sell a limited number of boar pigs, 6 to 9 months old, at two cents above the market price. They are by Baron Duke 201st, national grand champion, Winona Lee Champion 6th, first prize junior yearling 1917 State Fair, and from 850 pound prize winning sows. We will sell nothing that we would not use ourselves. Sandercock Land Co., 906 K St., Sacramento, California. In charge Natomas Land Sales.

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BERKSHIRES GUERNSEYS
GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
A. B. HUMPHREY,
Escalon, San Joaquin County, California.

"BILLIKEN" CHESTER WHITES.
The San Francisco Fair being called off allows me to offer some of the stock I had intended showing. This offering will consist of 3 boars and 8 bred sows and gilts. These will be priced right; also have a few weaned fall pigs left. Every animal is cholera immune. C. B. Cunningham, Mills, California.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

For Sale—Two Big Orange Poland-China Brood Sows bred for second litter to a half brother to 1917 grand champion, $50 each; also one July I. B. A. Wonder boar and two gilts $25 each; also one Big Bob April gilt bred $40; all registered, crated and transferred, f. o. b. Gridley, California. N. M. Lester.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

Plant Jerusalem Artichokes—The cheapest of all winter hog feed. Will produce fifteen to twenty tons per acre. The hogs do the digging. Plant now. Tubers $5.00 per 100 lbs., 1000 lbs. and over 3½c per lb. Address W. B. Kirk, Niles, California.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

Castleview Berkshires are the typey, modern, quick-growing kind, choicest blood lines. Prices reasonable. Castleview Ranch, Berkshires exclusively, Santa Rosa.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Masterpiece-Superbus strain Berkshires. Choice stock from prolific breeders. Geo. A. Stingle, San Gabriel. Ranch Garvey Ave., two miles SW. of El Monte.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

FOR SALE: REGISTERED POLAND-CHINA BOARS. J. R. CARHART, FULLERTON, CALIFORNIA.

MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Duroc-Jerseys — We breed the champions. Peter, Lamson & Walker, Devore, San Bernardino County, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLITS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

POULTRY

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

Thoroughbred Barred Plymouth Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Limited number settings December and January $2.50 for 15 eggs, chicks March, April and May 25c each. Call mornings. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California. Phone 5599.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Baby "Chicks" and Eggs for Hatching from pure bred McFarland strain S. C. White Leghorns. Carefully culled and Hoganized for heavy egg production, not simply "CHICKS" but stock as well. Sonoma Valley Hatchery & Poultry Yards, Sonoma, Sonoma County, California. R. D. 2, Box 48. F. J. Hansen, Prop.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, Kirk Road, San Jose, California.

R. I. Red Chix or hatching eggs from first class Hoganized utility stock, prices no higher than ordinary stock. Chix and eggs from prize winning Buff Orpingtons, quality rather than quantity our motto. Munier Poultry Yards and Hatchery, Cupertino, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale, also first class breeding cockerels. Our prices are right. W. C. Smith, Prop., Corning, California.

Bankrupt Stock of brooders, Cyphers incubators, fancy corrugated paper egg boxes, roup and other medicines, galvanized feeders. Sell whole or part less than wholesale cost; 1716 Filbert Street, Oakland.

Baby Chix — Barred and White Rocks, Reds, Buff Orpingtons, Black Minorcas, Buff and White Leghorns from Hoganized stock bred to lay. Reasonable prices and pleased customers our aim. Tobeno Hatchery, Washington Avenue, San Jose.

For Sale—Incubators made by poultrymen for poultrymen. 60-224 and 288 egg sizes. Prices $15, $32.50 and $52.50. Freight paid in California. Poultrymen's Cooperative Milling Association, 1516 Industrial Street, Los Angeles.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Our Single Comb White Leghorn hatching eggs and baby chicks need no fancy name nor our praise. They will speak for themselves. The Golden Rule Poultry Farm, Wessels Bros., Shingle, California.

For Sale—Two 400 egg Cyphers Incubators, latest model, used two season, $30 each. One 240 egg Cyphers, $20. All in good condition. J. H. Goodier, Pardise, California.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rock BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California.

Buff Orpington and Buff Leghorn Eggs for hatching from heavy laying prize winning stock. W. L. Bartholomew, Chino, California.

700 White Leghorn Chicks from Hoganized stock with heavy egg records. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

For Sale: Leghorn Chicks from high quality heavy laying stock. Prices right. Madera Hatchery, Madera, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No web ones charged for. Schellville Hatchery, Schellville, California.

Black Orpingtons Lay, Weigh and Pay. Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California

Bred-to-Lay and Vitality. Rhode Island Reds, 200 egg birds. Eggs $3 to $5 per 15. Eva V. Conklin, 1445 Portola Ave., Los Angeles, California.

We Have the Large heavy laying S. C. White Leghorns. Order now for early chicks. Tupman Poultry Farm, Ceres, California.

Heavy Laying S. C. Reds, Cockerels descended from winners at National shows, $10 C. O. D. W. M. Marquam, Bishop, California.

Choice White Wyandotte breeding cockerels $5.00, eggs $3.00 and $5.00 per 15. R. W. Stawetski, Route B, San Jose, California

For Sale—Pit game cocks. Address F. Pritchard, Clarksburg, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. We hatch our own eggs and sell chicks and eggs from our own hens only. We have 1500 chicks yet to sell for middle of March, otherwise we are all sold out. Hatchery eggs from our high record hens at $5.00 and $10.00 per 15. Write us for prices on second season hens and yearling cock birds for April first delivery. These males are all bred from 200-egg hens or better and by hatching from them in May and June you will get eggs next December. If you really want the best in Leghorns, let us hear from you. ENGLANDS EGG RANCH. The home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

"Best Chicks I Ever Bought; Greatest Layers We Ever Had." Why? Bred 20 years to lay 200-290 eggs yearly. Brown, White, Buff Leghorns; Barred, White Rocks; Reds; Anconas; Minorcas; Orpingtons; ducks, turkeys; clearing customers 15. Valuable circular with proof free. Chicks; half booked to April, reasonable. 20,000 egg hatcheries full now. Many repeat orders, monthly, yearly. Breeders, pullets. James Beeson, Pasadena, California.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying ROGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Setting Eggs from the Sunny Slope Poultry Ranch is sufficient to warrant quality of production. We will sell setting eggs only during 1919. If you want birds that will produce quality and quantity, place your orders with us. You will then ever be a satisfied customer. Sunny Slope Poultry Ranch, Longden Ave., Box 789, San Gabriel, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for twenty years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Baby Chicks, Anconas, Barred Rocks, R. I. Reds, Black Minorcas, White Minorcas, Buff, Brown, and White Leghorns (Macfarlane Strain) hatching each week. Write for circular. SPECIAL PRICES ordered this month. Poultrymen's Co-operative Hatchery, D. E. Doke, Mgr., 112 So. Spring, Los Angeles.

Baby Chicks Every Week. Order early and get the date you want. White and Brown Leghorns, Rhode Island Reds, Barred Rocks, Anconas; also hatching eggs. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch, Box 7, Palo Alto.

Finest Hatchery in the World. Chicks, White Leghorns, Rhode Island Reds, 25, 1000s, hatched right in our $60,000 brick and concrete hatchery from our Honolulu heavy layers. Stock, eggs. Pebbleside Poultry Farm, Sunnyvale, California.

Poultry for Profit—A 225 page book, with 118 pages of illustrations, tells you how to successfully house, feed and raise chickens, ducks and turkeys in California. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 N. Broadway, Los Angeles.

Book Your Orders with the Stevenson Hatchery, 19 Center Street, Watsonville, California, for Day Old Chicks Black Minorca, Barred Plymouth Rocks, White Leghorn or Anconas from first class utility stock.

White Wyandottes: Large vigorous cockerels from heavy laying strain. Satisfaction guaranteed. My price is right. Eggs $3.00 per 15. J. W. Nicholson, Pasco, California.

Super Quality White Leghorn Chicks. Hatches March 6th and every 10 days thereafter. Newton Poultry Farm, Los Gatos.

Wanted—1000 Poultrymen to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Buschweiler, Box 70, Inglewood, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Allen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, Reservoir, Pomona, Cal.

Baby Chicks from our first class White Leghorn stock. Prices on application. J. L. Russell, Gardena, California.

Dark Cornish Livingstones, prize winning stock. Hatching eggs; 3804 Winter Street, Los Angeles.

CATTLE

Registered Guernsey Bull Calves—High class, registered Guernsey bull calves out of Advanced Register cows with five, six and seven hundred pounds of fat records and sired by "May Rose" bulls of the finest strain for sale at reasonable prices. These bulls will be priced right for quick sales, every dairyman should have a Guernsey bull to raise his butter-fat test and give his milk the rich yellow Guernsey color. Write for prices or better call and inspect. If you buy a bull and correspondence and he is not satisfactory upon arrival you can send him back. Dairy Dept. Elliott-Brant Rancho, Owensmouth, California.

Guernseys—We will sell stock from our prize winning, high producing herd, at reasonable prices, valued according to individuality and breeding. Our supply is limited but if the buyer wants a number of animals and will write us we will furnish him with particulars. Revada Guernsey Farm, Yountville, Napa Co., California.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McMaster Sons, Chino, California.

CATTLE

SHORTHORN CATTLE, SHROPSHIRE SHEEP. Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., California. W. P. Dwyer and W. S. Guilford, Owners.

For Sale—About 70 head of No. 1 two year old dairy heifers grade Holsteins, well marked some springers. To be sold all together or divided in equal lots. Priced to sell at $75.00 per head. A. T. Lewis, Box 54, Riverdale, Fresno Co., California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns (beef) calves and yearlings for sale. Both sexes, reds and roans. Choice goods breeding. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

Registered Guernseys for sale. P. J. Weisel, Santa Fe Springs, California.

MACHINERY

USED RANCH MACHINERY
Guaranteed to do same work as new.
WE SELL FOR LESS. CALL AND SEE.
WINDMILLS: 8-ft., $29.00 to $35.00; 10-ft., $39.00 to $45.00; 12-ft., $55.00 to $65.00; 16-ft., $135.00; 12-ft. Aermotor and steel tower $110.00.
REDWOOD TANKS
New and used GALV. TANKS, all sizes. 1000 gal., $39.00; 2000, $53.00. 1000 gallon, $19.50; 2000 gal., $26.50; 3000 gal., $33.00; 4000 gal., $39.00; 5000 gal., $48.00; 50,000 gal., $250.00; 100,000 gal., $350.00.
RANCH TOOLS: 10-ft. Hoosier Drill $95.00; mowers, $45.00; Fresno, $16.00; beet drills, $35.00. Fine 2-gang disc plow, $75.00; Avery tractor only used month $450.00, runs like new. Deere 14-in. riding plow, $35.00; brand new P. & O. tractor plow, $230.00; 3-gang disc, $85.00; 3-4-gang disc plows $120.00 to $150.00; spike harrows $10.00 to $18.00; cable 10c; 2-row Killifer bean cult. $25.00 to $45.00; weeder $3.75.
PUMPS. Another double acting Ames 20 inch stroke, capacity 25 inches at 100 feet, $175.00; Bulldozer pump jack, $49.00; large size, $98.00; No. 6 horiz. Gould centrifugal, $95.00; No. 4 two-step, $150.00; No. 7 vert. cent., $150.00; many others, also rods, pipe fittings. Also buy good serviceable material. DEMMITT CO. Upstairs, 120 No. Main. Yard 816 Yale, Los Angeles.

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale—B. J. 2-stage No. 4 pump and equipment, two 12-inch steel pulleys, 52-inch wooden pulley, nearly new 15 h.p. vertical G. E. motor. R. C. Patton, R. D. 2, Orange, California.

MISCELLANEOUS

You are Losing Money if you farm without a soil analysis. Write me today for free proof of this statement. I can show you. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, California. Phones: Office Pico 843, Residence West 702.

BEST OF BUSINESS TRAINING.
Munson School
for
Private Secretaries.
600 Sutter St., San Francisco.
Send for catalog.

Pure and unadulterated leaf tobacco. Comes to you exactly as it leaves the farmer's hands. Hand picked 60 cents pound prepaid parcel post, 10 pounds $5.50. Order today. Duke Bros., Dresden, Tennessee.

Wanted — Free Homes for attractive, healthy, normal boys from seven to eleven years of age with privilege of adoption. Apply Children's Home Society, 2414 Griffith Ave., Los Angeles.

If You Want to Earn Money during spare time at good pay at home or traveling, write J. H. Yetter, Manager of Salesmen, 115-117 North Broadway, Los Angeles.

Long Distance Hauling. Anything, Anywhere, Anytime. Household movables a specialty. Write, what, where from and where to. Wagner's Transfer & Storage, 551 Main St., Watsonville, California.

Walnut Grafting Wood For Sale—Selected Franquette, Mayette, Eureka and Payne, 5 cents foot. Bowman-Kuhn Ranch, San Jose, California.

For Sale — Ranchers attention. Store your grain in tanks about 6000 bushels capacity, $250; 12,000, $350. Cheapest, quickest. DEMMITT, 120 N. Main, Los Angeles.

For Sale—Brand New Beautiful Walnut $150 Sonora phonograph and 40 selections $110. Taken in trade. Demmitt Machinery Co., 120 N. Main, Los Angeles.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Safety Razor Blades Re-edged, 30 cents per doz. Howards, Box 93-E, Los Gatos, California.

Postal Card Views Exchanged. Geo. E. J. Lenz, Hopewell, Mercer County, New Jersey.

For Sale Ten Thousand Nursery Stakes, ⅝x⅝ inches, 3 feet long. Address 508 West Grove Street, Visalia, California.

WANTED

Have Two More Salary positions to offer first to returned soldiers, sons of farmers preferred. Agreeable work. References exchanged. Have employed two at $112 per month. State business experience. Address No. B-14, Care Cultivator.

WANTED

Wanted—Thoroughly capable and experienced citrus grove man. Must understand irrigation and pruning. Man with wife who would be willing to board one or more men as required. Good house supplied. Address giving references and stating salary required, Box 97, Ducor, Tulare County, California.

Graduate of Davis and Corvallis Agricultural Colleges, single man, just out of army, wants position as ranch manager where experience gained as manager of Oregon State Farm will be appreciated. References exchanged. Must be $150 or better. Box 10, Care Cultivator.

Wanted—Position as Ranch Manager U. S. or Mexico; experienced executive in general farming, cattle, hogs, irrigation and development work; speak Spanish. References. Address R. G. P., care of California Cultivator.

Wanted — To Buy California Mountain Apple Ranch. Must be on a paying basis, level enough for tractor. By one who understands apple culture. Box 8, Cultivator Office, Los Angeles.

Two young women want position on ranch. Have had practical experience in hog raising and general farming. E. C. B., Care of California Cultivator.

Want to Hear From Owner of Farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minnesota.

Wanted: Subsoiler for 75 Holt. Must be strong. Will F. Phillips, Terra Bella, California.

FARM LANDS FOR SALE

30 Acres ½ mile from State Highway, ¾ mile from point where local trains stop, and 3½ miles from Arbuckle. This place partially improved. 11 acres 6 year old almonds, 1 acre 6 year old fruit and 5 acres 1 year old Thompson Seedless. 13 acres to be planted to almonds this spring. Fine location. Will make a dandy home. Write us.
NELSON REALTY COMPANY,
Pioneer Dealers in Almond Land,
ARBUCKLE, CALIFORNIA,
THE HOME OF THE ALMOND.

For Sale — 160 Acres Govt. land near Hinkley Station, school and store. Surrounded on all sides by deeded land. Some just over the line is producing very heavy crops alfalfa and is held at $300 per acre. Water everywhere under this land at moderate depth. Very level; $1500 improvements; altitude 2300 feet. Remarkably healthy. Were no cases of influenza. Catarrh, bronchial and pulmonary affections rapidly disappear. Price $4000. Address Owner, Box 106, Arlington, California.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

For Exchange or Sale — A sightly home fruit ranch, 15 acres including all kinds of citrus and deciduous fruits, vines and shrubs, four years old, two miles north of Corona, four room house, garage, with more land if needed, all under water system. F. E. P., 145 N. Mentor, Pasadena. Col. 6937.

Ideal Location for Almonds and Deciduous Fruits. Will sell 40 acres with gravity water at $250 per acre, in Banning, Riverside County. Elevation 2600 feet; 300 miles from malaria. Hugh Montgomery, San Gorgonio Ranch, Banning, California.

For Sale—160 Acres in Turlock Irrigation District near Modesto. Price $100 per acre. On ten years time, 10 per cent first payment. Produced $6000 worth of crops last year. Address Owner, 1320 12th St., Modesto, California.

Lands: We Own four thousand acres of land here in Southern California and want to sell all or part of it. I shall slaughter prices to close out our holdings. See me at 519 Security Bldg., Los Angeles. Bdwy. 4428. F. E. Palmer.

100 Acres Adjoining Shafter, partly improved, good well, pumping plant, small house and barn; at $60 per acre is cheaper than any unimproved land in same locality. G. W. Squire, Box 102, Angiola, California, owner.

For Sale—Good Level Irrigated loam soil near Escalon, San Joaquin County. Price $70.00 per acre up. Any size tracts. Easy terms. Write for full information now. Roy V. Ish, Escalon, California.

10 Acres Good Land, fenced, near Galt, California. $800 loan. Would exchange for smaller place, clear or small loan. Also lot on High Street, Melrose. Price $325. Address Route A, Box 245 A, Acampo, California.

160 Acre Foothill Ranch, 30 in cultivation, 70 will cultivate, balance pasture. Implements and stock, all for $3000. Write for particulars. R. A. Winsor, Hornbrook, California.

For Sale—On easy terms, 20 acre almond grove, planted four years ago, with well and pumping plant. J. H. Schneider, R. 2, Box 333, Pasadena, California.

For Sale—$2000 cash, 20 acres good land near railroads and highways. Write or call. J. C. McClaskey, R. B., Oroville, California.

TURKEYS

Giant Bronze Turkeys — Gold Nugget strain. Prove their superiority by winning Gold Special Sweepstakes for best turkeys at the following great shows: Arizona State Fair, 1916; Texas State Fair, 1917; California State Fair, 1917-1918; Los Angeles Show, 1917-1918; Pacific Coast Land and Industrial Exposition, Oakland, 1918. An unequaled record. Large turkeys can be raised at practically the same cost as small ones. Toms for sale that will increase size and improve any flock. I am the originator of the Gold Nugget Strain. J. Will Blackman, 607 East Third St., Los Angeles, California.

For Sale—Young Tom Turkeys, Mammoth Bronze. Also Bronze and Mammoth Bronze eggs. Robinson Turkey Ranch, San Dimas, California. Covina phone 902.

For Sale: Mammoth Bronze baby turkeys with hints as to rearing. Palo Pino Turkey Ranch, Box 503, Monterey, California.

For Sale: Bourbon Red Turkeys.—Eggs for hatching $5.00 per setting of 13 eggs. Book your orders early. Albert E. Balmer, Martinez, California.

TURKEYS

Giant Bronze Turkey Eggs, 35c each. Hoganized White Leghorn roosters, $3.50 each. White Leghorn eggs $1.50 per setting. Mrs. G. E. Rasdalle, No. 27, Shawmut, California.

Turkey Eggs—For sale, eggs from thoroughbred Mammoth Bronze Turkeys. Gobblers from the famous "Gold Nugget" strain. Carrie Andrews, San Gorgonio Ranch, Banning, California.

For Sale—Golden Bronze Turkeys.—Big boned breeding Toms of America's best strain. Eggs in season. M. M. Reiman, Planada, California.

ENGINES

For Sale—5-10 Avery Tractor in Good Condition. D. U. 4 Bosch magneto. Extra strong guards on wheels for orchard work. Clarifier on carburetor. Also two 10-inch bottom Oliver tractor plows, with rolling coulters. Can be seen at C. Stone's ranch, Casitas Avenue, North Pasadena, California. Mail address, R. F. D. No. 2, Pasadena. Home phone Fair Oaks 1670.

Yuba Tractor for Sale—Have one 18 horse power and one 20 h. p. both in good running order and plowing every day. Will sell either. Reason for selling, don't need but one. See them pull 5 plows each on rolling ground. Cheap for cash. Hugh Montgomery, San Gorgonio Ranch, Banning, upper highway between Beaumont and Banning.

For Sale—2½ h. p. Gas Engine and Blower for mine; 20 h. p. Fairbanks-Morse engine; 175 h. p. De La Verne oil engine; 1700 ft. belt-driven air compressor. Clarence F. Lock, Contracting Engineer, 302 Commercial Street, Los Angeles. 61634.

For Sale—One Cleveland tractor in good condition; new engine just put in; new track, all bearings overhauled; practically as good as new machine. Price $1200 cash. Inquire Nels M. Poulsen, 1413 Grant Street, Selma, California.

For Sale at a Bargain—18-35 Yuba Ball Tread Tractor in first class mechanical shape; plows and double disk harrow included. Apply D. P. Corcoran, Gridley. Phone 33-F. 24.

A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D. Co. California.

For Sale—30 H. P. Best Tractor. All track model and 6 disc Saunders engine plow, also Clark 8 foot double Cutaway disc harrow. H. J. Warr, Perris, California.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

Bargain—One Secondhand and one new Cleveland tractor. W. B. Knapp, 2074 Center Street, Berkeley, California.

For Sale—Bean Tractor in best condition with new improvements. L. F. Raftery, Owensmouth, California.

COMMERCIAL VALUE OF BEAUTY

Continued from Page 163

from a purely practical standpoint, the drives and walks outlined have a value in use quite aside from the beauty of the scene. Every passerby considers the home place an expression of the taste and personality of the owner, for people judge us largely by our exterior appearance, not only our houses, but ourselves as well. How will you be classified or indexed? It costs but little to be published aright. Cheap, unkempt grounds subject the owner to prejudice on the part of the beholder; while neat, orderly, artistic exterior appointments are entered to his credit. Let our home surroundings reflect us truly. Let us have a home that nestles snugly into a shelter of trees and shrubs, with a heavier background upon which the home picture is spread. Let us have a personal note apparent. Do not strive to get something different from what others have; do not have such a thought in mind. But plant as you think it should be, based upon observation and sober study of the problem. There will be found plenty of place for individual taste and expression in the flowers you grow and how you dispose of them.

Now let us leave ourselves and all selfish thoughts behind. We must also plant for the enjoyment of others; of all others, for every passerby gets pleasure from a view of your grounds. At least he should do so. Not only of the general public, but of your neighbor must you be thinking as you garden, for we are joyful in the thought that we bring joy to others. He who beautifies the earth is a benefactor, even though he does so largely for his own pleasure. And then that splendid generous spirit of cooperation that makes for community strength! Every fine garden contributes to the value of all property in the community, contributes to the enjoyment of all in the community, whether resident or visitor. The world is made better and brighter, and all that tends toward that end has not only an esthetic value, but one easily measured from a sordid dollars and cents standpoint. From whatsoever angle we view it, it pays to beautify the home grounds.

GREATER STRENGTH
Fewer Spoonfuls
BIGGER SAVINGS



The value of baking powder is based on its *leavening strength.* You can't judge it by the size of the can—or by the *amount* you get for your money. You must estimate it by the amount of baking powder *used* in each baking and the *results* you get.

CALUMET

is the greatest value ever offered in Baking Powder—it has greater raising *"force"*—it *goes* further than most of the other brands. You use only a rounded or heaping teaspoonful where others call for two teaspoonfuls or more.

But Baking Powder is not all you'll save when using Calumet. You save baking *materials.* Calumet *never* fails. The last *level* teaspoonful is as powerful as the *first.* Calumet is perfectly manufactured—*keeps* perfectly—and is moderate in price.

You save when you buy it—You save when you use it

One trial will satisfy you of these facts—will demonstrate beyond doubt that "Calumet spells economy."

Your grocer sells it on a guarantee of money back if you are not pleased with results.

Calumet contains only such ingredients as have been approved officially by the U. S. Food Authorities.

HIGHEST QUALITY AWARDS

Power--Power--Power

Fertilizer is to the tree what gasoline is to the engine. If you want small returns feed little, if you want BIG RETURNS feed liberally.

Ninety per cent of the non-paying groves are the UNFERTILIZED groves. Feed your trees into the dividend paying class by using

Hauser's Organic Fertilizers

Built for California Conditions

Send for booklet "Fertilizer Efficiency"—tells you why.

Hauser Packing Company
Los Angeles

VIGOROUS, PROLIFIC, DELICIOUS
THORNLESS
Let us tell you about this blackberry
EKSTEIN NURSERIES Modesto, Cal.

Disc Harrows


THE ARNOTT DOUBLE DISC HARROW

We have nine distinct styles of Disc Harrows. A Harrow for every use. 3 feet to 12 feet in width of cut. 14 to 20 inch discs, solid or cutaway. No assortment so complete. Call and see them or write for catalogue. We are headquarters.


FIELD HARROW 4 TO 12 FT. WIDTH

ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

Household Department

THE COST OF LIVING

"I do not see why folks complain,"
Said Jorkins, "of the price of meat;
For fifty cents a pound you get
A sirloin steak that can't be beat.
For the same money you can buy
A lucious English mutton chop.
Why should you ask for more than that?"
Yes, Jorkins keeps a butcher shop.

"The cost of living ain't so high,"
Said Jobkins. "Why should folks find fault?
For half a dollar you can buy
A full three months' supply of salt.
Just think what people had to pay
Right after our great civil war!
I tell you, flour cost money then!"—
Yes, Jobkins keeps a grocery store.

But Jobkins went to buy some meat
And said that Jorkins was a skin;
And Jorkins, paying Jobkins' bill
Declared he had been taken in.
And when the coal man asked for pay,
They both set up a mighty shout;
And just as they were feeling worst,
The plumber came and cleaned them out.
—Somerville Journal.

TEENY'S INSPECTOR

(Continued from last week.)

Teeny's eyes were so blinded with tears that she narrowly missed stumbling over the wastebasket, as Mr. Wallace sped out of the office toward the bank. He soon returned with seven hundred dollars, considerably more than the shortage, — which he proceeded to put with the daily sales money for the day. "I told them Mr. Dillon was too ill to bother with the bank account, and I would use my own money," he explained. "Now we'll count those missing stamps as sold until they're found!" He tried to calm down to wait on a man at the stamp window.

When the customer had gone, the inspector said, kindly, "I assure you, Mr. Wallace and Miss Schmidt, this unfortunate affair will go no farther until the adjustment is made. Mr. Wallace's manly action in trying to shield the postmaster from annoyance, as well as the putting up of the cash until the stamps are produced,

THE VALENTINE

February 14, 1919

This is the message, love laden,
I send
Bird winged through space to
the heart of my friend:
Strength for each day howe'er
lonely and long
Be thine, enriched by the lilt of
a song.
—Helen M. Richardson.

will weigh heavily with the department."

The task of inspecting the rest of the office kept the man busy until after dark. He chatted pleasantly with Mr. Wallace and Teeny, and even tried to persuade the girl to go to her evening meal; but she was too much excited to want to eat. She was hunting every spare moment for the missing stamps, as was Mr. Wallace; neither of them could have eaten a bite. However, Teeny would have to go home at seven o'clock, or her mother would be down at the office to see why she was delayed. Mr. Wallace was determined to spend the night there unless he found what he was looking for.

"Fire! Fire! Fire!" rang the cry in the street, and the red glare of a burning building lighted up the dingy office. In another moment the fire engines went clanging by.

In spite of his troubles, Mr. Wallace ran to the front door; the inspector was not far behind him. The rear doors were locked, and since they stood in the front door, both men knew that no one could rob the office. As Teeny was following the men to the door, she ran into a chair and upset the inspector's satchel and all his belongings. She uttered a groan, and expected both men to run back to investigate the commotion; but the noise in the street drowned the noise she made, and with trembling hands she hurriedly put the things back into the satchel. As she did so, she saw something that made her gasp; but she restored the things quickly.

"Let me see," said the inspector, as he and Mr. Wallace came back from the door. "I'll get my report out on that seven o'clock train, I think. I'll go over to the hotel and make it out, and then come back to help you."

He leisurely pulled on his coat, and did not notice that Teeny had hurried out of the door. She came panting back with two men, who looked bewildered and amazed, and then she made an awkward dart toward the inspector. She grasped his satchel just as he was about to take it up, and ran to Mr. Wallace.

"Take it! Take it! Our stamps are in there!"

Mr. Wallace looked at Teeny in amazement, and the inspector angrily made a move to take the satchel away from his. "This is an outrage!" he said. "Is the girl crazy?"

The two men whom Teeny had hastily called from the group at the fire looked on in bewilderment; but when the inspector scuffled with the assistant in an attempt to recover the satchel, they grabbed his arms and held him fast.

"If the stamps ain't in there," drawled one of the men, "we won't hurt you. If you're honest, you won't object to showing what you have."

"I upset his sachel by accident," cried Teeny, "and I saw the stamps in there! They are in our own old register envelopes, Mr. Wallace."

"You're right, they are, Teeny!" cried Mr. Wallace, hastily examining the contents of the satchel while the inspector struggled and cursed. "I knew they were not stolen."

"But they were," said one of the men, and he held the stranger fast. "Go and get a couple of policemen at once. This fellow's pretty strong."

When the excitement was all over, and the telegraph wires had clicked off the story, and the government officials at Washington knew what had happened, Christina collapsed and came near fainting.

"Teeny, you're a heroine," said Mr. Wallace, warmly, "and I beg your pardon for ever being unkind to you. Yes, I was unkind. I thought you were awkward and troublesome, but—"

"Well, I am!" wailed Teeny. "I'll never learn anything! I'm awfully awkward."

"And a blessed, lucky thing it is for us all!" said Mr. Wallace, fervently. "If you hadn't upset that satchel, that scoundrel would have stolen our stamps and my money. I've no doubt he intended to leave for parts unknown on the night train. He is a smooth rascal, and there's no telling how many offices he's held up."

The fraudulent inspector proved to be a criminal who had stolen an inspector's commission, and who had cleverly altered it to suit his own purpose. After he was safely lodged in prison, and his methods were discovered, a number of postmasters and their assistants confessed that he had held them up for large or small amounts. He would drop into an office and find the money or the stamps short, and then would "allow" the postmaster to straighten up the matter and get a good report. Of course most of them were willing and anxious to put in several hundred dollars rather than to lose their positions or to have the matter become public property, and the bogus inspector had escaped for a long time. No doubt he would have permitted Mr. Wallace to make the stolen stamps good out of his own pocket, and the matter would have been hushed up, had not Teeny upset his satchel.

Mr. Dillon and Mr. Wallace suitably rewarded Christina, but Mr. Wallace did more than merely reward her with a gift. He issued an order to the carriers; and ever thereafter the general delivery clerk was known no longer as Teeny, but as Miss Christina or Miss Schmidt. He was so kind and patient with her blunders that she improved wonderfully. Then he persuaded his sister to take the young girl under her protecting wing, and Teeny blossomed out in pretty clothes in a most astonishing manner.

"Well, Christina, your inspector will not try to defraud any more postmasters at present," said Mr. Dillon, the day the judge sent Charles Silver, alias James Greshom, to prison for a long term. "You did a good piece of work the day that you caught that thief, and I'm proud of you; but somehow I don't believe you'll ever do it again. You are always so careful and

quiet about your work now, Christina."

"I never want to do it again," said Christina, modestly, glancing down at her becoming dress and trim shoes. "One inspector is enough for me to catch in a lifetime—and I'll never upset any more satchels if I can help it, though I'm not sorry I upset that one."

"BIG SISTER"

Written for California Cultivator
By Mary Olmsted Lotspeich

The readers of the Cultivator are to be congratulated on the class of stories in the Household Department, as they are always practical and helpful, as well as interesting.

The one in a recent issue, which painted such a pleasing picture of the patient little knitter who was helped to do better work by sitting close to grandma, must have revived old memories for others as well as for me, of the daily "stents" which were required to teach us the use of the needle, in childhood days.

How interminably long the seams were in the sheets of those days, which must be sewed "over and over" with such care to have each stitch set so it should leave the proper slant, and how much shorter they appeared when divided by the tactful mother into sections of Europe, Asia, Africa and America, with stories told of each country as we journeyed through it with needle and thread. What delight to reach our own dear America, and the end of our task at the same time! Another time we would play the game of starting our work on the top step of the stairs, descending a few steps at a time as our work progressed. The dear mother had not forgotten when she was our grandmother's little girl and knew that "all work and no play" made Jacks and Jills dull boys and girls.

Then there were the days when the stock of trade of her school of needle work was a pile of patches and a pair of shears while she so carefully showed us how true to the pattern each piece must be cut and the light and dark pieces skillfully blended, if the blocks were to be perfect when pieced together. Patience and perfection were taught as well as the art of quilt making.

Though those days are far in the past, we are still "only children of a larger growth" and continue to have our "stents" to do; war work which took our time, taxed our nerves and tugged at our heartstrings, as we knit socks and sweaters, and prepared surgical dressings for our brave soldier boys. We have graduated now from knitting, and are once more busy with patch-work pieces for quilts, to go to make the people of the war-torn countries more comfortable, carrying warmth, we hope, for not only their wasted bodies, but their aching hearts as well, as they realize, by our deeds, that we, their more fortunate sisters, in this protected country are in spirit "sitting close by them," trying to help them over their rough places, and make their hard lives more livable, by giving them our cheerful service and heartfelt sympathy.

CHARD SOUP

Chard is a most versatile vegetable, for at least is capable of great versatility if the cook keeps her eyes open. The leaves are delicious greens; the stalks are better creamed like asparagus or salsify. But both leaf and stem enter the soup pot.

Last night for a quick supper I gathered a half dozen chard leaves, a handful of parsley and anotner of onion tops, put all through the food chopper and dropped in the soup pot in two tablespoons of hot fat, placed cover on pot and let steam for 10 minutes, then added boiling water a little at a time as needed. In 20 minutes the leaves were thoroughly cooked, salt and pepper were added and a thickening of a heaping tablespoon of flour and milk. Then I put in all the milk I happened to have, finishing out with boiling water and a little sour cream (sour cream adds a delicious flavor to all cream soups.

A loaf of French bread was crisped in the oven and served hot with plenty of fresh butter with the soup—and the rest of the supper was slightingly created by the whole family.

The house of every one is to him as his castle and fortress, as well for his defense against injury and violence, as for his repose.—Sir Edward Coke.

FRIED BRAINS

Do you know how delicious fried brains are? Better than oysters any day. Don't let this conjure up images of a melancholy scramble of eggs and brains—which is the usual way of serving them—good enough to taste, but not beautiful. A nurse taught me this way:

Clean the brains under running water, pulling the covering tissue off with the fingers, washing out blood clots. Drop in boiling salted water—a little vinegar or lemon juice added helps to hold the brains in shape. Let boil for 20 minutes. Drain and cool, divide in halves, roll in salted and peppered cracker crumbs, brown in medium hot butter or drippings.

Brains, by the way, are still reasonable in price.

THE HOUSEWIFE'S SPRING DRIVE

The advent of spring, bringing as it does a marvelous change in the appearance of the earth, serves as an incentive for people to brighten up their properties. The housewives conduct their mystic operation known as housecleaning, when the premises are swept from the topmost cranny of the attic to the lower regions of the cellar. All dirt is given the "Not Welcome" sign and forced to vacate and as a result at the end of a week's cleaning the house is in a spick and span shape.

Some of the more progressive housekeepers have made the cleanup complete by inspecting each article of furniture in the house in order to see if any attention is needed. Missing screws are replaced, nails are tightened up and the furniture is restained and reupholstered, and various other methods are used to give the furniture a brand new appearance.

Instead of using a chair or table in a scarred condition, Madame Housewife now takes a can of ready mixed varnish or stain, of a type of finish to suit the grain of the wood and her fancy, and in a few minutes she has a brand new chair. If the radiator or lamp fixtures are getting tarnished, an application of gold lacquer or aluminum paint changes the dull appearance to an attractive tint. Should the leather furniture have lost its original luster, a coat of leather renovator will make the leather look like new. Or should it be badly worn it can be upholstered with leather substitute at a great saving over leather.

The home which has been visited by this magician with his paint, enamels and cleansers will show a fresh attractive appearance that will reflect in the dispositions of the members of the family and will serve to make everybody more tidy and careful about their personal appearance. All of these cleanup articles are now made in such a shape as to be easily applied and their use is becoming more universal each year during the spring drive on dirt.

ABRAHAM LINCOLN

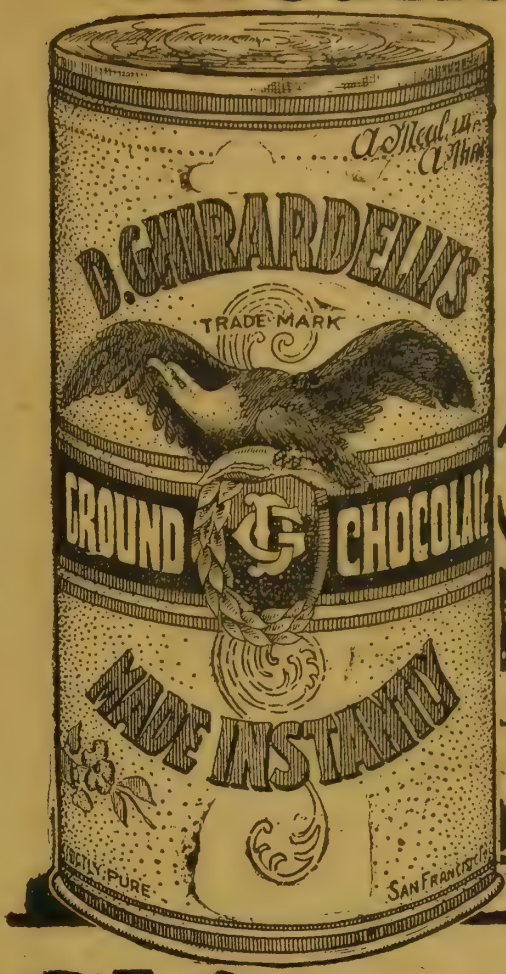
Born February 12, 1809

Oh, slow to smite and swift to spare,
Gentle and merciful and just!
Who, in the fear of God, didst bear
The sword of power, a nation's trust!

LINCOLN'S USE OF SIMPLE LANGUAGE

I remember how when a mere child I used to get irritated when anybody talked to me in a way I could not understand. I can remember going to my little bedroom after hearing the neighbors talk of an evening with my father and spending no small part of the night walking up and down and trying to make out what was the exact meaning of some of their (to me) dark sayings. I could not sleep, although I tried to, when I got on such a hunt for an idea until I had caught it, and when I thought I had got it I was not satisfied until I had repeated it over and over until I had put it in language plain enough, as I thought, for any boy I knew to comprehend. This was a kind of passion with me, and it has stuck by me, for I am never easy now when I am handling a thought till I have bounded it north and bounded it south and bounded it east and bounded it west.—Abraham Lincoln.

-in cans only



Ghirardelli's Ground Chocolate is so good—so pure—and so rich in nutriment that it deserves nothing less than this quality-sealed can. That's why Ghirardelli's is not sold in bulk, but *in cans only*.

In ½ lb., 1 lb. and 3 lb. cans—at the store where you do your trading.

Say "Gear-ar-delly"

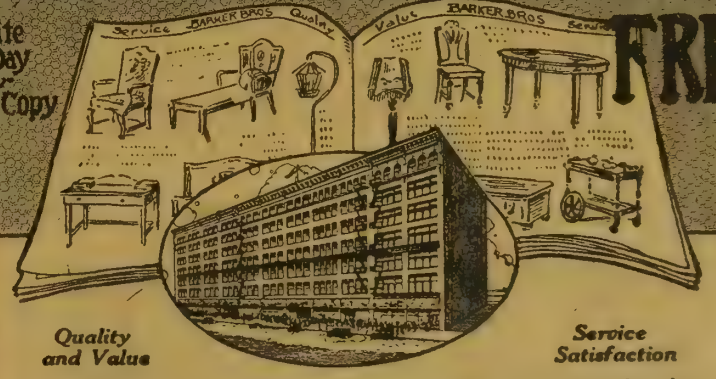
D. GHIRARDELLI CO.

Since 1852 San Francisco

Ghirardelli's Ground Chocolate

A Book of "Better Home" Furnishings FREE

Write To-Day for Your Copy



Quality and Value *Service Satisfaction*

OUR newest catalog, revised, enlarged—128 pages, picturing "quality" furniture and dependable home furnishings from reproductions of actual photographs; rugs in colors. In sending this book we literally "send our store"; retail division (pictured) occupies 35 floors in five connecting buildings, with 100,000 square feet floor space in other buildings devoted to warehousing and manufacturing. In all, over nine acres floor space.

Forty years of successful catering to needs of Western homes. Nearly 1000 employees to serve you; capable staffs to help you buy "exactly what you want"—to acknowledge orders same day received—to insure careful packing and make shipment same day where possible. *We prepay all the freight* reasonable distances, and make liberal allowance to further points.

ADDRESS MAIL ORDER DIVISION

Barker Bros
ESTABLISHED-1880

722 SOUTH BROADWAY LOS ANGELES

Clean Potato Seed

Hundreds of Potato growers are availing themselves of the opportunity to get clean potato seed that has been dipped in a solution of corrosive sublimate by

Aggeler & Musser Seed Company

620 So. Spring St. *Los Angeles, Cal.*

Write for their 1919 Catalog

When writing advertisers, mention The Cultivator.

Los Angeles Market

Los Angeles, Feb. 5, 1918.

BUTTER

Produce Exc. Quotations.
Prices to trade 1½ to 2½c higher.

Cal. Extra Creamery 46

Jan.	29	30	31	Feb. 1	3	4
'19 ...	48	48	48	..	46	46

CHEESE

Brokers' prices:
California fresh, lb. 26

EGGS

Exchange quotations. Price to retailers 2 to 3 cents higher.

Fresh extras 39
Case Count 38
Pullets 38

Jan.	29	30	31	Feb. 1	3	4
'19 ...	40	42	43	..	43	39

POULTRY

Hens: heavy, 30@32; light, 30; colored, 32; broilers, 40@43; fryers, 35; roasters, 30; old cocks, 20.

Ducks, 30; ducklings, 33; geese, 28; turkeys, 34@35; squabs, 40-48; Belgian hares, 20.

LIVESTOCK

The market for live steers of good quality is firm. An undertone of weakness prevails in the market for medium and common grades. Good cows hold strong and other grades rule firm. The demand for cows exceeds the supply.

Hogs have been in liberal supply and the outlet for the dressed product decreased, which has resulted in a weak market for them. Only the top quality hogs command the agreed to price of $16.50 f. o. b. packer's yards. Light, extra heavy and rough hogs are fully a dollar lower.

Lamb receipts also have been liberal but the quality is only fair. Good quality handy-weights only are able to reach top prices quoted. Sheep demand is very light and the market for all but good wethers is very weak.

Following are the live stock prices Tuesday, February 4 in Los Angeles, f. o. b., packers' yards. Prices at country points are $1.00 to $1.50 per hundred weight less than those quoted:

Good steers, 13.50@14.00; medium steers, 11.00@12.00; common steers, 9.00@10.00.

Good cows, 10.50@11.50; medium cows, 8.50@9.50; common cows, 6.50@7.50.

Hogs — No. 1, 175 to 225 lbs., 16.00@16.50; No. 2, 250 to 350 lbs., 14.50@15.00.

Lambs, 65 to 80 lbs., 15.00@16.00; wethers, 11.00@12.00; ewes, 8.50@9.00.

Nine cars of live stock were loaded February 3.

POTATOES

Wholesale selling prices:

Supplies heavy. Demand and movement draggy. Stockton, Burbanks, quality and condition good. Sacked per 100 pounds, fancy 2.35; choice 2.00@2.15; Idaho Russets, quality and condition fair 2.10@2.20; Oregon, seed stock, White Rose and Red Rose, sacked per 100 pounds 2.75@3.00. Homegrowns, White Rose, mostly 2.75@3.00; few fancy, 3.25. Sweets, lug, 85@95.

ONIONS

Wholesale selling price, cwt.

Demand and movement moderate, little change in prices. Stockton, sacked per 100 pounds; Browns, best 2.25; White Globes, 8.00@9.00; Lompocs, Browns, 2.25@2.50.

VEGETABLES

These are the actual prices obtained February 4 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Wholesale prices:

Beans—String 15
Limas, lb. .....9@10
Cabbage, cr., best .....1.40@1.65
Carrots, doz. 45
Cauliflower, best, cabbage cr., 1.25@1.50.
Celery, cr.: Homegrowns, best, 7.00; poorer, 5.00@6.00; Northern, best, 8.50@9.00.
Lettuce, cabbage cr., best .....2.50@2.75
Parsley, doz. 20
Peas, Tel. lb. .....15@16
Peppers, Chili, lb., best .....22@44
Bell, lb., best .....22@25
Pumpkins, lb., best 1½
Radishes .....15@20
Rhubarb, Strawberry, bx .....1.40@1.50
Spinach, doz. 30
Squash—Hubbard, best, lb. .....1½@2
Tomatoes, Mexico, condition generally good; best 3.25@3.50 lug bx.; locals, quality and condition poor, 1.75@1.85.
Turnips, doz. 25

FRUITS

These are the actual prices obtained February 5 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples — Bellefleurs, fy. best, 2.10@2.25; loose, 4@5 lb.; Yellow Newtons, fy. medium size best, loose 5½ lb.; Oak Glen, Rome Beauties 2.75@2.85; Yucaipa, Delicious, fy. large size 3.00; medium and small size 2.50.

Pears: Winter Nellis, lb., 7.

CITRUS

Lemons: Fancy packed, 4.00@4.25; local pack, 3.00@4.00; loose, some tree ripe, 2.00@2.50.

Oranges: Navels, medium and large size, fy., 4.00@4.50; local pack, 3.00@4.00; loose, 2.50@3.25; Tangerines, lb., 5@6.

Grapefruit: No carlot arrivals. Tulare County, Seedless, medium and large size, fy., 2.75@3.00. Arizona, Seedless, 3.00@3.25 packed bx. Imperial Valley Seedless, 3.00@3.25; locals, 2.25@2.50.

HONEY

Little change in prices, very little honey left in producers hands, carloads f. o. b. usual terms, Extracted light Amber Alfalfa 20½-21 lb.; Light Amber Sage 23 lb.; Inyo County Comb: Fy. Light Amber $6.25 cs.; No. 1, $6.00 cs.; Beeswax, best 40 lb.

BEANS

The general price trend continues downward with movement slow and draggy. California sacked limas declined 50 cents to 9.00 per cwt. cash to growers recleaned basis. Sacked California Limas also declined in leading markets to a general range of 11.00@12.00.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....21.00@26.00
Barley .....19.00@24.00
Alfalfa .....17.00@21.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:

Market active, buyers numerous, and offerings light.

Choice dairy hay .....27.00@28.00
No. 1 dairy .....25.00@26.00
Choice Alfalfa .....24.00@25.00
Standard dairy .....21.00@22.00
Standard Alfalfa .....20.00@21.00

GRAIN

Prices on local grain exchange. For government prices see San Francisco market.

Corn Yellow 2.85
Feterita 2.65
Wheat .....42.00@43.00
Bran 44.00
Shorts 47.00
Middlings 54.00
Milo .....2.62@2.62½
Barley .....2.07½@2.10

San Francisco Markets

San Francisco, Feb. 4, 1919.

BUTTER

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½c to 2½c; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extras 46½

Jan.	28	29	30	31	Feb. 1	3
'19 ...	49	48½	48½	..	47	46½
'18 ...	..	52	51	..	50½	..

Rcts. wk. ending Feb. 3, 277,293 lbs.

CHEESE

Dairy Exchange quotations:

Cal. Flats .....24@25
Ore. Triplets 40
Jack, full cream 30

EGGS

Dairy Exchange quotations:

Extras 42½
Extra Pullets 41

Jan.	28	29	30	31	Feb. 1	3
'19 ...	52	47	49	..	44	42½
'18 ...	..	59	58½	..	60½	..

Rcts. wk. ending Feb. 3, 9726 cases.

POULTRY

We quote to producers, lb.:

Hens, 35@37; broilers, 40@45; fryers, 40@45; old roosters, 24@25; young roosters, 37@38.

Ducks, 29@31; geese, 29@31.

Belgian hares, live, 19@20.

Jack Rabbits, doz., 2.00@3.00.

Squabs, doz., 3.00@4.00.

Turkeys, dr., 39@41; live, 33@35.

LIVESTOCK

Prices gross weight:

Cattle: The following prices are for grass fed stock. Hay fed brings ½ to ¾c more.

No. 1 steers, weighing 950 to 1100 lbs. alive, 12¾@13; 1200 to 1400 lbs., 13@13¼; second quality, 11½@12; thin steers, 9@10. Cows and heifers, No. 1, 9@10; second quality, 8@9; common to thin, 6@6½; calves, 10½@12.

Sheep — Lb. gross weight: Wethers, 11½@12; ewes, 8½@9¼; lambs, 14@14½; yearlings, 12@12½.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 16; 150 to 250 lbs., 16½; 250 to 300 lbs., 16; 300 to 400, 15½.

POTATOES

Wholesale selling prices at wharf, cwt.:

Deltas, 2.00@2.15; Red Shima, 2.35; Oregon Burbanks, 2.00@2.10; Gems, 2.00@2.25; British Queens, 1.75@1.90; sweet, per 100 lbs., 3.65@4.00; new potatoes, lb., 5@7.

ONIONS

Wholesale selling price on wharf, cwt.:
Australian, Brown and Yellow..1.75@2.25

VEGETABLES

Wholesale selling price:

Artichokes, doz. .....50@1.00
Beans, String, lb. .....25@30
Beets .....1.50@1.75
Brussels Sprouts, lb. .....7@8
Cabbage, cr. .....75@85
Carrots, sk. .....1.15@1.50
Cauliflower, doz. .....75@1.00
Celery, cr. .....5.00@7.50
Cucumbers, hothouse, bx. of 30..2.50@3.00
Egg Plant, lb., Southern .....17½@25
Lettuce, cr. .....1.75@2.00
Southern Iced, cr. .....2.75@3.25
Peppers, Chili, lb., 12½@15; Bell ..15@20
Peas .....15@20
Pumpkins, sk. .....1.00@1.25
Rhubarb, bx. .....2.75@3.25
Squash—Cream .....75@1.00
Hubbard, sk. .....1.50@2.00
Marrowfat .....1.00@1.25
Spinach, lb. .....5@5½
Tomatoes, cr., Southern .....2.50@2.75
Mex., cr. 3.00
Turnips, sk. .....1.00@1.25

FRESH FRUITS

Apples—Newton Pippins .....2.00@2.50
Pearmain .....1.25@1.60
Bananas .....7@8
Olives, lb. .....10@12½
Winter Nellis .....3.00@3.50
Persimmons, bx. .....1.00@1.25

CITRUS

Box: Lemons, 2.50@4.75; lemonettes, 2.00@3.00; grapefruit, 2.00@3.00; limes, 2.00@3.00; Mandarins, 1.75@2.50 cr.; tangerines, bx., 3.00@3.50; Navel, 3.00@4.75.

BEANS

Per cental:

Practically no demand and movement.

Carloads f. o. b. usual sacked per 100 pounds recleaned basis, Red Kidneys, 12.00@12.50; Garbanzas 8.75@10.50; Limas 9.15@9.50; Small Whites 7.25@7.75; Large Whites, 7.25@7.50; Bayos, 7.25@7.65; Cranberrys 6.75@7.00; Red Mexicans, 6.75; Pinks, 6.15@6.25; Blackeyes 5.00; Teparys 4.00@4.10.

HONEY

Quality very ordinary, condition good. Supplies light. Growers offering freely, anxious to sell. Buyers holding off account decline in prices and adequate supply on hands purchased at high prices. Market unsettled. Cash to producer at country loading point, prices nominal extracted Water White 21 lb.; Sage White 20; Alfalfa White, 19@20; Light Amber, 18; Dark Amber, 17@18; Hawaiian Dark Amber, 13@14; Beeswax, 33@34 per comb; 24 section case White, 5.00; Light Amber 4.50; Dark Amber, 4.00.

SEEDS

Flax .....8@8½
Millet .....5@5½
Rape .....2½@3

HAY

Under date of February 1, Scott, Magner & Miller says:

SEED POTATOES

We specialize in selected SEED POTATOES; Certified White Rose, American Wonders, British Queens, Burbanks, Garnet Chilis, and other varieties. Also fancy, recleaned Alfalfa Seed. Write for prices.

Wm. A. Curtis Co.
San Francisco . . Cal.

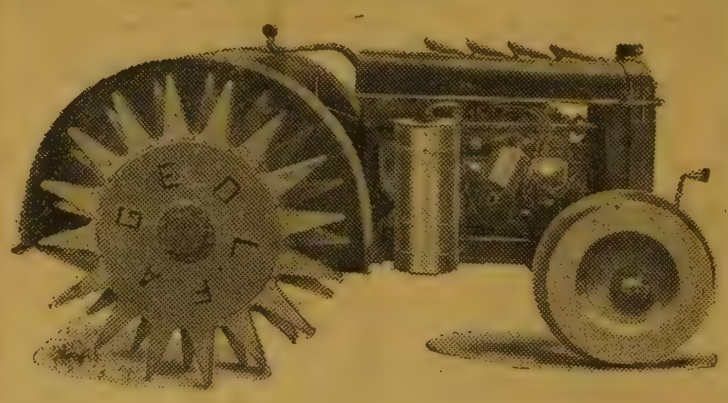
FAGEOL
WALKING TRACTOR

A LIGHT TRACTOR must not have too many working parts—for the power it takes to move those parts can not be delivered to the implement.

The elimination of power-consuming parts in the Fageol reduces the cost of daily operation.

Fageol Walking traction is positive, because it is natural, dependable, because it is sure.

BUTLER-VEITCH
INCORPORATED
Sales Organization—Fageol Products
308 Syndicate Bldg., Oakland, Cal.



251-3

-kill squirrels NOW

Don't wait until squirrels, gophers, prairie dogs and other ground pests wax fat on your land. Go for them NOW with Carbon Bisulphide—the quickest, surest and most economical exterminator!

No matter what month it is—Carbon Bisulphide will rid your land of these destructive pests. That's why it is used and recommended by U. S. and State officials for its efficiency and economy.

Easy—cheap—and safe to use! Write today for prices and interesting literature which explains how Carbon Bisulphide, for over 30 years, has been a safeguard of healthy crops and sound profits. Write now!

WHEELER, REYNOLDS & STAUFFER
626 California Street San Francisco, Cal.

with CARBON BISULPHIDE

Receipts past week 1054 tons. Very few dealers appear on the market in the mornings and there is practically no trading. Most arrivals are handled in the jobbing trade by those to whom they are consigned and consist mostly of their own holdings. Prices are not satisfactory to holders of hay and the predictions of an abnormally early spring and consequent feed shortage are causing owners to hold for possible higher figures later on. Cold weather and biting north winds have had a bad effect throughout Central California during the week, but reports of showers in the south and a possibility of their extending up to this city are more encouraging.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market — for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat Hay (light 5-wire bale)	24.00@26.00
No. 1 Wheat or Wheat and Oat hay	22.00@24.00
No. 2 Wheat or Wheat and Oat hay	16.00@20.00
Choice Tame Oat Hay	21.00@23.50
Other Tame Oat hay	16.00@19.00
Wild Oat Hay	16.00@18.00
Barley Hay	16.00@18.00
Alfalfa	16.00@19.00
Stock hay (in order)	14.00@17.00
No. 1 Barley straw, bale	50@80
Damaged hay (all kinds), according to condition.	

THE BEAN SITUATION

The United States bureau of markets reports under date of February 4, 1919.

It is evident that large stocks remain unsold, both of the 1917-18 crop and the crop of the present season. Unofficial estimates have placed stock in California alone at four million hundredweight, or 6000 to 7000 cars, available for shipment. The stock unaccounted for as carlot shipments is extremely large from each of the two last crops. Only 4556 cars from a crop of 16,045 cars (estimated 1000 bushels to a car) were shipped in 1917-18, or not much more than a quarter of the estimated yield for that season, and so far this season the proportion of carlot shipments to estimated yield is not much larger than for the early part of the preceding season. From an estimated crop of 17,733 cars, shipments to January 1, 1919, have been 2753 cars, compared with 970 for the corresponding period last season. The shipments during January, 1919 averaged about 140 cars per week.

Citrus Fruit Market

Los Angeles, Cal., Feb. 5, 1919.

Navels are holding up well, selling between $4.00 and $5.00, though there are some very low sales. This for injured stock. Reports from Eastern markets indicate that Florida Brights are selling around $3.40 to $4.40 in leading markets. Florida shipments at this moment are very light.

Lemon market not specially strong and a few shipments going forward.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 4960 cars, lemons 1707, total 6667. To same date last season; oranges 3290, lemons 770, total 4060. Central California this season; oranges 2920, lemons 318, total 3238. Last season to same date; oranges 1875, lemons 98, total 1973. Northern California; oranges 244, 1 lemon. Last year same date, 202.

AT THE AUCTIONS

January 29

New York: 12 oranges, 1 lem. Higher. Nav. 4.10-5.15, Seed. 3.90-4.05, lem. 3.65-3.85.

Pittsburg: 5 oranges. Nav. 2.90-4.25, Bloods 2.80-3.20.

Boston: 6 oranges, 1 lem. Nav. 2.95-3.75, lem. 4.05-4.70.

St. Louis: 5 oranges, 1 lem. Nav. 3.85-3.86, Sweets 2.95-3.00, lem. 3.55-4.20.

January 30

New York: 13 oranges, 1 lem. Nav. 4.70-5.15, lem 5.10-5.45.

Boston: 6 oranges, 1 lem. Nav. 3.50-4.70, lem. 3.50-4.35.

Pittsburg: 2 oranges, 1 lem. Nav. 3.30-4.85, lem. 3.30-4.55.

Philadelphia: 4 oranges, 1 lem. Nav 4.80-4.60, lem. 3.90-4.90.

February 4

New York: 17 oranges, 4 lem. Nav. 4.20-4.90, Seeds. 2.80, lem. 4.10-5.05, Tangerine halves, 3.45, Blood halves, 1.95.

Boston: 6 oranges, 1 lem. Nav. 3.50-4.30, lem. 4.35-4.65.

Philadelphia: 4 oranges, 1 lem. Nav. 3.95-3.75, lem. 3.05-4.05.

PARTIAL LIST CALIFORNIA FRUIT AND VEGETABLE SHIPMENTS

From post card reports to the Los Angeles branch of the bureau of markets, report is made of the following shipment of cars of products from California for the week ending February 3: Apples, 31; artichokes, 3; cabbage, 33; carrots, 2; cauliflower, 134; celery, 35; dried apples, 1; dried apricots, 5; dry beans, 71; dried nectarines, 2; dried olives, 2; dried peaches 6; dried peppers, 3; dried potatoes 3; dried prunes, 32; lettuce, 42; mixed vegetables, 7; mixed fruit and vegetables, 34; mixed dried fruit, 6; onions, 32; peas, 1; potatoes, 217; raisins, 158; spinach, 14; sweet potatoes, 4; Arizona potatoes, 2; Nevada potatoes, 40; Mexican tomatoes, 7.

MARKET NOTES

The greatest interest this week is in beans, or perhaps more truly, the greatest lack of interest is in beans. Market is flat and dull. Prices are being shaded and the enormous holding is indicated by the "box" featured below.

Tangerines are quoted in Los Angeles at four to five cents per pound.

New York state grown Baldwins are selling in New York market $7.00 to $7.50 per barrel.

Latest wires from Chicago chronicle most enormous receipts of both hogs and steers. Notwithstanding the large numbers all beef prices are holding remarkably firm and even a very slight advance is indicated. Hogs are weakening. The price agreed for February still stands, only fanciest stock being received. The killers invariably demand that undergrade stuff be "cut out" or if accepted, at a material reduction.

One day's imports of Japanese beans at Seattle, Washington, 270 tons.

Large imports of beans are being made into New York from the West Indies.

California Golden Heart celery is ranging around 85c to $1.00 per dozen bunches f. o. b. producers' shipping point, or $7.50 per crate in consuming market.

The bureau of markets is doing some remarkably fine work in reporting stocks on hand and on general conditions. California producers are learning the value of this service.

Pony crates of cauliflower are now ranging around $1.25-1.30 So. Cal. shipping points. Price prevailing in Eastern markets is around $2.25-2.75 though some sales are made as low as $2.00 in the Middle West.

California Golden Heart celery is ranging in Eastern markets around $9.00-11.50 per crate. During the last week Baltimore has proved one of the best markets, showing an advance of over $1.00 and some sales being made as high as $13.50.

New York grown cabbage is now selling in terminal markets around $22 to $33 per ton. Florida early stock is coming in to Eastern market and commanding at shipping point around $1.25-1.75 per one and one-half bushel hamper. Florida shipments are lower than former years.

Texas grown spinach going into Northern markets ranging around $1.00-1.25 per bushel, though in Cincinnati during the last week at least $1.75.

Oregon grown Newtowns are selling in Los Angeles market extra fancy mediums, $2.50; same grade Spitzenburgs, $3.00-3.25; California Bells, $2.00-2.25; Oak Glenn Delicious, extra fancy large,

PEACHES IN THE SOUTH

Continued from Page 168

would care for if enough could be had. Following the Lovell, in order of quality, comes Muir, Crawford, and Foster. Few others of any sort are handled.

I asked Mr. Kitterman where his peaches came from, and he replied: "We bought over 2000 tons in the San Joaquin Valley." Asked how many they bought south of the Tehachapi; he replied: "None." It will be seen from this that the peaches must be good shippers, to be transported so far. In fact the superintendent so stated in speaking of the Lovell: "It is a fine shipper."

The San Joaquin Valley is far removed from coastal influences. So is Newcastle and all that grand peach section. While much of the former peach growing is on level land, the finest I have seen were grown on sloping land, though not so steep or of such elevation as the Placer County district. We have tens of thousands of acres of inland foothill lands suitable for peaches, lands in sections too cold for oranges.

We should plant more of the sorts most in demand and every planter should try some new varieties so that it may be definitely determined what sorts are best for the several districts as well as the best for each kind of soil. There is no good reason why local canneries should be forced to go far north to get good peaches in sufficient quantities to meet their full needs. While all of California needs more peaches, the south end of the state stands in greatest need. Now is the time to plant.

26TH ANNUAL

The Aggeler & Musser Seed Company of Los Angeles is issuing its 26th annual catalogue. It has illustrations of the big wholesale plant at Sixth and Alameda; also of the retail store at 620 South Spring Street, Los Angeles. Amongst other illustrations are a great many real garden scenes, illustrations showing seed bed construction, vegetable seeds, ornamentals and even garden implements. It is a valuable publication and may be had for the asking.

WEATHER CONDITIONS

San Francisco, Cal., Feb. 1, 1919.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.04	19.61	24.81	58	32
Red Bluff	.00	17.27	14.13	66	34
Sacramento	.00	9.24	10.93	60	34
San Francisco	.01	13.51	12.77	63	43
San Jose	.00	11.02	9.19	66	30
Fresno	.02	4.31	5.20	64	36
San Luis Obispo	.24	9.14	10.68	78	34
Los Angeles	1.00	5.14	8.18	78	46
San Diego	.78	5.00	5.20	76	48

MOHAWK VS - MUD

Your tires must fight the roads they travel. That's their job.

On most country roads, over gravel, macadam, rocks, ruts—the fight is hard.

On some roads, city asphalt for example, the fight is comparatively easy. High mileage records under easy conditions mean little or nothing.

We don't know where Mohawk tires will be used. We believe Mohawk users want a tire that will stand up and give a high mileage on *any* road. We believe they wish to go where they want to regardless of road conditions.

So from the beginning we have designed and built Mohawk tires not for easy work but for *any* work. We have built them with a tread so tough they will stand the abrasive action of macadam, cement, gravel and the cutting action of sharp rocks, fresh crushed stone, car tracks—with extra heavy fabric and an extra ply in most sizes to guard against fabric breaks caused by the hammering over rocks, cobbles, road holes and curbs—and with treads that hold secure against skidding, drive slipping or mud, snow, sand and wet pavements.

Where mud is prevalent we particularly advise the use of the Mohawk Non-Skid Tread.

The best proof that Mohawks do stand up under any and all road conditions is the fact our records show that 85% of all Mohawk buyers become permanent Mohawk users. [A "fair weather," "good road" tire could never show such a record.

We have accomplished these results by the simple, logical method of using only the finest grades of rubber and fabric produced in the world—by using generous quantities of them—by avoiding all dangerous cheap compounds and substitutes—by financing and conducting our business economically and efficiently.

Isn't it reasonable to believe that such methods must produce a tire much above the ordinary?

Isn't this the sort of a tire you want.

You will find good dealers almost everywhere who sell them.

THE MOHAWK RUBBER COMPANY
AKRON, OHIO

Chicago Atlanta San Francisco Boston New York Kansas City



MOHAWK "Qualify" TIRES

Mohawk Tires hold unusually well in mud. But there are altogether too many of these mud roads in our country—practically impassable winter and summer.

Do you know that less than 10 per cent of the 2,333,117 miles of public roads in the United States is improved?

Get behind the good roads movement in your county. It will pay you.

Hatch Early

Written for California Cultivator By Jean A. Koethen

WHEN this number of the Cultivator reaches its readers I trust it will not enter one single home where the hatching of the spring brood of chicks is not already under way. If only a single clutch of eggs is to be set it is just as imperative that they be set early as if the number were hundreds.

In California February is the best month in the year for getting out chicks. These early chicks for some reason seem hardier than the later chicks. They grow faster. They mind cold, rainy weather less. They eat with a better appetite. They are less likely to be the prey of mites and lice. It is a common experience that the first brood or so hatched in the spring always come along more satisfactorily than the later chicks, even those hatched in April. A government bulletin which was sent out this winter says: "Given the same feed, care and attention, chickens hatched the first of March will weigh more when they are four months old than those hatched the first of May when they are four months old. The rate of growth of a chick is greater during the first four weeks of its life than at any other period. Therefore, other conditions being equal, the more favorable the period the greater will be the rate of growth during that period. Consequently, the early hatched chick, having the advantage of a more favorable growing season, makes greater gains during the first four weeks of its life than the chick that is hatched later in the spring."

February, March and April, this bulletin says, are the best months for hatching in the northern states, while January, February and March are the best months for hatching in the southern and southwestern states. The February chick comes into existence with an enthusiasm for living which the April chick lacks. The days are cooler, the ground more or less covered with green. It may be, too, that the parent stock is a little more vigorous in January and February than later. The eggs are just as strongly fertile in the later spring months, but the mothers have felt the downward pull of the first warm days, together with the strain of heavy laying, and the chick has a little less vitality than the earlier chick. This is merely an idea of my own. I have no authority other than my own observation and experience, but I have so often noticed the greater eagerness for living in the early hatched chick that I must believe it not only comes out of the shell at a more auspicious time, but that it has a little greater constitutional vigor than the later chick. This might not be true east or north, but why should we not believe that spring fever affects fowls as well as human beings?

It does not matter whether we hatch our own chicks or buy them ready hatched. The principle is the same. Get them started as early as possible. Leghorns hatched in April ought to lay in October, yet most commercial poultrymen prefer to hatch for their own use in January and February. If they hatch in April they do it to supply procrastinators who do not know how much better in every way an early pullet is. These February hatched Leghorns often begin laying in July and August. Sometimes, if the weather is hot, they stop laying in October and go into the molt along with the yearling hens. Even if they do this, they have laid a good many eggs at a time when prices are high, but there is an even chance that they will not molt.

The secret of keeping early hatched pullets from stopping to molt in the fall, some experts believe, lies in full and careful feeding. The pullets can be kept laying, though they do go through a light molt, if they are fed all they can be induced to eat. One successful feeder gives his pullets at night a moist mash mixed with buttermilk. They have already had their evening meal of grain. In addition to this, just before they go to roost the mash is set before them and they are encouraged to fill their crops as full as they can be stuffed. A pullet that declined this stuffing would probably be put into the discard as one from which very little was to be expected. This man says he keeps his pullets laying right through the fall by this method.

Hens of the heavier breeds must be hatched earlier than Leghorns if they are to begin laying as soon. I am not sure that there is any great advantage in having a Red or Rock or Orpington lay in July or August, but it is certainly imperative that she begin laying in October if she is to be a profitable producer. Six months is the very least period that can be allowed any of these heavy breeds, and most of them will not lay inside of seven. When I kept Buff Orpingtons I found I could depend on their laying by or before the age of seven months. Many begin at five months, and the majority at six. Rhode Island Reds are a little slower. They may lay at six months, and they may hold on till eight. Much depends on the feeding. Light Brahmas are likely to defer laying till nine or ten months, and the Cornish, I am told, do not lay much before a year. All the American breeds, Rocks, Reds and Wyandottes, may be counted to begin laying by eight months, and many lay considerably earlier.

Keeping these facts in mind, it is evident that pullets of the American breeds must be out of the shell in February if they are to lay in October, and that Asiatics must pip the shell still earlier if fall production is expected.

When I talk early hatching to my neighbors they always agree to all I say, but end up with the protest: "How can we hatch early if we have no broodies?" How, indeed? There is more than one way of killing a cat, and hatching with one's own hens is only one of several ways of securing early chicks. For example, sometimes a broody may be bought. I advertised for one last week in the local paper, and before night of the day the paper came out I had the hen. She cost me $1.25, but I called that cheap when I weighed it in the balance with the possibility of having no February chicks. She is a gentle, motherly old biddy, and after she has raised her brood she will be worth nearly or quite all I paid for her just for the

THE POULTRYMAN'S CALENDAR

February, the Hatching Month.

Get out every chick you can this month. Hatch, hatch, hatch.

If you are buying day-old chicks, have a good brooder ready for them several days before you expect the chicks, and start the lamp or the heater at least two days before. Economizing on heat is no economy.

Keep up the war on mites. Nothing kills young chicks so quickly or so surely. Spray, paint, hose. There are plenty of good insecticides. The only lack is elbow grease.

Be sure, while you are hatching, that you hatch the sort of chick you will wish you had next November. Hens that lay are the only kind that pay.

Do not try to hatch chicks of more than one breed. It spoils the looks of your flock. If the breed you have is not satisfactory, now is the time to change.

Follow the directions in your incubator book minutely. Tend the lamps daily at the same hour every day. Turn the eggs regularly. Test out infertiles the seventh and fourteenth days.

See that the siting hen gets off every day and that grain and fresh water are always within her reach. If eggs are broken, wash the soiled ones.

An Important Engine Announcement

IN announcing to the farmers of America our new 1½ H.P. "Z"—which successfully uses

KEROSENE

—we complete a *line* of kerosene engines—1½ H.P. to 15 H.P.—which merits the most critical investigation. When over 200,000 farmers back their judgment by buying over fifteen million dollars worth of engines—bearing this name plate—it quite firmly establishes the one answer for all farm engine needs.

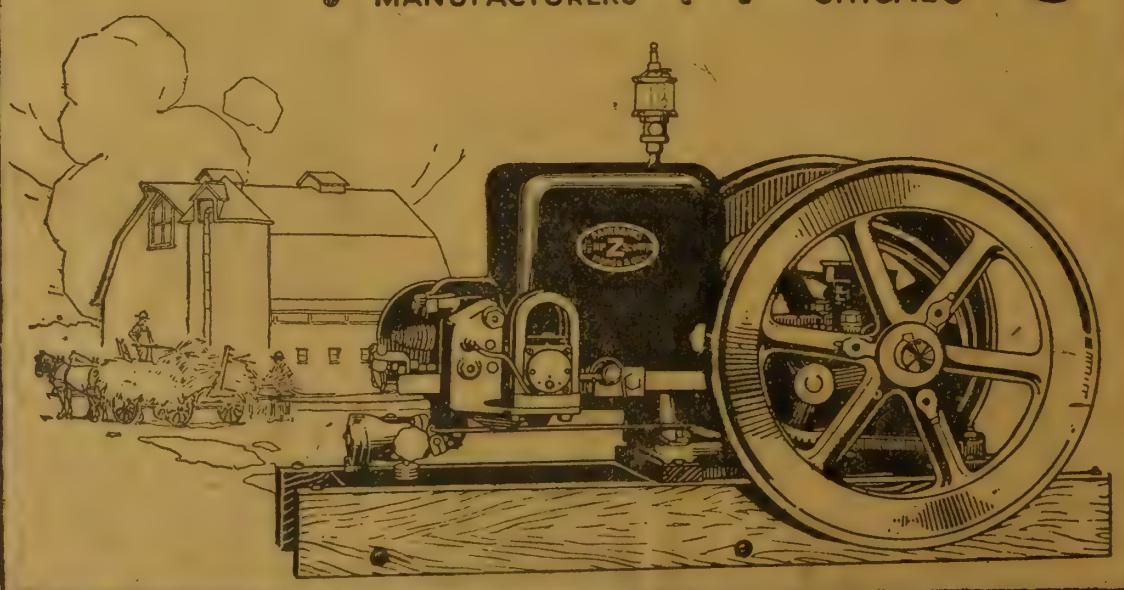
There's a "Z" engine dealer near you—have him tell you why he adds his name to ours in backing the "Z" after comparing it with all others.

Throttling Governor—Built-in Oscillating Magneto.

Prices—1½ H.P. $61.00—3 H.P. $100.00 — 6 H.P. $179.00 — F.O.B. Factory

Also runs on Distillate Coal Oil Tops or Gasoline

Fairbanks, Morse & Co.
MANUFACTURERS CHICAGO



Coulson's
Baby Chick Milk Mash

The Best Feed for first six weeks

Write for particulars to

Coulson Co.
Petaluma, Calif.



The Pride of Petaluma



VENTILATING BROODER STOVE

Has two RADIATORS hence double ECONOMY. Heat forced from stove with fresh AIR. It's PETALUMA'S only standard. If it don't SKIN 'EM all don't keep it. Get our free catalogue, No. 25.

Kresky Brooder Stove FACTORY

PETALUMA, CAL.

We Guarantee More Eggs

A good layer will transform one dollar's worth of food and supplies into $3 worth of eggs at present prices. To be a good layer a hen must be in top notch of health. That is GERMOZONE'S strong hold.

Germozone, three times a week, coupled with our simple directions for daily feeding, care and culling out slackers, is guaranteed to produce better and more permanent health and egg supply, or no pay.

One woman averaged 18 eggs daily from 21 hens in December. Germozone costs less than one cent per hen per month. See the profit.

Germozone cuts out the illnesses from musty or spoiled food, impurities picked up with food from floor, contagion through the drink, roup, colds, canker, throat inflammation, sour crop, etc. It goes well with any modern method of feeding—grain, vegetables, meat.

SIXTY DAYS' TRIAL—PAY IF SATISFIED. To those who agree to use as directed and pay if satisfied, we will send GERMOZONE first time on 60 days' trial, postpaid, without preliminary charge. Write today, stating how many hens you have. Germozone is sold by drug and seed stores in 75c and $1.50 sizes.

GEO. H. LEE CO., Dept. 418 Omaha, Neb.

HOW TO RAISE CHICKS

Just fresh from the Press—and free to all who send for it—a very valuable poultry booklet, telling why ninety per cent of young chicks die, how to prevent this loss, the secret of successful poultry feeding, many interesting items regarding the care and management of poultry, poultry diseases, their remedies and prevention. Write before edition is exhausted. Stock Yards Veterinary Laboratory, 1274 Laboratory Bldg., Kansas City, Missouri.

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At Reduced Price
Buy on your own terms. Save $15 to $200. Catalog FREE.



WITTE ENGINE WORKS
3100 Oakland Ave., Kansas City, Mo.
3100 Empire Bldg., Pittsburgh, Pa.

table. If I can find the chicks I want I shall buy a few to put with the brood she hatches. If she can raise 20 chicks, six or seven of which will surely be pullets, I shall have about all I want to raise this spring.

It is not the number of chicks you raise that counts, you know, but the sort of chicks they are, and the way they are raised, and the time when they begin to lay. I would rather have six pullets that began to lay in October and laid right along through the winter than 50 laggards that were not ready till January. To be sure of pullets that will lay in the fall, we must get them out in February or early in March and then keep them moving right along till they are fully matured.

But the sitting hen is not our only resource. There is the small incubator. If one has a good room to use it in it is a splendid thing to have a 60 to 100 egg machine just for getting out the early chicks. Personally, I prefer hens, because they are less trouble, but I have used the small incubators with great success and satisfaction, and many women and many more fanciers do use them and never set a hen. They even say the hen is more trouble than the incubator. Any one can learn to use an incubator, and it is one of the most fascinating of machines. A tray full of bobbing baby chicks, without any cross old hen to stretch her wings over them or to peck the hand that tries to cuddle them, is the most alluring picture imaginable—with one exception. That exception is a mother hen caring for her week old brood. She is the very essence of motherhood.

But why bother with hens or incubators at all when you can buy chicks in a hundred places? One can get Leghorns of almost any grade of excellence at hatcheries in every town throughout California. Other breeds are not quite so easily obtained but they can almost always be found by studying the ads., and you can buy them in season at almost any poultry supply house, to say nothing of the hatcheries. A neighbor of mine keeps no breeding stock. I do not know that she even has laying hens. She likes to have a chicken for the table coming along almost any time, so she goes to one of the hatcheries, buys 20 or 25 chicks at a time and raises them by hand—not in an expensive brooder, not even in a Philo fireless brooder, but just in a box with a hot water bottle to hover around at night. Farm women have raised chicks in this way since the beginning of time. A fireless brooder does very well if it is brought in at night or kept in a warm room or if the weather is not too cold. A box with a jug or jar of hot water and an old quilt or blanket for a cover is better, because chicks do like a little warmth. One of the regular outdoor or indoor brooders is better still. I have no desire to knock them. But the woman who has no hen and can not afford a brooder need not be deterred from raising a few chicks.

On the other hand, let no woman who has never raised chicks by hand try it till she has had lessons from an old hen. Brooding is no trick at all when you understand how the hen does it. It is the hardest thing in the world if you attempt it without having learned how. Better buy a good brooder than sacrifice tender chick life needlessly. Any one can follow written directions.

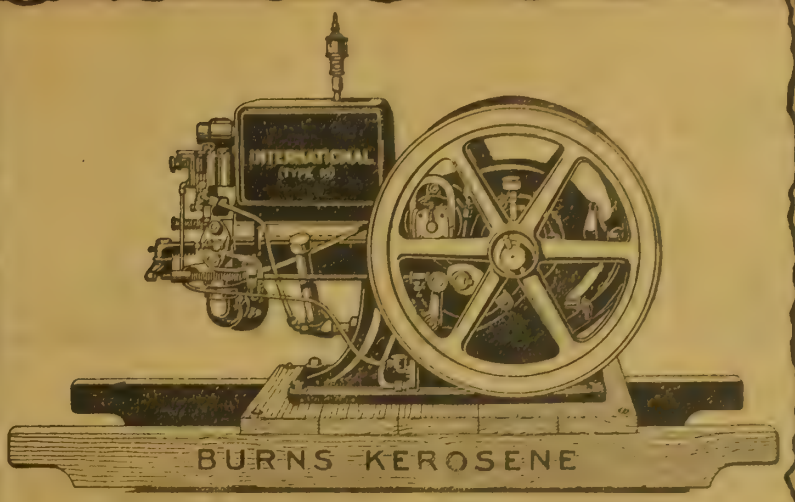
BLOOD TELLS

Gradually poultry breeding is becoming more like livestock breeding. It will not be many years until every buyer of a cockerel to be used in the breeding yard will insist on knowing the sire and dam of the cockerel before he buys the bird. The buyer will also want to know how many eggs were produced by the dam of the cockerel he is buying. Right now many buyers — some of them farmers, too—are demanding to know what's back of the birds they contemplate purchasing before laying down any money. The day of the scrub rooster in the farm flock has just about passed.

NECESSITY

"Are you willing to die for your country?"

"I'll have to be if the cost of living gets any higher."



THE PRESENT line of **International Engines** gives every farmer a chance to buy the very engine he needs at a price he can well afford to pay.

The sizes now run from 1 to 15-H. P., with a special line in the most popular sizes, known as the type M. All sizes, even the smallest, operate on common coal oil and other cheap fuels testing down to 39 degrees Baume. Every engine develops more than its rated horse power. All conform to International standards of quality, insuring good service, long life, and cheap operation.

It will pay any farmer who is in the market for a good engine, at a fair price, to pay close attention to the International line. If you can use a small engine, see the type M. It has a number of features which any engine-using farmer will appreciate.

The local dealer either has an International engine in stock, or he can get one for you. See him, or write us for complete information about engines or any others of the machines in the following list.

THE FULL LINE OF INTERNATIONAL HARVESTER QUALITY MACHINES

Grain Harvesting Machines
Binders, Push Binders, Headers, Rice Binders, Harvester Threshers, Reapers, Shockers, Threshers

Tillage Implements
Disk Harrows, Cultivators, Tractor Harrows, Spring-Tooth Harrows, Peg-Tooth Harrows, Orchard Harrows

Planting and Seeding Machines
Corn Planters, Corn Drills, Grain Drills, Broadcast Seeders, Alfalfa & Grass Seed Drills, Fertilizer & Lime Sowers

Haying Machines
Mowers, Tedders, Side Delivery Rakes, Loaders (All Types), Rakes, Combination Side Rakes and Tedders, Stackers, Sweep Rakes, Combination Sweep Rakes and Stackers, Baling Presses, Bunchers

Belt Machines
Ensilage Cutters, Huskers and Shredders, Corn Shellers, Threshers, Stone Burr Mills, Hay Presses

Belt Machines—Cont.
Cream Separators, Feed Grinders

Power Machines
Kerosene Engines, Gasoline Engines, Kerosene Tractors, Motor Trucks, Motor Cultivators

Corn Machines
Planters, Drills, Cultivators, Motor Cultivators, Binders, Ensilage Cutters, Pickers, Huskers and Shredders, Shellers

Dairy Equipment
Cream Separators (Hand), Cream Separators (Belted), Kerosene Engines, Gasoline Engines, Motor Trucks

Other Farm Equipment
Manure Spreaders, Straw Spreading Attach, Farm Wagons, Farm Trucks, Stalk Cutters, Knife Grinders, Tractor Hitches, Binder Twine

International Harvester Company of America
(Incorporated)
Billings, Mont. Crawford, Neb. Denver, Colo. Helena, Mont. Los Angeles, Cal.
Portland, Ore. Salt Lake City, Utah San Francisco, Cal. Spokane, Wash.

Investigate Our Complete Line of

Commercial Fertilizers

of our own manufacture, all organic, under the following brands:

"Banner" Brand
(Guaranteed Analysis)
Nitrogen, 4.00 per cent; Phosphoric Acid, 7.00 per cent; Potash, 1.00 per cent.

"Reliable" Brand
(Guaranteed Analysis)
Nitrogen, 3.00 per cent; Phosphoric Acid, 3.00 per cent; Potash, 1.00 per cent.

We respectfully solicit inquiries and will be pleased to mail booklet upon request.

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602-610 Kerckhoff Building, Los Angeles
Broadway 1381 Telephone, Home 60329

KILL THE SQUIRRELS
With
Liquid Flame
ASK US
The California Sprayer Co.
6001-6029 Pasadena Avenue
LOS ANGELES, CAL.

GOOD SEEDS



GOOD AS CAN BE GROWN
Prices Below All Others
I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K— money refunded.
Big Catalog FREE
Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.
R. H. SHUMWAY, Rockford, Ill.

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

My K Hand Stump Puller

Gives Your Hand 96,000 Pounds of Power



Big stumps! stumps and trees with deep tap roots! any stump that can be pulled with the best inch steel cable!—you *alone* can pull with my "K" Hand Power Stump Puller—*without digging and without the expense of teams and powder.* I guarantee it. I refer you to U. S. Gov. officials. I give highest banking references. If you have stump land, the cheapest way of clearing it is with the

Frank Hance, a *one-armed* farmer of Bowie, Md., pulling a double silver maple 3 ft. 8 in. in diameter at the ground, with deep tap roots. This is an easy pull for the "K," as the cable can be hitched high and the leverage is consequently greater.

HAND POWER

Stump Puller

How the "K" Pulls Biggest Stumps

The "K" works on the leverage principle of the ordinary lifting jack, except that the power is applied on a cog-wheel instead of a standard. 100 lbs. push on the lever develops a 48-ton pull on the stump—all an inch steel cable will hold. One man operates it alone—no teams to pay for—no walking.

A Mechanical Wonder

Made of finest steel—guaranteed against breakage. Weighs only 171 lbs.—easily carried or hauled about on its own truck wheels. Has two speeds—60 feet per minute for hauling in cable or for small stumps—slow speed for heavy pulls. *Works equally well on hillsides and marshes where horses can not* work

Owners Praise It

H. Sinclair of the Dept. of the Interior, a U. S. Gov. official, writes: "The stump puller is a wonder."

Ernest Thompson Seton, author and naturalist, declares the "K" "a great success."

Hundreds of owners write in, telling of pulling six- and seven-foot stumps, of pulling faster and pulling bigger stumps than by any other machine.

Special Offer I am making a special offer to get a "K" Stump Puller introduced in every neighborhood. Write me today for full information and for free book on Land Clearing.

Walter J. Fitzpatrick

Box 17 182 Fifth St. San Francisco, Cal.



H. G. Hunzicker of Foster, Wash., pulling a 24-inch fir stump with deep tap roots out of hard ground, without using powder or cutting any roots.

Tear Out and Mail Today

Walter J. Fitzpatrick
Box 17 182 Fifth St., San Francisco, Cal.

Send me full particulars on your special offer and your free booklet on Land Clearing.

Name_____

Address_____

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — February 15, 1919 — No. 7



From Washington Monument—Grounds of Department of Agriculture in Foreground



$1475
F. o. b. Racine

New Mitchell Sixes

Wheelbase 120 inches
Long-stroke Six motor
Cylinders 3¼ x 5
Tires 34 x 4

The New-Standard Six

Over 100 Betterments---50% Added Strength

The car we present now is a new model, built to new standards by new Mitchell specialists. It brings out for the first time all our new conceptions of how good a car should be.

War-time gave us our great opportunity. The great Mitchell factory was devoted to truck building. So our engineers and experts had 18 months to perfect this ideal Six.

They have added 50 per cent to the strength, 75 per cent to endurance, 25 per cent to economy and 20 per cent to beauty and comfort. Not in ten years has so great an advance been made at one step in this field.

Standards Too Low

Two years ago we concluded that all existing standards in Light Sixes were too low. The cars were too light. Most of them were too small. There was too much skimping to meet price competition.

Makers did not know requirements. What they called over-strength proved understrength too often. Hundreds of thousands of Light Sixes in use showed to us that standards needed raising.

Mitchell Sixes had been enormously successful. We were pioneers in Sixes. Our cars had won a world-wide reputation. Some had run over 200,000 miles. But we realized then that Mitchells also could and should be vastly bettered. And we resolved to do it, regardless of all rivals.

New Specialists

We added to the Mitchell staff many new specialists. Each was a man who had made his mark in high-grade car construction.

Then came the war, and we entered truck building. That gave these new men 18 months to design and perfect this new Mitchell.

They worked out more than 100 improvements. They spent over $250,000.00 on new equipment for better workmanship and accurate tests. They created a staff of 135 inspectors. Part by part they revised our standards, until they had added 50 per cent to the strength and 75 per cent to the endurance.

Some Major Changes

Your Mitchell dealer will show you countless improvements. But the best are shown only by tests. The gears, for instance, are made 25 per cent stronger. A new hardening process insures complete uniformity.

Rear axle strength is increased 50 per cent. Brake efficiency is increased 75 per cent. The steel frame is 1½ inches deeper, adding 50 per cent to the strength.

The steering gear is 10 per cent stronger, and it has two ball bearings. The crank shafts show a tensile strength of 150,000 pounds per square inch.

There's a new type of disc clutch. There are 123 drop forgings. Chrome-Vanadium and Chrome-Nickel steel are used in abundance.

But our long cantilever rear springs are unchanged. They could not be improved. They have made the Mitchell the most comfortable car in its class. And not a spring has broken out of 40,000 pairs.

Less Operating Cost

Gasoline and oil consumption are reduced 25 per cent. This partly comes through perfect-fitting cylinders. It largely comes through a thermostat which regulates the water system to maintain an even heat.

We use body frame material costing twice the usual to make the bodies staunch. We use interlaced hair in the upholstery, so it stays in place. We use four coats of varnish instead of the usual two, so the finish is enduring.

Our wheelbase is 120 inches to give ample room. Compare that with other five-passenger Sixes. We employ 135 inspectors and testers to insure that every part is right.

The Lowest Price

Still this new Mitchell, with all its improvements, undersells all rivals. It remains, as always, the lowest priced Six of its size and power and class.

This new car forms the supreme example of what factory efficiency means. We build the complete car, chassis and body, in a plant that is famed for its scientific methods. As a result, we continue to offer a value unapproached in this class.

Write us for further details. Then see this new car at your nearest Mitchell showroom. See for yourself what these new standards mean. You will fmd no other car this spring with so many new attractions.

Mitchell E-40

Price, $1,475, f. o. b. Racine
Wheelbase, 120 inches
Long-stroke Six motor with Cylinders
3¼ x 5
Tires 34 x 4
3-Passenger Roadster, same price
We also make a Touring Sedan

Mitchell Motors Company, Inc., Racine, Wisconsin

Embargo on Rice Restored

Discussing the rice situation, a writer in the Sacramento Bee says:

February 1.—Ernest Behr, chairman of the California rice committee, has returned from Washington, where he was sent by rice millers and growers of the state and announces that the problem of marketing California rice and its by-products has been solved.

After an explanation of the situation, the war trades board decided to restore the import bargo, entirely prohibiting the shipping to the United States of oriental rice. This embargo, effective January 25, will be left in force until the domestic crop is disposed of.

Another concession in favor of California growers was obtained by Behr from the Belgian relief commission, who agreed to lower the standard of rice shipped to Belgium from the Blue Rose type to Japan two parts and cracked rice one part.

In accordance with this decision an order for April rice for shipment to Belgium has been placed with California millers totaling 260,000 pockets of milled rice, or equivalent to 400,000 bags of paddy.

This shipment will practically exhaust the available supply of millable rice on the coast and since it will use up 80,000 pockets of cracked rice it largely solves the problem of the rice by-product market.

In order to take care of the screenings a cable was sent to Food Administrator Hoover, asking that the war regulation prohibiting grains in the manufacture of malt beverages be modified to permit the use of brewers' rice, or rice screenings, for the manufacture of near beer.

An immediate outlet for the local crop was provided by the chartering of a steamer which will sail for Porto Rico about February 10 with a cargo of 200,000 pockets of cleaned rice.

The action of the war trades board in restoring the embargo against foreign rice has met with disapproval on the part of importers and also of congress, which claimed usurpation of its power to regulate the tariff. However, this action was taken by the board only as a last resort to make possible the carrying out of the government's signed agreement with the rice growers.

Behr found a tendency on the part of several United States grain corporation officials to favor a canceling of all war time agreements and return to the unrestricted markets of prewar times. He opposed such a view by showing that the rice men, in voluntarily agreeing with the food administration to limitation of the price, had lost the opportunity they had for a better market at that time. It would therefore, he argued, be unfair to ask the growers to surrender their contracts with the food administration at a time when the market was poor and the price much lower.

The condition in which the Southern growers found themseves at the present time, Behr states, is very serious, as they have an equivaent of 3,500,000 100-pound bags of rice still unthreshed, much of which will be damaged so as to preclude its sale in the domestic market.

Cotton Planting

The recent meeting of San Joaquin Valley cotton growers at Fresno gave opportunity for a manifestation of much interest. It was a big meeting in number of attendants and in numbers of questions presented.

Most of the cotton planted in the San Joaquin was of the long staple, though some planted Durango. The favorite long staple was the Pima, or Arizona produced seed. It is urged that San Joaquin Valley producers center on long staple in order to produce a pure seed.

From report of the meeting in the Kerman News by A. R. Taylor we give the following points on San Joaquin Valley cultural practice:

Time of Planting

Experience shows that the cotton should be planted during the early part of April, using 20 to 30 pounds per acre and planting about two inches deep in a well prepared, moist seed bed.

Soil

Like most crops, only good soil should be planted to cotton. Strong alkali land or heavy land with water table close to surface will not give best results with cotton irrigation. A uniform moisture condition should be maintained during the first part of the growing period. Do not produce continual late growth by late irrigations.

Cost of Production

The only itemized figures showing cost were given by Mr. Frisselle of Kearney vineyard. These figures showed a total cost of $63 per acre from preparation of the seed bed to the hauling to the gin inclusive. Six hundred and sixty-six pounds of seed cotton were produced per acre.

Production

The production figures for the past year were mostly low due to late planting and inexperience of growers. Average production figures mean very little. Statements have been made at least unofficially by some of the government men that Pima long staple should return a net profit of $100 to $125 per acre.

The tarnish bug and squash bug caused about 14 per cent injury to the cotton this year.

In the Salt River Valley, the average yield of long staple this year is about one-half bale per acre.

Mr. Kaufman, of the bureau of statistics, stated that the average production of lint cotton in California for 1918 was 265 pounds; that 2500 acres of cotton were planted in the San Joaquin Valley and 1200 acres harvested. In Fresno County 300 acres were picked.

Durango cotton yields heavier than long staple, matures earlier, is easier to pick and so costs less per pound to pick.

Of the long staple, the Pima is considered the best strain. The long staple requires a longer growing period than Durango, yields less per acre, is more difficult and so costs more to pick, but is better quality and worth more per pound.

EUROPE LIKES AMERICAN MILK

European people have learned to like American dairy products. Exports of condensed milk to Europe rose from 16,000,000 pounds in 1914 to 530,000,000 pounds in 1918, and there were notable increases in exports of other dairy products. Much of this may be due to abnormal war demands, but the United States department of agriculture believes that there is both an opportunity and a tendency to expand in this direction over prewar requirements. A normal increase in dairying in this country, the department thinks, is fully justified, provided there is the necessary increase in feed crops.

RUNNING AN ENGINE

The United States department of agriculture has issued some practical hints on running gas engines in Farmers Bulletin 1013. There are only 16 pages in the bulletin, but it is packed full of suggestions to inexperienced runners of gas engines on avoidance and remedy of some common engine troubles. The last page is given up to a trouble chart which enables one to quickly locate and diagnose cause of "Loss of Power"; "Misfiring"; "Pounding"; "Backfiring"; "Explosions in Exhaust Pipe"; "Overheating"; "Irregular Speed"; "Smoke."

FEET THAT DIDN'T FIT THE STYLE

"These shoes are too narrow and too pointed," complained the stout man who was having trouble in being fitted.

"But," explained the salesman blandly, "you know they are wearing narrow, pointed shoes this season."

"That may be," said the stout one with dangerous calm, "but I am wearing my last season's feet."

"Good will among men is a prime necessity of reasonable living."—Arnold Bennett.

Valley Seed Co.

1919 Seed Catalog

IS FREE **Send for It**

TELLS HOW, WHEN AND WHAT TO PLANT

WE PAY THE FREIGHT

SEED POTATOES

Fancy hand-picked stock, which we offer as follows, delivered at your railroad station, for prompt orders:

Early Rose.....$3.50 per 100 lbs.
Am. Wonder..$3.50 per 100 lbs.
Garnet Chili....$4.00 per 100 lbs.
Gold Coin.....$4.00 per 100 lbs.
White Rose....$4.00 per 100 lbs.

On orders for ten bags and up, 25c per 100 lbs. off above prices.

Alfalfa Seed

When buying Alfalfa Seed from us, you are getting positively the cleanest stock obtainable. Our Seed Cleaning Plant is the best equipped in the West, enabling us to make seed absolutely clean.

ALL KINDS OF RELIABLE

Spraying Materials

WRITE FOR PRICES

VALLEY SEED CO.

Front and M Sts. **Sacramento, Cal.**

THE BASIS FOR ORCHARD PERFECTION — CROW TREES — TRADE MARK

Prune Trees

We can still supply a few thousand each:

FRENCH on Myro., almond, apricot and peach roots.

IMPERIAL on Myrobalan.

SUGAR on Myro., almond and apricot.

CHERRY, leading commercial sorts.

JAPANESE PERSIMMON, American grown, sure to grow.

A Full Line

of all that is best in Fruit, Nut and Ornamental Trees, Vines and Plants; and our prices are low. Write for our Price List; free.

Crow's Nurseries

Gilroy **California**



Prepare for the Irrigation Season

Dry weather will be here within a few weeks. Orders for pumps should be placed now to insure prompt delivery.

Layne & Bowler Turbine Centrifugal Pumps are manufactured in capacities ranging from 180 to 4500 gallons per minute.

Ask for new illustrated folder No. 30.

Layne & Bowler Corp.
900 Santa Fe Ave., Los Angeles

PREPARE

Send for Our New **Catalogue**

MORRIS & SNOW SEED CO.
439 S. Main St. (under Roslyn Hotel) Los Angeles, Cal.



The success of a crop is often determined by the selection of a top dressing. When using a nitrogeneous fertilizer for this purpose, choose ARCADIAN Sulphate of Ammonia, because:

Having been dried and ground, it is dry and fine, so that it will drill or broadcast easily.

It is a definite chemical compound containing 25¼ per cent. ammonia, or 20¾ per cent. nitrogen.

The nitrogen is readily soluble and it is all quickly available. It does not leach out of the soil easily, and is ready for use when the feeding roots need it.

It does not deteriorate with storage. In chemical composition it is particularly suited to California soils.

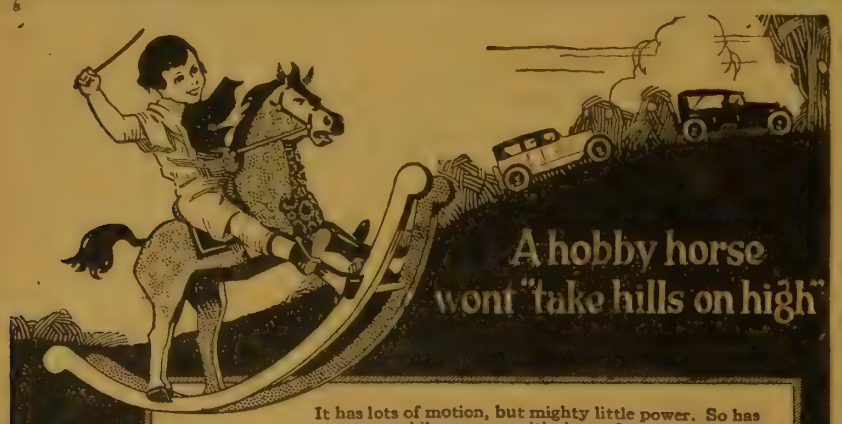
Arcadian Sulphate of Ammonia

ARCADIAN Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past. Especially kiln-dried and ground to make it fine and dry. Ammonia 25¼ per cent guaranteed. Made in U. S. A.

For sale by Hawaiian Fertilizer Co., Limited, San Francisco
Pacific Bone Coal & Fertilizing Co., San Francisco and Los Angeles
Pacific Guano & Fertilizer Co., San Francisco and Los Angeles

For Information as to Application, write The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.



It has lots of motion, but mighty little power. So has an automobile motor with imperfect or worn-out piston rings. Too much power leaks past the rings. Better piston rings mean greater power. It will pay you to install a full set of

McQUAY-NORRIS
LEAK-PROOF
PISTON RINGS

Increase Power—Save Gas—Decrease Carbon

For eight years these rings have been taking the "slant out of hills." Power producers because they create uniform pressure all around the cylinder wall, leaving no place for the power to slip past.

Wherever you are you can get McQuay-Norris LEAK-PROOF Piston Rings to fit any car, truck, tractor or other engine. Jobbers in over 300 distributing points carry complete stocks of sizes and oversizes. Many thousands of dealers can extend to you our service, which enables them to specify your size requirements for practically every make or model of motor without delay.

Send for Free Booklet "To Have and to Hold Power"—a simple, clear explanation of piston rings, their construction and operation.

Manufactured by
McQuay-Norris Mfg. Co., 2832 Locust St., St. Louis, U.S.A.

McQUAY-NORRIS Superoyl RINGS

To control excess oil—In motors where flow of oil is excessive, the use of one McQuay-Norris Superoyl Ring in top groove of each piston will correct this condition. In lower grooves, McQuay-Norris LEAK-PROOF Piston Rings should always be used. 10F



THE ARNOTT ENGINE HARROW

This is the strongest engine harrow of its type sold on the Coast. Heavy axles, heavy discs. Built for service. Do not accept any imitation said to be the same. Only one genuine "ARNOTT" eight, nine and ten feet wide. Write or call for full information.

ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

FAGEOL
WALKING TRACTOR

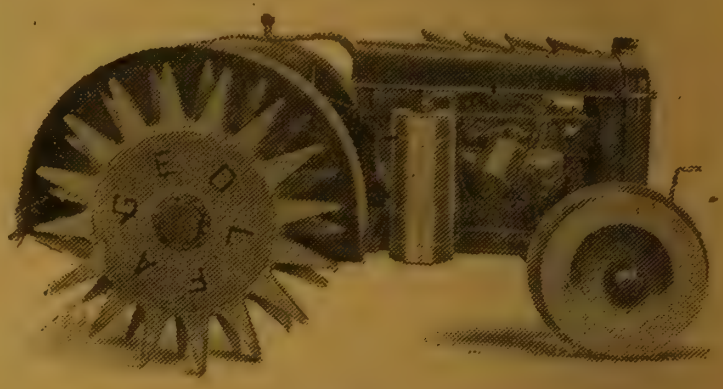
TO pull as steadily in hard ground as in soft, a tractor must have traction without slippage.

The Fageol Walking Tractor with 64 legs secures traction in the same natural way as does a team of like weight with eight legs.

Steady, constant pull of the Fageol in all soils makes for lowest possible operation costs.

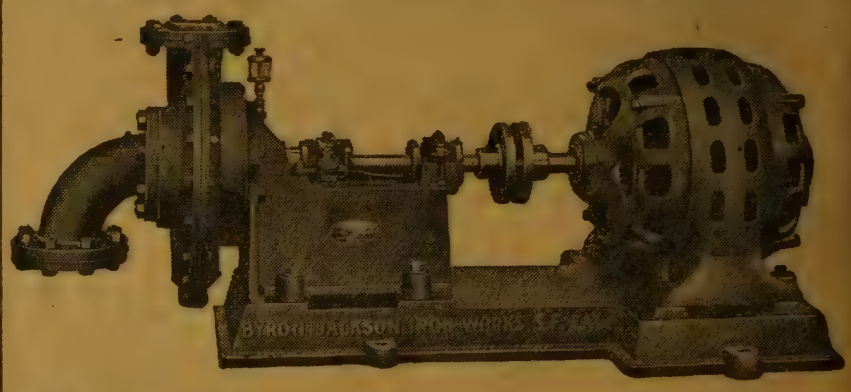
An illustrated Booklet descriptive of the Fageol sent upon request. Write for it.

BUTLER-VEITCH
INCORPORATED
Sales Organization—Fageol Products
308 Syndicate Bldg., Oakland, Cal.



251-4

RUDDLE & MENNILLO
Southern California Distributors for
"FAGEOL" WALKING TRACTORS
231 North Los Angeles St. Los Angeles, Cal.



Have You a Producing Ranch?
If not, Why not?

The difference between a "live" and a "dead" Ranch is "Water" and "No Water."

"Byron Jackson" Pumps meet every water condition
Write us giving your water conditions and requirements.
Our New Catalog No. 60-B for the asking.

Byron Jackson Iron Works, Inc.
Los Angeles ***San Francisco*** ***Visalia***
Portland ***Salt Lake***

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

California Cultivator

Vol. LII, No. 7 | Los Angeles: February 15, 1919 | One Dollar Yearly

Uncle Sam---Agriculturist

By C. B. Messenger

WHEN one has had long association with any particular organization, and from a long distance, he is reasonably sure to have formed conclusions as to the location and general appearance of the visible things connected with it, which, when he comes in contact with them, are sure to be different.

What my impressions were as to the appearance of things in Washington, with especial reference to the department of agriculture, is of little moment, though I will refer to one impression, and that one was a picture of one great building housing all activities of the department of agriculture. Color was given to this picture by the knowledge that Former Secretary of Agriculture Wilson had a plan —which has been partially carried out —for one great agricultural building on the grounds of the department, something like two miles from the capitol building. But construction work on this building—which began many years ago—has been stopped, with its two separate wings completed and occupied, but with the great central dome, or principal feature architecturally, as yet visible only on the plans. The photos on this page give something of an idea of the present appearance of this great agricultural building. The best general impression, however, is given in the illustration on the cover page, which was taken from the top of Washington monument which stands within a few hundred rods of the grounds of the department of agriculture.



East Wing of New Building

The relation of these buildings to each other is best shown on the cover page, where, in the lower right hand corner of the engraving, one sees the two great white buildings, separated by several hundred feet, which are expected to be connected by a large domed structure. The original department of agriculture building is shown in the cover illustration directly in front of these two wings. This building is a dark red brick and not at all prominent in the engraving.

In this general view from the monument the original headquarters of the department is one of the nearest buildings, though not prominent at all because built of dark red brick. Immediately back of it are the two wings of the new agricultural building waiting for another appropriation by congress to give the funds for its completion. But other structures in different parts of the city of Washington, many of them business blocks, house a great number of the bureaus and divisions of the department. For example, farm management is in a little old four story structure on a business street. The weather bureau occupies an especially constructed building of its own, but still some distance from the old headquarters. The forest service and the bureau of chemistry are in other business blocks, while the bureau of markets and the biological survey occupy an eight story government structure across the street from one of the new wings of the main agricultural building.



Administration Offices of Department of Agriculture

Secretary Houston's offices occupy part of lower floor at the end of the building at reader's right. General offices and assistant secretaries offices occupy other lower floor rooms.

In seeking the center of department activities one is directed to "the head of 13th Street." There a large park with several glasshouses and many large specimens of native American trees afford a setting for the old agricultural building, decidedly out of date, but withal very comfortable and complete. Secretary of Agriculture Houston's office is at one end of this building, as are the offices of his assistants and clerks. The secretary's office is large, fitted with ordinary leather upholstered chairs, with a large mahogany desk in its center. It is large enough to accommodate a delegation of 60 or more people.

The central building—to be—for the department headquarters is partially completed, immediately to the rear of this old building. The wings, separated by several hundred feet, show the making of a wonderfully beautiful structure some time. We are not informed as to whether any immediate steps are to be taken to finish this structure—presumably not during reconstruction days.

The magnitude of the activities of the department are so apparent when one sees this great number of buildings occupied by the different specialists and clerical workers that the question automatically comes, "What is covered or—perhaps more correctly —what is not covered by the activities of the department?"

To gain this information I was sent to the chief of the division of publications, Mr. E. B. Reid, and I asked him if he would not make for California Cultivator readers a statement of the activities of the department, especially during the past few years of war time. Mr. Reid has complied with this request, and the statement which follows is merely an outline, for any account of the detailed work of the department would require volumes.

As one indication of the magnitude of the work we may call attention to the fact that during the past year congress, by the regular appropriation of the Smith-Lever act and special appropriations as a war measure, allowed for extension work, or, in other words, the work of the farm bureaus and county farm agents, the enormous sum of over $17,000,000. The Smith-Lever act allowed, after a period of several years from its enactment, to this extension work a maximum of $9,000,000 annually. The war appropriation ends, we believe, July 1, and congress is now considering as to whether the reconstruction period calls for a continuance of the special appropriation. This is a matter for concern on the part of those interested in the farm bureau movement, but presumably the appropriations will not be for some years as large as during the past year.



West Wing

The above illustration shows about one-third of the great building to-be when the dome is completed. This is also shown in the extreme lower right corner of engraving on cover. These two wings are filled with offices of the various bureaus and divisions of the department of agriculture. Almost exactly in the center of the engraving on the cover page, and rather indistinct, are the buildings of the Smithsonian Institute. The national capitol is plainly seen in the distance, nearly two miles from the Washington Monument from which the photograph was taken. The Congressional Library, also rather indistinct, is immediately beyond the capitol.

But as to the other activities of the department, here is the outline as given by

E. B. Reid

Uncle Sam, agriculturist, is busier than a shipbuilding plant during a naval emergency. He supervises the farming of 289,000,000 acres which stretch from Alaska to Hawaii, from the Golden Gate to the statue of Liberty, while he husbands the production of crops which feed not only 110,000,000 Americans but which now are the foundation of the rationing of the entire world.

The activities of Uncle Sam are visualized in the efforts of the department of agriculture and its force of 25,239 workers who are spreading broadcast the doctrines of better farming and improved agricultural practices. Be it weather conditions, animal contagion, plant disease, soil sickness, fertilizer problem, farm labor tie-up, marketing puzzle, woodland riddle, farm management enigma, highway controversy, or one of the thousand odd other mysteries of farming operations which arises, the United States department of agriculture is prepared and well qualified to give expert assistance. Daily through the service of 5218 county agents as well as its hundreds of expert field agents, the department is aiding farmers right out in the field and paving the

Continued on Page 222

Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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Saturday, Feb. 15, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Washington is a beautiful city, but its magnificent distances and beautiful government buildings have been referred to so often that perhaps some of us are disappointed at our first look at the city. One thing at least which causes remark is the wonderful Pennsylvania Avenue leading from the national capitol to the White House. This is lined much of the way by shops which do not add to its appearance, but we give on the cover of this issue a beautiful view of this beautiful city, for, really, after one has visited its many parks and notable buildings its real charm is appreciated more than when traversing Pennsylvania Avenue. The illustration is from a photograph taken at the top of Washington Monument and is of interest to Cultivator readers because of the fact that this particular view brings into the immediate foreground the park in which are the greater number of the buildings housing the activities of the department of agriculture. As to these activities there is a fund of information in the article beginning on third page of this issue.

BOLSHEVIKI OUSTED

The citrus growers are giving short shrift to the I. W. W.'s and Bolshevik agitators who are endeavoring to frighten orange pickers who are willing to work at a wage less than four dollars per day of eight hours. Several of the agitators have been arrested and the incensed growers are now so thoroughly organized that the agitators are showing weakened nerve and it is hoped will soon quit the field.

CHIEF FARM MANAGEMENT

The department of agriculture announces the appointment of R. L. Adams, formerly of the University of California, as acting chief of the office of farm management. His services began January 1.

GLORIOUS RAIN

The state has been saved by another glorious rain; from Shasta to San Diego there has been a general wetting. The precipitation is not sufficient to give abundant crops without more, but there is still two months of the rainy season. If a fair average over a period of several years is equalled this year, we can then be assured of a wonderfully successful season.

INCOME TAX RETURNS

The revenue office has served notice that there will probably be no extension of time beyond March 15, by which date all returns or reports of each person's income must be in the hands of the tax collector. Unfortunately, the office is not ready yet to give out the blanks on which these returns may be made, but these evenings should be given up to completing one's bookkeeping for the year 1918 and having all the information ready for copying on the blanks once they may be had. This will not be until congress has finally agreed on all the terms of the new law.

PURE SEED LAW

The present session of the state legislature must certainly give to California a pure seed law. The state has long been the dumping ground of foul seeds, and it's time our legislators rendered that much of justice to the producers. The proposed law places its enforcement in the hands of the state horticultural commission and calls for the offering on the market of only seed reasonably free from weed pests and reasonably free from dead seeds. The situation this year as to supply and effective distribution is not favorable to the grower. Production has been small; American and European demand will be large. Unless California is prepared to protect herself the state will be liable to plant many seeds not wanted in other sections. California is taking the initiative in many progressive movements, but in the matter of a pure seed law she is resting altogether too easy.

BETTER ROADS

Secretary of the Interior Franklin K. Lane has said that: "You can judge the civilization of a nation, or of any part of a nation, by the character of its highways."

When we have taken a ride over some of California's glorious roads we feel reasonably secure in the judgment which would be passed upon the civilization of this state, but at the same time there are some roads in California yet which might induce severe criticism of our degree of civilization. Hence some of our biggest thinkers are making serious investigation as to road conditions. Conferences have been held, and more will be, and the 33 millions which already have been voted in bonds for good roads may be materially increased, or at least the opportunity to materially increase these bonds may be given to the voters of this state at a later election. Some optimistic believers in California's good roads suggest that the next bond issue shall be for at least $30,000,000.

WHEN EAST COMES WEST

There is a widely quoted bit of philosophy concerning the manufacture of mouse traps, that, in substance, is to the effect that the buying public will seek out the man or community producing in greatest perfection any one thing.

We attach considerable importance to the recent sale of a carload of registered Berkshires to a Pennsylvania buyer, for the reason that it demonstrates what can be accomplished along the line of live stock production in this state.

There was no sentimental reason why the Eastern buyer should come here. He came because California produces the best Berkshires. And if breeders of other classes of live stock will spread their sails they can be certain of attracting the highest class of buyers. Buyers go where the best is produced—it makes no great difference whether it is Maine or California.

Any state that can produce the variety, quality and abundance of feed that is possible in this state is bound to develop as a great breeding ground.

Some day the term "California bred" will have wide application and important significance.

STOP THE FIRES

An educational campaign has been conducted for years in the endeavor to induce people to use greatest care, when camping or traveling in the mountains of California, to prevent disastrous fires. The state forester and several of the national forest supervisors have made regulations most stringent and arrests have been made and heavy fines imposed for carelessness. The state forester is now asking for more power in the matter of fire control. He is urging the passage of Senate Bill 399, introduced by Senator Ingraham. This bill provides for such rules and regulations as may be necessary for the organization and maintenance, government and direction of a fire protective system. It provides for the establishing of fire districts, the appointment of a district fire ranger, the securing of proper fire prevention and fire fighting equipment, and the organization of volunteer companies.

Several counties of the state have made appropriations and provided fire fighting apparatus, but this has not been sufficient to properly protect even a small per cent of the fields and forests. This bill, if made a law, will give strength to this movement and save millions of dollars worth of valuable property.

Let us have Senate Bill 399 made into a law.

GROW BEANS

Now comes a letter from Tulare County regarding our comments on the bean situation. The writer suggests that it appears that Lima bean prospects for the coming year are not at all bright and asks as to the probability that other beans such as Pinks, Blackeyes, etc., will "enjoy" the same poor market. Beans is Beans and no one has any particular edge on another but we hasten to say that while we have been frankly discussing a very disagreeable situation amongst ourselves there is no occasion whatever for losing our interest or rather our hearts in the matter of going ahead and producing what the world wants.

There is a great quantity of beans on hand. Worse, there has been woeful mismanagement in the moving of these beans to market, and while this situation is not as yet corrected, there is a spirit manifested which will result in its correction. Beans are a staple food and will be as long as the world lasts. We confidently believe that before another season's crop is being threshed thousands will be eating California beans and asking for early delivery of the new crop. Everlastingly trying some new crop can only result in indifferent yield and disappointing financial returns. Every competent authority who has investigated the world food situation, the surplus and the probable production of the next 12 months, has insisted that if proper distribution of all the food which can be grown can be secured there will be call for every pound of food products.

MORE BEANS

Anton Serres, whose articles on the bean situation are creating no little interest, especially in view of the fact that the situation is "getting no better fast," writes, suggesting the publishing of a list of California's senators and representatives in order that producers may write them urging such steps as may give relief to those who answered the call of their country to produce more food, but who are not able now to get the food started on the way to the hungry people.

The representatives of California's 11 districts serving in the present congress are: 1,Clarence F. Lea; 2, John E. Raker; 3, Charles F. Curry; 4, Julius Kahn; 5, John I. Nolan; 6, John A. Elston; 7, Denver S. Church; 8, Everis A. Hayes; 9, Chas. H. Randall; 10, Henry Z. Osborne; 11, William Kettner. The senators now serving are: Hiram W. Johnson and James D. Phelan.

An advertising campaign to increase bean consumption is suggested by Mr. Norswing in a recent Cultivator, and the same procedure has also been suggested by Manager Churchill and others of the bean growers association. Beans make one of our best foods, yet are not fully appreciated by the people who would consume great quantities of them if they could see two or three colored illustrations of a right nice bean on the back cover page of some great Eastern magazine. Speaking of Eastern magazines, we are reminded that there are perhaps some California publications which may extend the gospel of the bean and encourage its greater consumption.

But above all, the biggest one feature of this bean situation is the lack of complete cooperation. Get every bean grower in the state into one powerful organization with an efficient manager, and advertising and a number of other things will be settled so quickly that beans will begin to move.

The greatest of world wars has been won by cooperative effort, and cooperative effort has been boosted during the past four years as never before in the world's history. Let the bean grower get wise. This cooperative organization can be made so strong that it can not only make thorough investigation of market conditions the world over, and carry on a great campaign of advertising, but in addition can devise means of putting its food in most attractive shape in order to increase sales. Whether the establishing of a cannery under control of the members is feasible or not we cannot say, but we may refer to the fact that the citrus fruit growers are now processing their own culls and low grade fruit and making highest grade products of them, securing fair return to the grower.

The possibilities of cooperation have not yet been half told.

Bean Situation---Mass Meeting at Oxnard

THE bean situation has cleared but little during the past week. Eight or a dozen cars are being shipped from California daily, while imports to Pacific Coast points are often as great as the entire outward shipment. During the week Manager Churchill of the California Lima Bean Growers Association has returned from a trip East with little encouragement for a betterment of the situation. He thinks the effort to have set aside for the purchase of beans a portion of the $100,000,000, appropriated by congress to feed starving Europe will not succeed. The understanding seems to be that this appropriation was made for the purpose of transferring to the food administration the great stores of army supplies now in France, and that but little, if any, of it will be used in purchasing food in America.

On Wednesday of last week bean growers gathered in mass meeting at Oxnard and passed the following resolutions:

"Whereas, the government of the United States, through its food administration and otherwise, prior and during the planting season of 1918, by every means possible repeatedly requested, urged and encouraged the bean growers of California to increase the bean acreage until every available acre should be utilized with the end in view of supplying as nearly as possible the abnormal demand for foodstuffs throughout the war devastated world, basing the request upon broad patriotic and humanitarian principles; and

"Whereas, the bean growers of California responded with such intelligent, painstaking labor and disregard for the expense of production that they succeeded in raising one of the largest crops of beans ever produced in this state, and

"Whereas, now that the crop has been successfully grown and harvested they feel that they are entitled to a just return for their labor and expense. But, to their dismay, they find that there is not only no market for their beans at a reasonable price but that beans which have been grown under more favorable economic conditions are being imported by hundreds of tons almost daily; and

"Whereas, there is still unmarketed in the state of California more than 60 per cent of the entire bean crop with no immediate prospect of disposing of the same or any substantial part thereof, and

"Whereas, the inability to dispose of their beans has made it impossible for many farmers to meet their obligations; therefore be it

"Resolved, that no matter how anxious and willing we are to do our part it will be almost impossible for us either as individuals or as a community to absorb our share of the forthcoming Victory bonds, unless relief comes soon; and

"Whereas, the congress of the United States has appropriated the sum of $100,000,000 to be expended in providing food for the famine stricken districts of Europe; and

"Whereas, beans constitute one of the most concentrated and staple foodstuffs that can be secured; now therefore be it

"Resolved, by the bean farmers of California now in this meeting assembled, that the government be urgently and earnestly impressed with the wisdom and justice of investing in beans, including Lima beans, not less than $20,000,000 of said $100,000,000, allotting 65 per cent of the amount so invested to California, inasmuch as that proportion of all the beans in the United States is now stored in this state; and be it further

"Resolved, that copies of this resolution be forwarded by the secretary of this meeting to our two United States senators and all of our representatives in congress as well as to the grain corporation of the United States food administration."

In addressing the mass meeting Manager Churchill said, as reported by the Oxnard Courier: "As nearly as I could learn while in the East, a considerable part of this $100,000,000 is to be turned over for food that is already in Europe, having been sent there by our government months ago when it was supposed that the war would continue some time. . . I think however that conditions are such that it would be well now to make some expenditure in advertising. Beans of every description are being consumed in less than normal quantities. Against that, more beans have been produced than in former years, owing to government request to farmers to produce the utmost amount of foodstuffs to assist in feeding the armies and the civilian population of our allies. . . . So it would seem to a certain extent that consumers have gotten away from using beans and advertising seems to be the best method to bring them before the public. I can announce that the Lima Bean Growers Association is willing to take its full pro rata part in any advertising campaign that should be stimulated. The association is now formulating plans to that effect for the coming season, but probably we should not wait till the coming season, but begin at once."

Chairman — If the government asked for 100,000 bags of Lima beans today could they get it, outside the association? What we want to do is to get some kind of a pool together so as to be able to quote in case government or other outsiders ask for it. Some effort ought to be made to get some of these beans together.

Continuing his discussion of the bean situation, which he started in the issue of February 1, Mr. Anton Serres, in a letter just received, says:

* * *

Anton Serres

Yesterday I received a letter from my brother living at Mairy, Department of Meurth-en-Moselle, France. He underwent all the hardships, privations and atrocities afflicted upon the poor people by the Boches during four and a quarter years. The poor people are stripped of everything; their stock, their poultry, their machinery, their crops, their tools and implements, their harness, their linen, and even their clothing has been taken away by the Huns. They were driven to work by armed guards and were nourished by American and Spanish committees, receiving two pounds of dried vegetables and ten ounces of bread daily per person.

They surely would welcome beans shipped to them from America, since these beans would be the cheapest and most nourishing food for them, meat being so high and scarce that it cannot be obtained, Our government made large loans to the Allies; we farmers bought Liberty Bonds and our wives and children bought War Savings stamps, as far as we could stretch our means and our credit, just to help our country and the Allies in winning the war. Many of us farmers borrowed money from the banks to buy Fourth Liberty bonds, hoping to be able to pay our notes given then as soon as we could sell the beans. These notes will soon have to be redeemed or exchanged by other notes bearing a high rate of interest. Some farmers had to sell their bonds of previous issues at a rebate just to provide victuals for their families.

Our government is pledged to assist in feeding the starving nations and will soon launch the Victory Liberty Bonds on the market. We surely would gladly buy the bonds to assist Unce Sam in paying his troops in Europe, in caring for our diseased and wounded soldiers, and in helping the poor people of France and Belgium to start life anew again. There are millions of sacks of beans in our warehouses, ready for sale and transportation to the starving people of Europe. But between our charity and our good will on this side of the Atlantic and the uplifted arms of starving nations on the other side stands the greed of cold blooded food speculation and stops charity and happiness here and abroad. It is not to wonder that Socialism spreads and even Bolshevism gets a foothold, if such conditions can exist in a free country.

I pray all readers to unite and present this condition of affairs to the senators and representatives of their states and of our country, that everybody shall get a fair deal and an appropriate compensation for his labors.

Department Aids Citrus Fruit Growers

The occurrence of the mottle leaf in California citrus orchards is an indication by the plant that the soil in which it is growing lacks some element of plant food. The investigations of the specialists of the department of agriculture have revealed the fact that this condition is more frequently a result of lack of humus in the soil than of any other single soil ingredient. As a result of these investigations much interest has been aroused among growers in regard to the question of the humus content of the soils in citrus orchards, and many growers are using every practicable means at their disposal to increase the amount of decaying organic matter in the soil by the use of manure and cover crops. The department specialists have also conducted soil moisture measurements in citrus groves to determine the distribution and dissipation of water following irrigations and have studied the changes in plant behavior caused by varying amounts of available moisture in the soil during the intervals between irrigations. It was found that frequently all the water available for plant growth was removed from the soil before the next irrigation was made. The determination of this fact has resulted in a more frequent application of water to orange groves on certain soils by many growers.



A Twenty-Mule Plow Getting Into Action in a California Nursery

When this monster "15" plow is started down the long nursery rows thousands of trees are "lifted" in a very few minutes. After it has passed workmen come along and pull the trees from the loosened soil, after which they are taken on monster motor trucks to the nursery yard where they are "calipered", classified, and later placed in either "heeled in" rows or in monster bundles or bales for delivery to the orchardist. This scene is in the Kirkman Nurseries at Fresno.

Agricultural News Notes of the Pacific Coast

Northern California

Eggs in San Francisco have dropped almost to prices which will induce cold storage.

The Oroville Register reports that 90 per cent of the nursery trees shipped to Butte County are prune trees.

Engineers are investigating the bed of the Feather River at Big Bend with the expectation of dredge mining.

In order to protect the established stockmen five year grazing permits will be granted in El Dorado national forest.

Yolo County maintains she is the first county in the state in the production of almonds. Colusa says, "'Taint so, we are it."

Butte County orchardists are encouraging a movement to secure attractive names for all the home places of the county.

Directors of the Solano County farm bureau recently met at Dixon and discussed the labor question, also irrigation and drainage.

Another light rain was given to the entire Sacramento Valley late last week. Precipitation is generally above average at this date.

Lake County and Mendocino County people are supporting the plan to build a state highway from Cisco in Nevada County to Ukiah.

The state senate has passed the joint assembly bill appropriating $300,000 for use of the state reclamation board in building the Sutter bypass.

The legislature has been asked to oppropriate $500,000 to pay for the construction of a highway from Redding, Shasta County, to Alturas in Modoc.

Preparations for bulk storage of grain at shipping points are being made by farmers near Dixon, Solano County and at several points in the valley.

Articles of incorporation were filed February 4 by the Vegetable Growers of California. This includes growers in Sonoma, Marin, Alameda and Santa Clara Counties.

The courts have been asked to prevent the San Joaquin drainage district from constructing a water passage or spillway so as to divert flood waters of the Sacramento into the Yolo Bypass.

The California rice commission of the food administration reports still in warehouses 1,337,350 bags of rice, much of which is not yet in milling condition because of being still in the "sweat."

Sonoma County is considering a plan for building a highway through to the ocean, running through Kenwood, Santa Rosa, Sebastopol, Freestone, Bodega, and Salmon Creek to Ocean View.

A big tractor demonstration will be held at Sacramento this spring, exact date not yet determined. It will be held under direction of the California Tractor and Implement Dealers' Association. R. M. O'Neil will manage the demonstration.

The Agricultural Club of Eldorado County holds meetings at Gold Hill Monday, February 17; Placerville grammar school, 18; Blairs, 19; Georgetown, 20; Placerville high school, 24; Union, 25; Ringgold, 26; Summit, 27; Oak Hill, 28.

Central California

One Fresno County trapper claims a bag of 30 coyotes.

Santa Cruz County is making a fierce drive on gophers.

Turlock shipped last year nearly 2000 carloads of cantaloupes.

Citrus growers of Tulare County are investigating frost protection.

A $20,000 fire occurred at Exeter, causing a loss of fruit packing house.

Kings County farm bureau proposes the organizing of a cow testing association.

The embargo on the use of bean straw as a fertilizer has been removed.

Selma, Fresno County, is growing table beets for delivery to the local cannery.

Tulare County's farm bureau hopes to secure members to the number of 2000 during 1919.

Many discharged soldiers formerly with the agricultural college are planning to finish their courses.

The county farm bureau of San Joaquin has installed Miss Minnie Tribbey, home demonstration agent.

Peach growers of Tehama County are contemplating the construction of a large packing plant at Hanford.

Stanislaus County has 82,570 acres of alfalfa. It is her biggest one crop and totals in value over $4,000,000.

Lindsay, Tulare County, reports total rainfall of 4.05 inches up to January 21, greater than the total up to March last year.

The highest car lot price for hogs at the recent Fresno County farm bureau sale was $16.15 and the lowest priced car was $15.75.

The Tulare County branch of the California Cattlemen's Association met in Tulare and discussed the new regulations relative to grazing permits.

A state highway is to be constructed between San Luis Obispo County and Kern County, which will make quick connection between Paso Robles and Bakersfield.

Several San Joaquin Valley farm bureaus have organized a farm bureau marketing association. The central association is marketing close to $100,000 monthly.

The Tulare branch of the California Cattlemen's Association met recently at Visalia and discussed matter of securing more just returns for California produced cattle.

A representative of the bureau of animal industry is investigating infestation of ear ticks in range cattle on west side of the San Joaquin Valley. He reports there are no Texas fever ticks in that section.

Chairman Fairweather of the committee in charge of the irrigation district consolidation is appealing for renewed interest in this great effort. It is expected President Roeding of the association will call a general meeting of the association as soon as possible.

A number of fruit growers of the Pajaro Valley under direction of the farm adviser have been holding most interesting demonstrations or institutes in their autos, going from orchard to orchard and discussing practical orchard work. The institute began early in the morning and after visits to orchards a basket lunch was a feature.

Southern California

Imperial Valley lettuce is quoted in Chicago at $6 per crate for first class stuff.

Hemet, Riverside County, will plant at least 200 acres to cantaloupes this season.

The Valley expects extended road construction from the new activities of the new state highway commission.

Grain growers are urged to place orders for grain bags for next season's output. A better suggestion, probably, is to plan bulk handling.

Dr. Logan, expert veterinarian of the department of agriculture, is advising thorough cleaning up of hog cholera condition in Imperial Valley.

Applications are being made to the state horticultural commission for large numbers of lady birds to work on the aphis in the cantaloupe fields.

Coachella Valley estimates it will have an output of nearly 3000 date suckers this season. Cutting has already begun. It requires 50 plants to the acre.

The citrus experiment station has made limitation of 180 for total enrollment in its tractor school, February 24 to March 1. There will be ten different makes of tractors used.

Manager R. L. Churchill of the Bean Growers Association has returned from a tour of Eastern markets with an impression that the markets will be worse before they are better.

Castor bean threshers have found great difficulty in handling this product because of the poisonous dust flying from the sheller. Those working on the machine are compelled to wear gas masks.

At the election of the Imperial irrigation district last week the contest centered in the election of J. Stanley Brown, who is a believer in the all-American canal, over W. S. Fawcett. Brown was elected on a nearly two to one vote.

Lima bean growers, in session at Oxnard, Wednesday of last week made ringing resolutions that the bean industry of the United States should have large percentage of the appropriation made by congress to supply food for hungry Europeans.

The biggest orange producing district of California is known as the Pomona district, which has an output of 4400 carloads. Ontario and Azusa-Glendora come next, each with 3000 cars, while Riverside is next with 2850, followed closely by Redlands with 2800.

Attendant in charge of a large Ventura County bean warehouse has been indicted as embezzler because of short weighing deliveries of beans which short weight was afterwards transferred to the attendant's own account. It has been discovered that from a single six ton load shortage of 2000 pounds was made. It is thought the total embezzlement amounts to $30,000.

Riverside is working for the passage of a bill which appropriates $150,000 to purchase land and water rights for a university farm to be located within Riverside County. "The university farm and the instruction given thereon shall be conducted to meet the needs of persons who desire practical instruction and experience in general agriculture, horticulture, animal industry, dairying and irrigation."

The Coast and General

There are 50,000 head of sheep grazing on the desert east of Mesa, Arizona.

The Arizona Cattlemen's Association holds its annual at Phoenix this week.

Walla Walla, Washington, is planning for a tractor show from April 5 to May 1.

February 9 in Arizona was made Roosevelt Memorial Day by proclamation from the government.

Produce exchanges are planning to make a fight on any effort in congress toward price control of wheat.

No more licenses are required under the food control act for any food product other than corn, oats, rye, barley.

Washington state agricultural college located at Pullman is proud of the great winnings in Shorthorns and sheep made at Portland.

The Arizona land board has recently announced that sales of about 75,000 acres of land in Maricopa and Yuma Counties will be made shortly.

Six schools of Arizona have availed themselves of the financial assistance offered by the Smith-Hughes Act and have introduced the teaching of agriculture.

Notwithstanding prohibition hops are now selling at the highest price on record at Portland. Over half a million dollars' worth was sold at 25 cents a pound.

In the last crop report of the United States department of agriculture, Arizona is rated as first in the following crops: winter wheat, oats, hay, cotton, and grain sorghums.

An extension of government canals in the reclamation district, near Yakima, Washington, will be made in a new high line which will bring larger scope of territory under the water.

The Buckeye Valley Farm Loan Association, Arizona, has nearly $10,000 loaned to the farmers of that district. The loans are made at five and a half per cent and run for thirty-four and a half years.

A joint committee from Utah legislature visited the Arizona legislature to consider the matter of annexing that part of Arizona north of the Grand Canyon to Utah. It is not probable that the Arizona legislature will consider the matter favorably.

Under the Enabling Act, 2,350,000 acres of land was granted to Arizona. Lieu lands for school sections located in Indian reservations amounted to 1,645,689 acres. This, together with land grants of 1881 and 1910 total 10,453,720 acres. Of this total 5,140,000 acres have been leased; 482,930 sold and 1,833,024 acres held in forest reserve, leaving a total unleased and unsold of 3,700,773 acres, with about 60,000 acres more to be selected by the state from the public domain.

The following deputy game wardens for Arizona have recently been appointed by Game Warden Joe V. Prochasky: William Simpson, Phoenix, Maricopa County; M. P. Cosby, Benson, Cochise, Pima and Santa Cruz Counties; Charles Ash, Yuma, Yuma County; W. H. Larsen, Lakeside, Apache and Navajo Counties; Al Weber, Prescot, Coconino, Mohave and Yavapai Counties; Osley A. Reneer, Thatcher, Graham, Greenlee and Gila Counties; W. G. Pierce, Hayden, Pinal County.

Turning Under the Cover Crop

Written for California Cultivator By Robert W. Hodgson

NOT MANY WEEKS will elapse before it will be time to think of turning under that cover crop. Conditions quite generally this season have not been favorable for the cover crop. The continued cool weather and lack of rainfall have prevented much in the way of development of tonnage. Further, too many growers as usual have depended upon nature to do it all and have fallen far short of what might have been accomplished, by failing to irrigate the cover crop, always just expecting a rain, which until quite recently failed to materialize. The successful cover crop grower is he who supplies the soil with an adequate amount of water irrespective of the rainfall.

If the greater part of the season's rainfall should come bunched in a rather short period, followed by growing weather, which condition occurred this last season, many growers are going to be sorely tempted to allow the cover crop to go too long before turning it under.

In regulating the time of turning under the cover crop citrus growers would do well to consider a number of facts now generally agreed upon among investigators as well as among the best orchardists. First and foremost, it is now fairly well agreed that the cover crop should be turned under while still green and succulent. If allowed to mature and become woody, not only is it much more difficultly rotted and therefore much more slowly available, but under certain conditions at least its decay in the soil actually locks up what nitrogen might be available to the trees. The large amount of cellulose in the matured straw in its decay draws very heavily upon the nitrogen content of the soil, since the bacteria which effect the decay of this material also require nitrogen in their metabolic processes. And further, at or about the time of maturity much larger amounts of water are required by the cover crop which practically insures that it compete with the trees, which is of course highly undesirable.

Second, and until more recently not recognized as of very great importance, citrus growers are coming more and more to believe that the less disturbance or shock the trees are given just prior to, during and immediately following the blooming period, the better are the chances for a heavy set of fruit. At this critical period the trees, notably certain varieties, are in a delicate condition of balance, any disturbance to which is decidedly prejudicial to the set of the fruit. For this reason any practice which is calculated to shock the trees or disturb this balance is undesirable, and turning under the cover crop at this time certainly constitutes such a practice. By suddenly reducing the water absorbing area, turning under the cover crop at this time may result in actual drouth, for the young fruits, particularly if hot, dry atmospheric conditions prevail, such as frequently occur, and every grower well knows that such a condition is extremely prejudicial to a heavy set of fruit and calculated to induce a heavy "June drop."

The third fact of great importance to every grower in determining just when he should turn under the cover crop has reference to conditions which occur when for any reason the moisture content of the soil reaches a point where not sufficient is present for both trees and cover crop. Under these conditions, and particularly apt to be accentuated at the time the cover crop is maturing, the trees always get the worst of it, the cover crop besting them in the competition for water.

Bearing these facts in mind a grower can decide for himself just how late he can afford to let his cover crop go. For instance, if he wishes to let it grow to tonnage, and many will be tempted to do so this season, he must be prepared to supply irrigation water in large amounts. And if he allows it to go until near the blooming time, he had probably best do no more than a light disking until the critical period is well over, taking care to keep the trees well supplied with water in the meantime. Again, if he does not have much surplus water and wishes to run no risk of allowing the cover crop to compete with the trees, he had best plow before the winter's supply of soil moisture is depleted. Ordinarily this means plowing no later than March 1, and many good citrus orchardists have arbitrarily named this period as absolutely the latest date to which they will postpone plowing.

Depth of Turning Under

Very frequently one hears the question asked, "How deep shall I plow down my cover crop?" Fundamentally, this probably has to do with the depth of the feeding roots more than any other factor. It is of course very desirable that the cover crop decay in the immediate vicinity of the feeding roots; otherwise much available plant food may be lost. In the decay of the cover crop not only are nitrates formed but soluble phosphates and potassium salts are freed. If one has used cultural methods calculated to induce deep rooting of the feeding roots it is probably not only safe but desirable to plow down the cover crop rather deeply. If the feeding roots are near the surface, however, it may be unsafe to plow deeply, especially if near the blooming period, in the light of the discussion above relative to causing shock to the trees at this time. If plowing is done rather early, or if one waits until the fruits are firmly "set" it may be done more deeply, since in the former case the trees have ample time to recover from any shock before they come into blooming, and in the latter case shock of this kind is no longer sufficient to cause shedding of the fruits.

Disking or Plowing?

Little can be said in a definite way regarding the relative advantages of disking as against plowing. One grower plows, another disks—both obtain good results. In the heavier clayey soils some growers complain about the formation of a hard compact layer just under the area cultivated, following the use of the disk. On sandy or light soils, however, the use of the disk is quite generally satisfactory. The results obtained from the use of any tool, of course, depend largely upon the combination of other cultural practices such as manner of irrigation, condition of soil when worked, depth worked, as well as others, which makes it extremely difficult to check up on the results from any particular tool as compared to another. Fundamentally the question as to what tool to use is largely a question of personal preference.

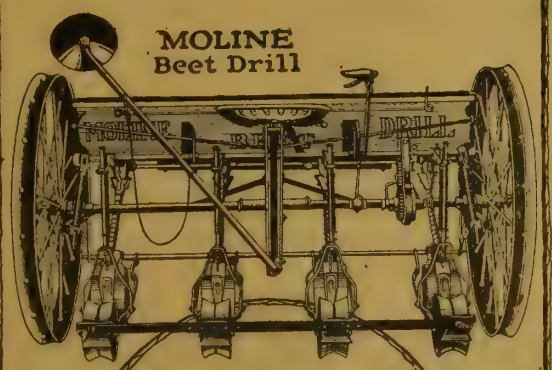
CITRUS INSTITUTE

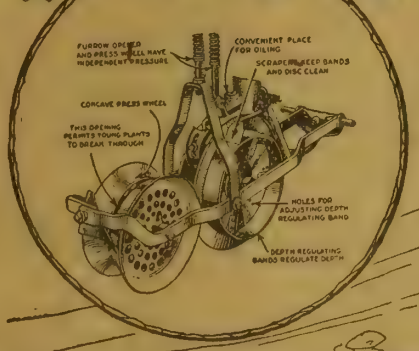
The Citrus Institute, in connection with the National Orange Show at San Bernardino February 14-23, holds its first session Thursday morning, February 20. The first topic for discussion will be irrigation and cultivation of citrus orchards. These questions will be discussed by W. M. Mertz of Alta Loma, E. A. Thomas and W. P. Kelley of the citrus experiment station, Prof. C. A. Jensen of the U. S. D. A. and D. C. Lefferts of Redlands.

The afternoon session will discuss fertilization of citrus orchards. This will be handled in its various phases by W. P. Kelley and J. A. Prizer of the citrus experiment station and Prof. A. D. Shamel of the U. S. D. A.

There is to be no evening session, so that the third session will begin at nine o'clock Friday morning, the 21st. The topic for the entire forenoon will be the extension of the citrus industry. This discussion will be led by Dean Thos. F. Hunt, F. O.

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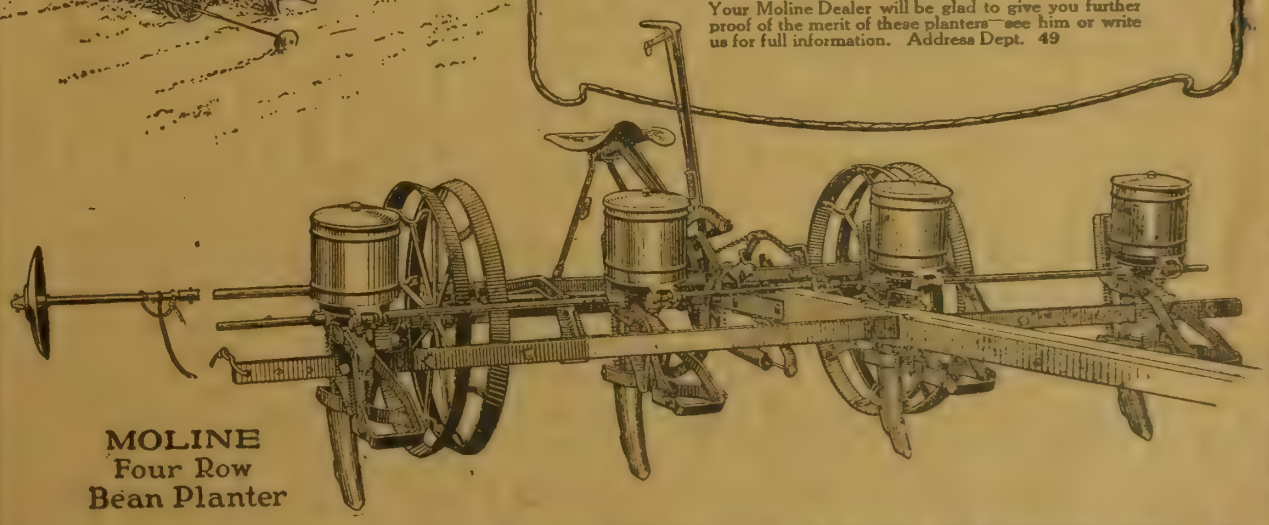
With the Moline Four Row Bean Planter you can plant four rows as quickly as two. You do the work twice as quickly and do it in the best possible manner. Easily and quickly adjusted for rows from 24 to 36 inches apart.

Either edge or flat drop plates can be used as they are quickly interchanged, and because of this feature the Moline Four Row Bean Planter will plant practically any variety or shape of seed ranging in size from a lima bean to seeds of very small size.

Each furrow opener is held to a uniform planting depth by independent spring pressure. Brake pins are provided to prevent damage in case the furrow openers strike an obstruction.

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Wallschlaeger, C. S. Milliken and G. Harold Powell.

The topic for the afternoon the same day will be frost injury and use of frozen fruit; leader of discussion, Dr. I. G. McBeth of Leffingwell Rancho, C. C. Teague of Limoneira, Thomas Crawford of Los Angeles and E. N. Chace, U. S. D. A.

ANOTHER REPORT ON FROST DAMAGE

E. E. Kaufman, field agent of the bureau of markets, who has just finished investigations of extent of frost damage to citrus growers, reports:

Conditions were found to vary considerably in the different districts and in different orchards in the same district, making the problem extremely difficult. Up to about the 12th of the month temperatures were comparatively low and the fruit did not show as much drying as anticipated, but the last ten days have been warm and evidences of frosted fruit are becoming more pronounced.

An estimate of the damage by districts and counties, based on the estimated production of the same districts and counties, would indicate that about 17 per cent of the orange crop on the trees on January 1 will be unmarketable and that a much higher percentage of the crop was more or less frost-bitten.

The effect on the Valencia crop is problematical, as picking of Valencias will not begin for two months, and this year it is about 45 per cent of the total crop.

In general the orange crop grown in 1918 was underestimated. The estimate of the bureau was made as of November 1. Shipments up to the holiday season would indicate an underestimate of about 10 per cent. Up to and including January 5 orange shipments totaled 4555 cars from November 1. About 500 cars were shipped in the next seven days, most of which were probably picked before the freeze, making a total of about 5000 cars with no frost damage. The balance of the crop, estimated at nearly 30,000 cars, will be affected by frost, indicating at present 5000 cars of unmarketable oranges.

The above estimate of cars has in mind the present loading of 462 boxes to the car.

Lemons

Apparently the greatest damage to the lemon crop is confined to the small fruit which would not have matured for a few months, and quite likely shipments of lemons may not be much curtailed for some time. Estimates vary widely as to the damage in the different producing districts and can be summed up at not less than 25 per cent for the state, with a possibility of reaching 30 per cent or more as the season advances and conditions become more favorable for determining the real extent of the damage.

Adding Humus

WE WELL recall that in the good old days of demonstration trains Prof. Shaw, at that time connected with the state university and now with the federal farm loan bank, in his talks on farm fertility had one slogan which he repeated at every meeting, and that was "With all your getting, get humus."

As a rule we think the orchardist understands the necessity of the above injunction, but too often he is in such a situation that he asks where and how. All amounts of stable manure are now all picked up until scarcely a straw escapes. Baled bean straw and even baled alfalfa hay is sometimes purchased to keep up soil fertility. The cheapest of all, and perhaps the best, is the cover crop which is being used generally in most all orchard sections. More recently many orchardists have been asking why not use the prunings of their own orchards, giving back to the soil the fertility taken from it by the growing of these unwanted parts of the tree.



Prunings For Humus

The illustration herewith is a Cultivator photo taken in a La Verne orchard. In this orchard the pruning has been regular, hence the branches removed each year are very small. They are thrown between the trees as shown in the photo, though being in the shade of the tree the piles are not plainly shown. In addition to these prunings there is a cover crop growing, but owing to the dry season it was not, at the time the photo was taken, as heavy as it will be after the rains. This particular orchard is not plowed but these branches of prunings and the green manure crop will be disked in. By the time the disking is done the prunings are dry and brittle and are broken into small bits by the action of the disks. Other orchardists have preserved these prunings and other rubbish underneath the trees, which in a period of years break down and add to the vegetable mould underneath the trees.

At a recent meeting of the Los Angeles center of the county farm bureau, Dr. J. Eliot Coit, farm adviser, made an address on the topic of humus, and some of the ideas advanced were materially different from those usually held by our orchardists. Notwithstanding many have held — at least some have—that thoroughly ripened weeds or green manure crops, those which contain the greatest amount of cellulose, carry the greatest amount of humus to the soil as the result of decay, Dr. Coit in his address maintained that the benefit to the soil in plowing under green manure crops was not in the residue or a substance which may be called humus, so much as in the process of decay. The plowing under of a vast quantity of young, lush herbaceous matter results ultimately in an exceedingly small quantity of vegetable matter remaining in the soil, for, as is well known, such material is made up principally of water. But, as noted, Dr. Coit's idea is that the benefit from the process of decay, and the green young growth, which decays so much more quickly, give the quickest and best results. In fact, warning was given against applying large quantities of dried barley or rye straw. Unless there is sufficient moisture there is danger of these dry stalks being slow to decay and favorable to the denitrifying bacteria.

Of all manures which have been tested under careful observations, manure from poultry has proved of high-

est value. In a general way Dr. Coit suggested that hen manure has three to four times the value of any other manure.

BOLSHEVIKI IN THE ORANGE GROVES

The citrus growers of Southern California, especially in the San Gabriel Valley, have been having experience with Mexican, Jap and Russian Bolsheviki. A few of these agitators have been getting "jobs" in the orange groves since early in the season. More recently their forces have been increased by professional agitators and demand has been made for $4.00 for eight hours work. On the refusal of the growers to pay such wages more active agitation began and circulars similar to the following were distributed to the men who remained true to the job.

The Circular

"To the workers in the orange belt:

"Are you satisfied with your conditions? Will you continue working for a boss for small wages and long hours? Or would you rather have more wages and shorter hours? Today you are getting about three dollars for nine hours work. Do you want these conditions changed?

"You are the only ones who can change them, but to do so you must organize as a class in the whole orange belt in one big union of all workers. The Charter Oak pickers are out on strike for $4.00 for eight hours. Will you join with us and present your demands to the boss?

"Workers in every industry are bettering their conditions; why not you? You receive less wages for longer hours and harder work than most other workers.

"If all Americans, Mexicans, Japanese, Russians and other workers in the orange belt stand together we will be able to better our conditions. Organize strike committees and put your demands up to the boss and we will all win.

"Don't scab, nor work any longer until these demands are granted.

"A strike is on for $4.00, 8 hours. Stand solidly together.

"Charter Oak Strike Committee."

As noted, this is signed by "Charter Oak Strike Committee," and that section, more particularly Covina, has been the center of the fight. The growers organized and appointed committees to take charge of the entire matter. The sheriff of Los Angeles County also appointed committees and arrests were made and jail sentences given to some of the more violent. The action has been so firm that the agitation is lessened and the growers are now finding little trouble in securing sufficient help.

CITRUS WHITE FLY

The citrus white fly, which appeared some years ago in Kern County, but was thought eradicated, has reappeared and is now receiving attention from the state and county horticultural commissions. Harry S. Smith of the state insectary, with County Commissioner Buhn of Kern, have investigated and report:

"While the infestation is small it is difficult to handle because of the dense jungle in which it is found and because of the nature of some of the host plants, such as the English ivy. Six men started work on the defoliation February 1."

WHAT TO DO WHEN THE GAS ENGINE BALKS

A gas engine on the farm is a great labor saver or a great time waster, depending upon the skill of the operator. An unskilled man may spend more time and energy in trying to start an engine to pump water or do some other task than would be required to do the work on hand. Often crews of workmen hired to help thresh, bale hay, cut ensilage, etc., draw full wages for hours spent in idleness, owing to inefficient handling of the engine. Such delays are preventable, for engine trouble is usually due to the operator's ignorance of some of the details essential to proficient operation. Knowledge of the engine, then, is one way to conserve farm labor and avoid trouble.

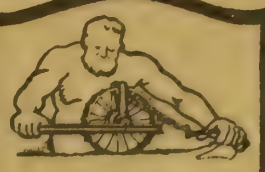
To supply such knowledge the United States department of agriculture has recently published Farmers' Bulletin 1013, "Practical Hints on Running a Gas Engine."

See That Hitch!

THE Nilson Patented Lever Hitch is the greatest improvement in Tractor Design in recent years.

By hitching the plows to a swinging drawbar attached considerably above the rear axle, the pull of the plows is automatically converted into downward pressure, thus giving the drive wheels "GRIP" or traction, without a pound of useless weight.

It enables us to build a tractor with BIG TRACTION, LIGHT WEIGHT, FUEL ECONOMY.



The Lever Hitch carries the pull of the plows up over the drive wheel. The harder the pull, the better the wheel grips the ground. Note great width of driving wheel surface.

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Because of the Lever Hitch the Nilson Junior, weighing only 5,000 pounds, has 3,000 pounds drawbar pull at plowing speed, while the Nilson Senior, weighing only 6,400 pounds has 4,000 pounds drawbar pull at plowing speed.

Nilson Tractors employ three driving wheels keyed on the same axle, making in effect a WIDE DRUM DRIVE. They do not pack the soil. They stay ON TOP.

It is the Lever Hitch and Drum Drive that enable the Nilson to easily outclass other tractors—even those equipped with the same Waukesha Motor used in the Nilson.

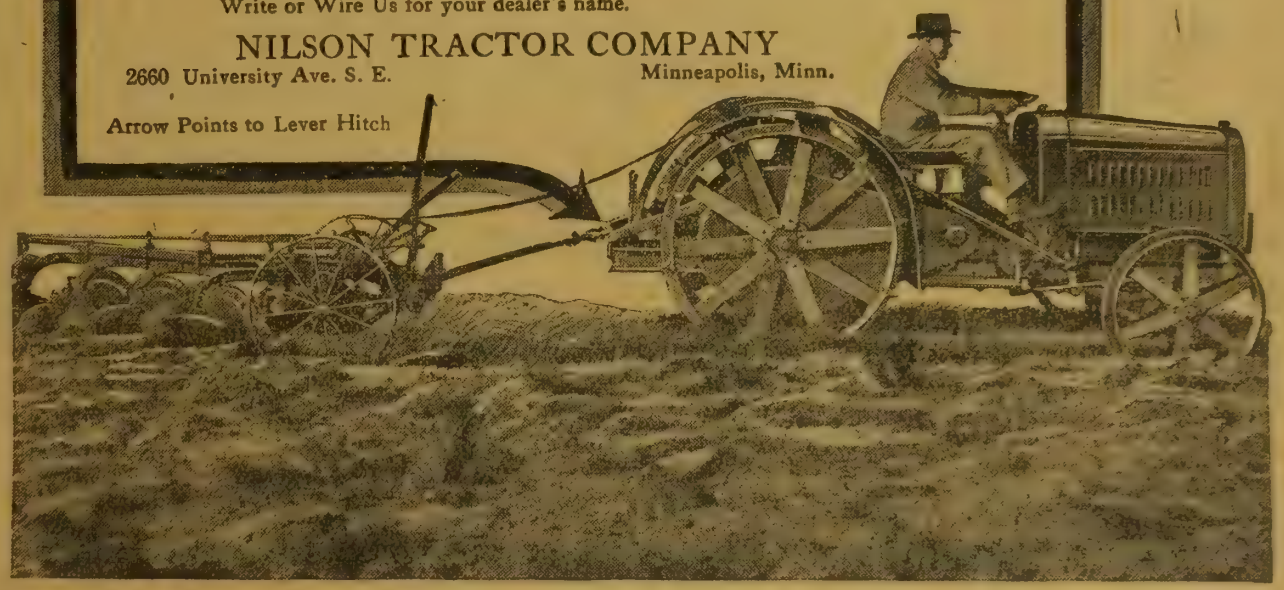
Nilson Tractors have been thoroughly tried out, and have "made good". See them demonstrated in the field.

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and make your land produce a greater revenue

Write For Illustrated Catalogue

and Learn How to Plant and Grow Trees Successfully

THIS BOOK answers in a satisfactory manner many questions which you may want to know, for instance if you are going to plant plums, what kind?

Early varieties of peaches bring good returns, but an assortment of peaches ripening from May to November is in many cases preferable.

While the Tilton Apricot is the canners' favorite, there are others equally good. Some trees grow and bear best in the warm interior valleys while others do better at a higher altitude along the foothills.

Growing almonds has become very profitable. Do you know whether your locality is suited to almond culture?

If you are in doubt as to what trees would do best on your land, write to us, describing as fully as possible all of the conditions, and we will be glad to advise you.

The Fresno Nursery Co.
P. O. Box 615-C
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To California Farmers:

You may have a commercial orchard, or merely an assorted Family orchard, but your farm is incomplete and unsatisfactory unless you have suitable shade trees and ornamental shrubs. Our collection is equal to any in the state, and suited to any soil or climatic condition. Also, do not forget the "wood lot." Eucalyptus trees are best for this purpose.

To Landscape Gardeners:

You will understand the importance of the above remarks, and you will be satisfied with our stock and prices, whether you are laying out extensive grounds or advising as to the proper parking of a town lot. If you see our stock you will be convinced.

Almonds, Apricots, Pears, Prunes

and all other fruit trees yet in good supply.

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ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

The Wonderful Jarrah Tree

Written for California Cultivator By Ernest Braunton

LOOKING over an Australian timber journal there is found among the advertisers: "M. C. Davies Karri & Jarrah Co.; The Jarrah Timber and Wood Paving Corporation; The Westralian Jarrah Forests Co.," and a full dozen others, all with the name "jarrah" incorporated. The advertisements read: "Contractors to West Australian government for sleepers, etc. Perth City Council for paving blocks, kerbing, etc." Also "Karri and Jarrah timber, sawn, hewn, or squared baulks, any lengths; scantlings up to 100 feet. Squared or round piles, beams, girders for bridges, wharves and railways up to 90 feet long. Railway sleepers, telegraph poles, T. and G. and dressed flooring, weather boards, mouldings, architraves; also paving blocks."

And all this from one tree, the "jarrah," native name for Eucalyptus marginata, one of the most wonderful of that wonderful family of trees. No other trees on earth are put to such a variety of uses, and the lumber is second to none. It is not uncommon to find considerable areas of this tree where many of them are 120 feet high, five feet in diameter and 70 feet to the first branch. These trees enjoy 38 inches of rainfall each year and grow in rocky soil of ironstone foundation. As soon as the trees reach granite formation they fall away to mere scrubs. This fact will sufficiently account for the lack of commercial plantings of this tree in California. It is a semi-coastal tree, as are nearly all eucalypts, and reaches its greatest development at about 20 miles from the coast.

The jarrah is famed for its indestructible wood; it is immune to white ants, the teredo and other insects and pests that destroy lumber and piles through borings. Houses built of it exist in perfect preservation for 100 or more years. With age it seasons so hard it cannot be worked or nails driven into it, and when struck the wood rings like a bell. The oldest piles the government could find had been in a wharf for 60 years and were evidently as good as the day they were driven. Railway sleepers or ties laid down 18 years before were as good as ever.

There are many species of nearly equal value that thrive at their best in California, but their greatest value for lumber will be at from 50 to 100 years of age. We are not in need of more eucalyptus booms to convince us that some day this lumber will be the most valuable in California.

Plant Phenomena

Why does the hop vine twine about its support in the same direction as the sun turns, and why does the morning glory twine about in the opposite directions? If part of either species of vines turned both ways one might study to find out why one hop turned to the right and another to the left. We would expect to find some local influence or object responsible that we could find or see. But all vines of one kind or another turn the same way and cannot be made to grow around in the opposite direction. Why does the leaf of the bauhinia and other plants of the same family fold upwards at night, while the leaves of the oxalis and other plants fold downward? Why do they close at all? Why does our California poppy open its blossoms in the day and close at night, while other flowers do the reverse?

Old Tropical Fruit Trees

The avocado was introduced to California by Judge Ord of Santa Barbara about 1870. There should have been equally remote introductions into other points in Southern California, but there are none recorded. Of these two are still growing (or were a few years ago), one in Santa Barbara, the other at Montecito.

The oldest tropical fruit tree is perhaps a white sapote growing in Santa Barbara. The crown is 50 feet high and 60 feet across and for years it bore a good crop of fruits. Finally it got loaded with black scale and was utterly neglected and so ceased to bear. The trunk of this tree is about three and one-half feet through and its age is said to be at least 90 years. In view of the ages of these trees and the excellence of the fruits, it is indeed strange they did not earlier become well known.

Sterilization of Soils

It is an easy matter for anyone to experiment with sterilization of soils. In small quantities, for seed pans or boxes, the soil may be baked in an oven, but this is slow and bothersome. The simplest and best treatment for small beds outdoors is by the application of boiling water. Now is the time to try this method. Choose a bed outlined with battens or other curb and put a board division through the middle. Treat one-half with boiling water until soil is saturated. Leave the other half untreated. When soil is dry enough sow any garden crop in both beds and note results. One bed so soaked showed an average temperature four inches below the surface of 145 degrees a few minutes afterward. It was planted to lettuce and grew 35 per cent more in weight than the untreated half of the bed.

Value of Wood Ashes

All the wood ashes available should be put in the garden. For years I have applied ashes to one-half of a bed and none to the other half, both halves being treated alike in every other respect. The effect has been most gratifying to a variety of crops, especially on bulbous plants such as gladiolus, daffodils, Spanish iris, anemones, ranunculi and freesias. The ashes have each year resulted from burning garden prunings, etc., with some wood, but soft woods only. Ashes from hard woods, nearly a hundred samples, tested in Massachusetts showed one-third lime and that in a most superior form. Potash averaged between five and six per cent, and phosphoric acid nearly two per cent. It will readily be seen that all vegetable ash should be applied to the garden, and at any season.

Protection from Fungi

We should sedulously protect plants and soil from fungous troubles. Above the soil we must spray; below lime will aid as much as any other agency. As an illustration of the destructibility of fungi, let us consider wood. Rightly used and protected it is practically indestructible. Tools, furniture, etc., have been preserved for thousands of years. Wood in soil or water would last equally if protected from the depredations of living organisms. Fungi is as destructive to plant life as it is to human life when some poor soul eats poisonous toadstools or mushrooms, and most aggravating garden troubles come from this source. From mildew to toadstools we should fight all these forms of fungous life, and, as before stated, lime is a powerful and beneficial agency.

The Biggest Trees

A traveler named Swinburne measured the gigantic chestnut (Castanea vesca) at the foot of Mt. Etna, in Sicily, about 10 years ago and found it 196 feet around, or nearly 65 feet in diameter. It is now so much decayed that it cannot be accurately measured, but many measured it girth while in full vigor. It is by far the largest tree ever reported. The greatest diameter of any American tree is that of the Montezuma cypress of Mexico (Taxodium mucronatum) which grows to 40 feet through the trunk. This is a fine evergreen tree and thrives well in California, is on sale in local plant depots and is deserving of more general planting. Fine specimens are growing on the H. E. Huntington estate at San Marino, near Los Angeles. The oriental plane also grows to 40 feet and grows as well in California as anywhere. Our Sequoia gigantea stands next, with 35 feet diameter.

Church Decorations

BREAKING THE I-C-E

When Alice Jones was 18 she became Miss E. Alysse Jones. When she went to enter a college she was asked her name by the dean. She replied:

"Miss E. Elysse Jones — A-l-y-s-s-e."

"Yes," said the dean; "and how are you spelling 'Jones' now?" — The Tatler.

Notice to Water Users

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all of which went into Army and Navy installations and we are now ready to serve you with the same grade and quality of

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Our engineers will supply you all technical information regarding your work promptly on application and our factory will ship your order immediately after you place it with us.

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ALPHA
POWER SPRAYERS



For Heavy Pressure Spraying

EVERY feature desirable or necessary for quick, thorough spraying will be found in the Alpha Sprayer. It is the simplest, most accessible power sprayer made. Its reliability lies in the simplicity and strength of every part as proven by its performance in the field.

Driven by the easy-starting ALPHA ENGINE and equipped with our dependable automatic pressure regulator, the Alpha Power Sprayer has proven its superiority to growers who have used all the best known makes.

ATTRACTIVE PRICES. We are in position to offer Alpha Sprayers at prices probably lower than other sprayers of equal capacity.

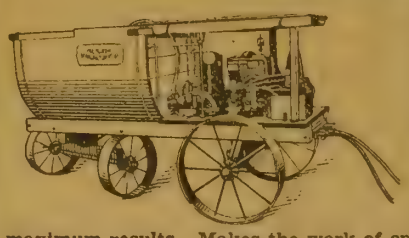
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HARDIE POWER SPRAYERS are the final word in sprayers. They represent not only years of experience, but also an accurate knowledge of spraying needs and the conditions that govern spraying. Where spraying is most difficult you will find HARDIE Sprayers in the majority.

HARDIE SPRAYERS are noted for their simplicity. No complicated devices to cause trouble when every minute counts. You can put any of the help to work with a HARDIE and get maximum results. Makes the work of spraying easier than ever before. When you see a HARDIE SPRAYER you will readily understand its superiority. See how compact it is—the few working parts and how everyone of them is quickly accessible. There are 21 HARDIE features that make it the leading power sprayer. The HARDIE CATALOG tells all about them. A COPY is yours for the asking. Send today. You can see a HARDIE at your dealer's.

The Hardie Orchard Gun $12.00

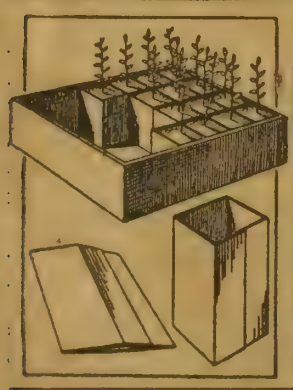
The latest HARDIE device made to improve spraying conditions, shoots a cloud of penetrating spray, covers the trees with a fog. Easy to handle. Takes a tiresome load off the arms and does the work in much less time. Fits any high pressure sprayer and increases its efficiency.

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Perforated Tree Protectors

that will keep squirrels, rabbits and gophers from barking your trees and give perfect protection from the hot sun, sand storms, raking bark in cultivation, etc. We make a number of kinds of wraps, among these are the Yucca which has the fastening wire entirely around it. Tell us your pest and we will tell you what kind to use.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour. For starting early vegetables, such as tomatoes, cabbage, egg-plant, cauliflower, cucumbers, cantaloupes and squash. Also, for propagating rose cuttings, geraniums, eucalyptus or olive cuttings. It is the most practical pot on the market today for propagating work. Write us for samples of either pots or protectors. Tell us which you are interested in.



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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Taking Cold

Please tell me what is the matter with my chickens. As soon as it begins to rain they get sick, put their heads down and groan. In a few days they die.—Subscriber, Solvang.

Your hens are taking cold. Is there a crack or knothole back of the roosts? Does the rain run in and wet the floor, or do they have to wade in puddles of water when they go outside to pick up their grain? Perhaps your henhouse is in a low place, where the water runs into the yard and stays instead of running off. Perhaps there are too many hens in the house. If they are crowded they get too warm, and then are chilled when they come out in the morning, especially if they have to come out into the rain. The only way to cure them is to see that their house is dry, but well ventilated, and that each hen has from two to three square feet of floor space. That is, if your house is eight feet wide by ten feet long, it ought not to be expected to accommodate more than 30 hens. If it is ten by twelve, you can put in from 40 to 50, according to the size of the hens. A henhouse ought always to be on ground a little higher than the ground around it, so the water will run off when it rains. If you keep your hens warm and dry, and give them plenty of fresh air at night they will not have colds or roup.—J. A. K.

Frost Protection for Deciduous Blossoms

Please let me know if smudging or orchard heating, to protect cherries from frost while in bloom, has ever been practiced. If so, is it practicable, and what methods are used?—Subscriber, Sebastopol.

Yes, millions of dollars worth of apples were saved by the orchardists of Oregon, Idaho and Washington in a frost fighting campaign a few years ago. We believe frost fighting in deciduous orchards has proved fully as satisfactory as in citrus orchards.

Sub-Irrigation

Our plan is to put down into the ground one and one-half feet, three inch, one foot drain tile, and not drain the ground but work the other way and flush the pipes. If necessary in winter rains the surplus water can be drawn off. Has this system ever been tried to your knowledge? Please tell me when and where and with what results. We have tried it in a small way for two years on a line of 60 feet and it has worked splendidly. We have raised peach trees with a growth of twice as much as the old way. What kind of legal protection is to be had?—Subscriber, Montebello.

In addition a Los Angeles subscriber writes of having experimented with sub-irrigation for two years and wishes to know as to whether it ever has been proven successful.

Sub-irrigation is most attractive in theory. It has been tried persistently and so far as we know never with continuous success. When the system is first installed it is very often a complete success, but clogging of pipes with roots soon results and the expensive installation is removed or neglected. We well recall, more than 30 years ago, the installation on a tract near San Diego of sub-irrigation plant at a cost of about $300 per acre. The land was planted to orange trees, but we believe the entire plant was later abandoned. That particular system was of the perforated concrete pipe. Patents have been granted on other systems and upon machines for laying perforated pipe. King's "Irrigation and Drainage" says: "This system of irrigation quickly suggests itself to most thoughtful men when they first began to handle water for irrigation, on account of the many difficulties and inconveniences which are associated with surface watering; but there are several very fundamental objections to it which have usually led to its abandonment sooner or later in nearly every place where tried."

Amongst the objections to the system may be noted: First, expense; second, clogging of pipes with roots; third, on porous soils the great loss of water because of percolation and the lack of capillary movement which makes for relatively slow lateral distribution. In some soils it would be necessary to place the pipes exceedingly close together. Of course there are some soils where even with a canal along the hillside, where bed rock and subsoil conditions are exactly right, acres may be sub-irrigated naturally with the one irrigation ditch.

King's book, already referred to, discusses sub-irrigation at some length.

Our Double and Single Acting Deep Well Cylinders Are Marvels of Simplicity and Efficiency



They have been perfected after fifteen years of practical experience.

Manufactured by

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CALIVADA

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From highest nitrogenous feed. Decomposed and concentrated by age in their own liquids, containing the highest percentages of Nitrogen, Phosphoric Acid, Soluble Potash, and readily available Humus.
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as does Newell in "Irrigation." Each of these books gives diagrams of sub-irrigation plots. In answering one point raised by the Montebello subscriber legal protection may be had by the securing of patents. It will probably be necessary to employ a patent attorney and make investigation as to former patents granted and for directing legal procedure. We will be glad, indeed, to hear of later success of the plans referred to.

NAPIER GRASS

There has been a continual calling for a forage grass adapted to California conditions, and we presume the calling will continue, for the grass which will give perfect pasture on California's semi-arid hillsides will never be found, but fortunately the calling is resulting in some satisfactory discoveries.

We have in the past referred to Para, Paspalum, Rhodes, and more recently, to San Diego or Smilo grass, and now comes a new fodder producer in Napier or Elephant grass. Mrs. Florence E. Galbreath has grown this successfully in the San Joaquin Valley. From her description of it it must be true to name, for we note that it grows to a height of 15 feet. This grass was found in Africa and from there taken to Australia and secured entrance to the United States from Australia. Because of this fact it has been sometimes known as Australian Giant grass.

Feeding Value

The chemist of the Rhodesian department of agriculture has furnished the following comparative analyses, published in the Rhodesian Agricultural Journal:

Napier grass, partially dried sample —water 55.33, fat .84, protein (nitrogen x 6.25) 3.10, carbohydrates 21.16, fiber 15.66, ash 3.71. Fresh; water 61.81, fat 1.29, protein 2.92, carbohydrates 17.29, fiber 14.77, ash 2.92.

The botanist of the Agricultural Supply Association in South Africa makes the following report as to its habits and uses:

Habits and Uses

Napier grass is a coarse, reed-like perennial grass, 10 feet or more high, having thick stems somewhat like those of sugar cane, and producing them so freely that a single rooted cutting will develop a dozen or more stems in the course of a season. "Like Pearl Millet (Nyouti), it is reported to be an extremely good drouth resister. Colonel Napier and Mr. Kenny both state that it remains green on dry land late into the autumn and withstands frost to a remarkable degree. Colonel Napier has tested it under most severe conditions, and is firmly convinced of its economic value." Mr. H. G. Mundy, government agriculturist and botanist, Salisbury, reports that it is equally, if not more drouth and frost resisting than Paspalum dilatatum.

FRUIT SYRUPS

As regarding farm economies, we have below a couple of articles touching upon home making of fruit syrups.

Grape Syrup

I saw an article in your paper a short time ago on converting grapes into syrup which turned me back to '92. We had moved to Guinda, a new town in western Yolo County. There we had seven little mouths to fill. This took some planning, I can assure you.

About that time a vineyard near Rumsey was purchased by a "Prohi." He would not sell the grapes to the winery, but gave to the neighbors. When a child in Illinois I had often watched my father make syrup from the sorghum cane. Why couldn't syrup be made of grapes? It was worth trying and though the process was long and tedious the result was a bunch of happy children eating bread and syrup. I think the grapes were the Mission variety. I found that the Tokay made a lovely preserve without sugar.

Perhaps at the present day it would not taste good, but then by children raised on mush, rice, milk and other plain food, who knew nothing of candies, dates, etc., except on Christmas and Fourth of July, it was pronounced good.—Mrs. Isaac McGrew.

Fruit Syrup

When making jelly of berries I cook them and drain lightly, then press them through a sieve to take out seeds, adding a little water if needed and sugar. Cook to a butter or marmalade. And the same with plums, apples, peaches, pears, quinces, in fact any fruit that does not jelly easily.

I pare and core or seed and cook the parings and core as for jelly and boil down the juice to a syrup by adding sugar to make it thicken.

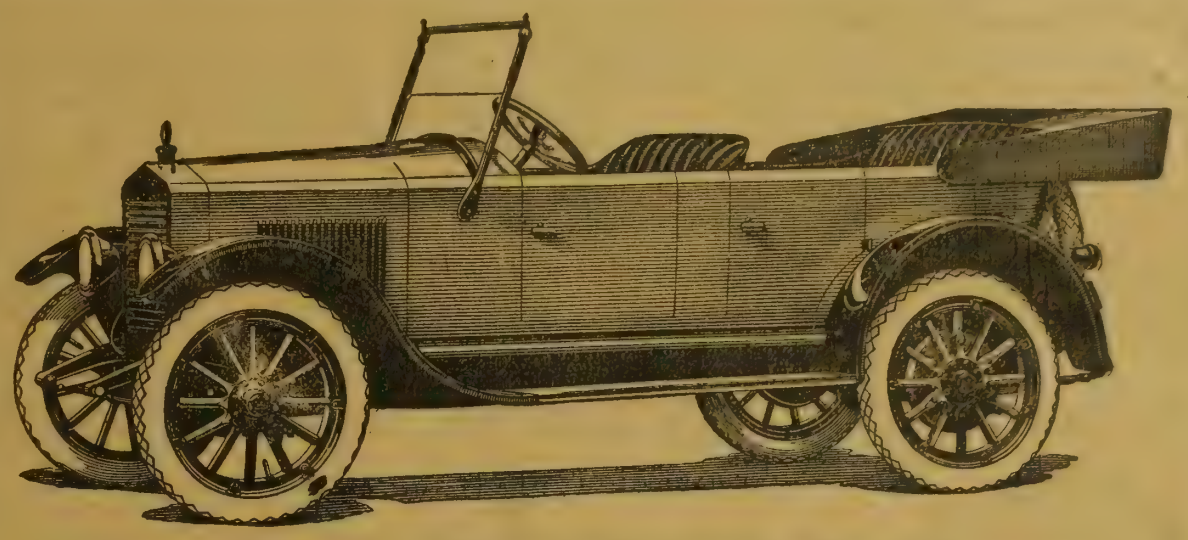
But peach syrup has a bite to it, so after draining out all I can get, I put it into the kettle and add precipitated chalk as I would soda to sour milk and boil it up just a little, then drain again and add the sugar and boil to a syrup, and I have a better hot cake syrup than I ever found in the store, and it is good for cooking also.

I use any kind of grapes in the same way, then feed the waste to the chickens and dry all the large seeds to burn.

And if anyone can do more with fruit I would like to have the idea.—A Subscriber, Galt.

ACCURATE

A Brooklyn Sunday school teacher once had occasion to catechize a new pupil whose ignorance of his Testament would have been amusing had it not been so appalling. One Sunday she asked the little fellow how many commandments there were. To her surprise the lad answered, glibly enough, "Ten, ma'am." "And now, Sammy," asked the teacher, "what would be the result if you should break one of them?" "Then there'd be nine," triumphantly answered the youngster.—Fun.



Have You Ridden In The Essex?

It Is The New Moderate Priced Fine Car—Price $1395

The Essex must have made a hundred thousand friends since January 16th, the day on which it was first shown in all parts of the country by hundreds of dealers.

It is the new light, moderate priced car that has the endurance, comfort and rich completeness that you expect only in large and costly automobiles.

Most of the hundreds of dealers who will sell the Essex have been doing business with us for a long time. They know the kind of cars we build.

Under those circumstances they were not as skeptical as they might otherwise have been about a car of which no details were given. But even if they had felt uncertain because of the newness of the Essex, all doubt was removed as soon as they had ridden in it.

That is a distinctive characteristic of the Essex. It is remarked by nearly everyone. Pride of ownership does not alone spring from beauty and richness of detail and finish. It is mechanical as well as optical. Something more than the sense of sight must be gratified.

A Light Car Anybody Will Be Proud To Own

The Essex is beautiful to behold. The very feel of the comfortable cushions, with their high backs, associates the moderate priced Essex with costly cars. The owner need never apologize for either its appearance or performance. Squeaks do not develop, as in other cars of its type, because an unusually heavy frame assures absolute rigidity. Body bolts cannot work loose. The finish will long retain its freshness.

Ride In The Essex Over Rough Roads

Every dealer is demonstrating the Essex over the roughest pavements in his locality. It reveals a new distinctive motor car quality. You might easily think you are in a long wheelbase car weighing two or more tons. This feature alone will appeal to you with more than ordinary interest.

The Essex motor deserves your special attention. Note how it is arranged to get the maximum power from every drop of gasoline. See how stable it is and why it is free from the need of tinkering and attention. The Essex has stability. It has quality as well as lightness; endurance and comfort as well as a low first cost. These things will be apparent when you see and ride in the Essex.

ESSEX MOTORS DETROIT U.S.A.

(8)

TREES

Peach, Apricot, Almond, Plum, Prune, Pear, Apple, Cherry, Olive, Fig, Orange, Lemon, etc., etc.

"More than a million high class fruit trees per year for California Planters."

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FRESNO, CALIF.

Keeping One Cow

Written for California Cultivator By H. Culbertson

THE question is asked, Will it pay? Like many other things it depends on the one behind the gun. With feed as high as it has been for a few years the cost of keeping any animal is an important question. It will require from five to six tons of the best of hay and about 3000 pounds of bran or its equivalent. Five tons of hay at $25 per ton will cost $125, and the bran about $67, or a total of $192 as a basis for the cost of keeping. The time required to care for feed, water, milk, etc., is about three-fourths of an hour per day. After the milk gets to the house the straining, skimming, washing and scalding of pails, pans, etc., churning and working of the butter and washing of cream vessels and churn will average another three-fourths of an hour. The milking period will run 11 months, or 330 days. The total time put in outside and inside is about 500 hours. At 25 cents per hour this costs $125, making the total cost $317 for the year, nothing said about taxes, investment in cow, stable, etc. It will be noticed that the cost altogether is almost one dollar per day for the 330 days.

What has the cow to do to pay for all this trouble she gets us into? Ten quarts of milk per day for 330 days at ten cents per quart will do it. This would save the labor of the butter making. But a cow that will average ten quarts per day for 330 days has to give 16 to 18 quarts per day for part of the time to make up for the small amount she may give near the end of the milking period. This means that it is pretty difficult to keep milk customers with such irregular supply. Hence the unsold part would have to be used in the family and made into butter, etc.

How does it look when all made into butter? If the average of ten quarts of milk were made into butter, the milk testing about five per cent butter fat, the yield would be one pound per day, or 330 pounds for the season. We will suppose the owner is looking ahead and has the largest yield come when butter prices are high, say an average of 50 cents per pound. Then the year's yield would be $15. Taking this from the total cost as above leaves the cow in debt to the owner about $150. There would be however about $30 worth of skim milk and $15 worth of fertilizer, which would reduce the loss to a little over $100. Evidently the one pound of butter a day cow has not the capacity to do the amount of work required to pay for her keep. The only thing we can do is to sell her and get a higher priced one that can pay her cost of keep. The cow that can do this must average pretty close to 600 pounds per year. If the period of greatest production comes when butter is 25 or 30 cents the showing is not good. The cow of the latter capacity will require a greater cost of feed than we have taken as a basis. If the gross income equals the above estimate the owner gets his wages for the time. If he grows his own hay he gets about what he could sell it for in cash to some buyer. It is quite evident from the above that much of the one cow dairy business is unprofitable.

Conditions on many farms are such that the cost of labor and material need not be held as so important. There is often labor on the farm that need not be fixed as high as above estimated. Or the time of a better paid person in his nine hours per day might be used at a time when he would not be earning anything if he did not have the cow, or a part of the labor be performed by some member of the family who is not earning anything.

The feed question can often be modified. There are often feeds that a cow can get on a place that would otherwise go to waste. A part of the year there are volunteer grasses. Then there is the waste from cabbage, cauliflower, beets, the small sweet potatoes, etc.

If there is plenty of water for irrigation one-third of an acre in alfalfa well cared for will furnish all that kind of material they need. Alfalfa cut and fed every day for seven months of the year is an excellent milk producer. One-tenth of an acre in stock beets will help to make a balanced ration and increase the milk flow.

A mistake is frequently made by those buying all their feed in buying only alfalfa. The cows like it and eat it greedily for a while. In the course of a few weeks they will not eat enough of it to do their best at the milk pail. At least one-third of their hay feed should be early cut oat or wheat hay. This makes a better balanced feed and they do well. If the stock beets can be had in plenty they will take the place of the grain hay.

There is however another viewpoint to take beside the one of dollars and cents. In families of growing children we cannot figure it from the dollar standpoint alone. Fresh sweet milk has its place in the family that nothing else quite fills. It takes an important place in both health and nutrition. It is a well balanced ration. It is not difficult of digestion. The fresh made butter has its place in the household. Skim milk makes fine cottage cheese. A little cream mixed with it adds to its flavor and nutrition. Then if the cook does not depend on baking powder recipes there are dozens of ways of using milk and cream, buttermilk, sour milk, etc., that add much to the comfort and nutriment of the household. Skim milk will increase the number of eggs and the quality of the table poultry.



Champion Dependable Spark Plugs

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At the factory of the Chalmers Motor Car Company, of Detroit, Michigan, the United States Government was conducting a most exacting ignition test of the Holt-Caterpillar Tractors, used in war-work for hauling cannons, caissons, etc.

With motor at high speed under heavy load, the spark plugs at sizzling heat were doused with a bucket-full of cold water.

This most severe test had not the slightest adverse effect, the operation of the motor continued perfectly, not a spark plug "missed" even temporarily.

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There is a Champion Spark Plug for *every* type of motor car, motor truck, tractor, motorcycle and stationary engine.

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Champion Heavy Duty

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BULK HANDLING

Another step has been taken in the bulk handling of California grain in that the railway equipment is fitted to this common sense method. Following the practice of Eastern railways, grain boards are fitted to the box car doors and reach just above the level of the indicated loading line of the lightest weight grain to be handled. This grain loading line, which can be seen in many box cars, appears at various heights above the car floor and indicates the level necessary for reaching the minimum load or rated capacity of the freight car. Wheat being the heaviest grain ordinarily handled, the wheat level is the lowest indicated on the car walls. Barley, oats and corn all are given different loading levels.

Large advances have been made in all methods of handling shipments since those early days when wheat was one of California's principal products, with the exception of wheat shipments, scarcely any change having been made in the method of handling and shipping it. In fact the same expensive, wasteful grain sack is considered by the majority of grain farmers in California, as the only way in which to store and ship it.

BRITAIN OVERSTOCKED WITH WHEAT

THE agricultural correspondent of the London Times is a bit glum about the farming situation in Great Britain. Says he in the issue of January 6, "The markets are already turning against the home farmer and the explanation is to be found in the concentration of tonnage on the carrying of certain commodities and the neglect of others. The results of recent shipping show defective understanding of farming requirements.

"The most conspicuous example of imprudent control," says the correspondent, "is the excessive importation of wheat and the failure to procure for stock owners the feeding stuffs, the want of which has so long hampered the output of animal products. Concentrated stuffs, essential to intensive methods of animal husbandry, are coming to hand in wholly inadequate quantities and owners of stock are sorely exercised to keep their herds and flocks in good condition. Promises of great quantities have been made from time to time but the improvement so far is insignificant.

"On the other hand," the correspondent goes on, "wheat has been poured into British ports in such huge quantities that the markets are overstocked and an appeal has had to be made to British growers to defer the threshing of wheat in order to allow the accumulated stores to be reduced. There is now an embarrassment of supplies, due to the facilities provided

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EVERY LARGE MILL AND ALL RAILROADS in California have put their absolute stamp of approval on the bulk method of handling grain.

They are just waiting for **you** to start something. They know it costs less to handle grain in bulk. They know the grain growers of California are going to realize it mighty soon. And they have already prepared for it.

It's a fact that 10% of the grain grown in California never reaches market. The grower and shipper lose one-tenthof every crop—one-tenth of their possible profits.

Many "Hows" to Lose

How? There are many "hows." A few:—rats, rain, bad sacks, fire, thieves. And a big item in the profit-reducing sack method is the cost of extra help and supplies.

The mills and railroads are waiting for you to start something. Start it—the saving, economical, handle-your-grain-in-bulk way.

One "How" to Save

How? There is one "how." Install a Calco Metal Grain Bin on your farm. It costs little compared with what it saves. It's easily and quickly erected, even by unskilled labor. It will last more than a lifetime. It's strong, rust-resisting, weather, fire, vermin and thief-proof.

The Calco Metal Grain Bin fits **exactly** into the bulk handling method endorsed by mills and railroads.

Read this free booklet

Read "One Farmer's Experience" in the booklet, "Calco Grain Bins." The booklet is entirely free. Send for it TODAY.

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Choice, Well-Grown Almonds on Bitter Almond Root

We can furnish the following varieties:

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Splendid *Bartlett Pear Stock* on Japanese and French Pear Root.

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San Joaquin County orchardist recommends the use of ferrets in disposing of ground squirrel pests.

for the shipment of this particular commodity. The result is that while the farmer is sparingly provided with necessary feeding stuffs, he is discouraged from threshing and marketing his wheat. Although the wet season has hindered threshing he has to withhold his corn in order that the overseas grower may realize his produce.

"Wheat is not the only article that is welcomed in opposition to home-grown commodities. Bacon, eggs, and various manufactures are accorded precedence in tonnage over essentials for generous animal production, so much so that it would appear to be the object, in allocation of transport space, to oppose rather than to stimulate and assist activity in the home countryside."

The correspondent sees "a point in connection with the cereal prices for the 1919 harvest that should not be permitted to escape attention. The government has guaranteed prices for controlled cereals equal to those fixed for the harvest last year, but nothing is said about the guarantee of a market. As far as the announcement is binding on the government it only pledges it to a price for what it cares to take over; the farmer is not assured of a demand for the whole or any of his corn. This matter should certainly be made clear without delay; otherwise growers of cereals may find themselves next winter in a position similar to that of grazers last autumn —assured of a fixed price but not of a market when a sale should be made."

The London Times explains that the home grown wheat in many cases has a high percentage of moisture and requires mixing with dry, strong wheat, of which there is but a small supply in Great Britain, so that the millers' capacity is limited. The Royal Commission of Wheat Supplies, through the Mills Control Committee, has reduced the milling extraction of home grown wheat as compared with the extraction of imported wheat in order to give greater inducement to millers to purchase as much home grown as possible and thus minimize the glut in the market. The board of agriculture has been assured, the Times says, that everything possible is being done to meet the situation and it therefore appeals to the farmers to proceed with the threshing of oats and barley, which are more urgently needed at the moment, and reserve their wheat stocks until the present congestion is relieved.

The Pure Seed Bill

Senate Bill No. 70, introduced by Senator Rigdon, should receive the support of every well wisher of agriculture in California. The bill is entitled: "An act to maintain the standards of purity and viability of agricultural seeds sold for sowing or seeding in the state of California; to provide for uniform labels; to create the division of seed inspection within the office of state commission of horticulture, appointing a botanist in charge, prescribing his duties ,and making an appropriation to carry out the provisions hereof."

Section 2, which specifies more particularly as to the provisions of the act, provides that the information given by the label shall be:

a. Commonly accepted name.

b. Name and address of seedsman, importer, agent or dealer.

c. Approximate percentage of germination, with month and year said seed was tested.

d. Approximate percentage of purity computed by weight, meaning freedom of such agricultural seed from foreign matter and from other seeds distinguishable by their appearance.

e. Locality where seed was grown; provided, however, that this requirement applies to cereal grains, corn and alfalfa seed only.

f The approximate total percentage, computed by weight, of wild seeds, with the name and approximate number per pound of each kind of seeds of the following named noxious weeds, or the seeds of other weeds which may be declared noxious weeds by the state commission of horticulture, which are present at the rate of, or in excess of, one such noxious weed seed in 10,000 of the agricultural seed: Dodder, star thistle, thistle, morning glory, Johnson grass, hoary cress, ribwort.

Section 3 has to do with mixtures of agricultural seeds, that is, those containing two or more kinds of seeds. These must have printed labels showing that they are mixtures, name of each, approximate percentage of inert matter, approximate percentage of germination, also name and address of dealer, importer, etc.

THE TRUTH ABOUT THE TRACTOR—WHY NOT?

Written by C. L. Butler, President of Butler-Veitch, Incorporated

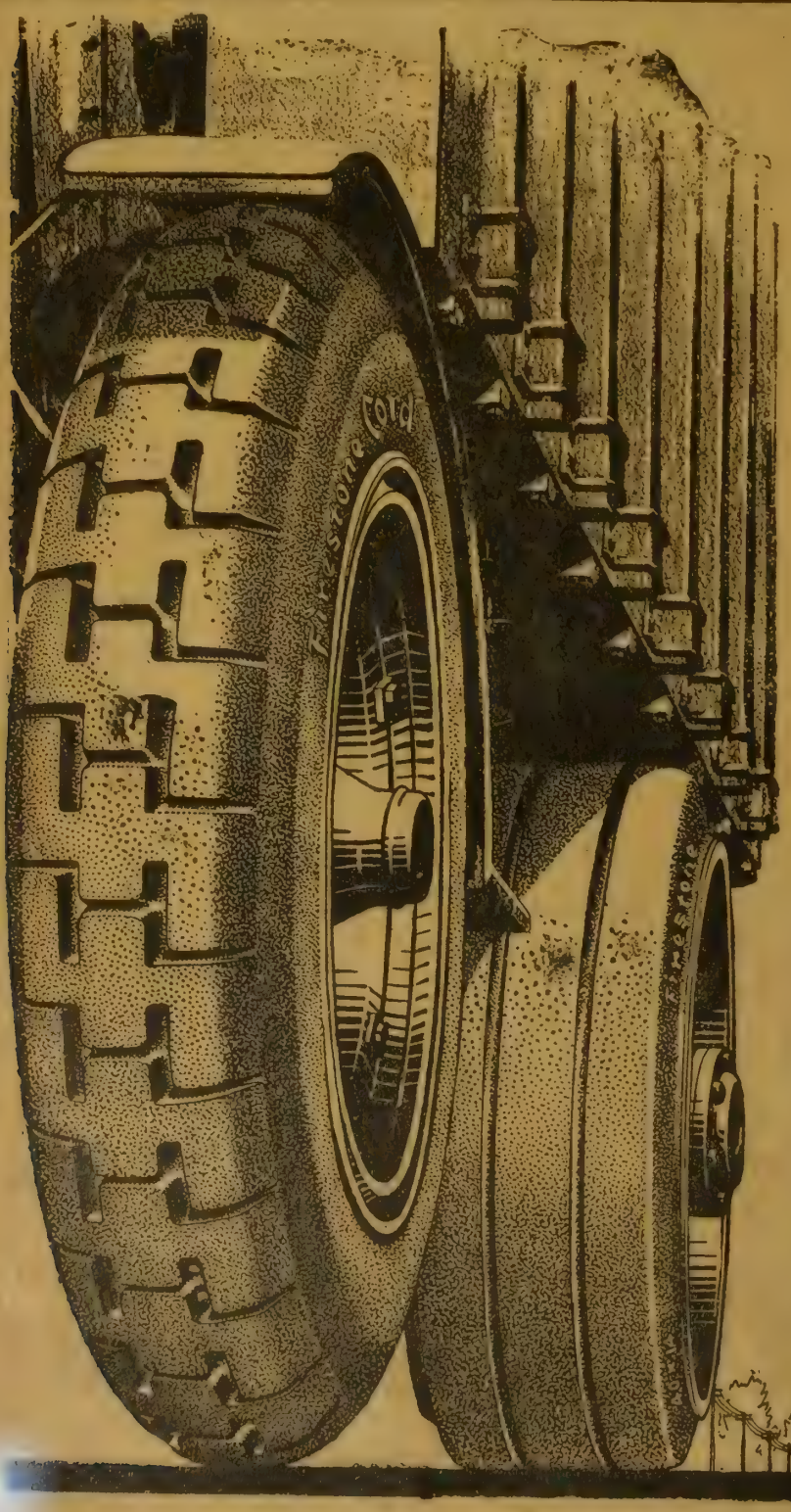
TRACTOR manufacturers and users must face cold facts. If the truth won't sell the tractor, it is better not sold. If facts won't run them, neither will fiction.

The life of a gasoline motor is measured in revolutions, not years. In the mind of almost every man in the country the gasoline motor has become so associated with the automobile that he thinks of the two in the same terms. He measures the life of an automobile, and consequently his gasoline motor, in years. It is vital that the mind of the public, and particularly that of the farmer, be made to distinguish between years and revolutions if the tractor is to become a real factor on the farm. The man who expects too much of his tractor—or his wife—is doomed to disappointment. As long as the farmer is oversold on the tractor, either in his own mind or by the salesmen, there is trouble ahead. Let's don't kid ourselves. If the man selling—yes, and even building the tractor, does not know the facts, what chance for the farmer? The task ahead of the tractor man is to bring the facts to light —and these facts must be honestly presented. Fooling the public with sales eloquence will not give the tractor man a bank balance.

The motors in an automobile and a tractor are fundamentally the same. But motors are measured by the work they do, not the company they keep. The life in motors of equally good design and material is mainly determined by the number of times the crank shaft revolves. Factors influencing the motor's life in revolutions are the character of the load or strain under which it operates and the conditions under which it is lubricated. Both of these latter factors are greatly in favor of the motor in the automobile.

The load under which an automobile motor revolves varies greatly, and is generally very light, probably under normal average conditions, year in and year out, not more than 40 per cent of its rated capacity. Stop to consider how long a motor lasts in a racing car when it works at probably 90 per cent. The tractor motor operates under constant continued dead pull of about 75 per cent of its capacity.

Lubrication in an automobile motor also has points of advantage over a tractor. First, the speed of the car tends to cool the oil in the crankcase, and, secondly, the dust and dirt factor is almost negligible. Grit in oil makes excellent emery, and the moving parts, such as the pistons in the cylinders or bearings on the crankshaft, wear themselves away in short order. The field conditions under which tractors operate are such as to cause, in spite of all precaution, a great deal



Farmers Know Why

Half the truck tonnage of America is carried on

Firestone Truck Tires

Ever since the first days of rubber-tired vehicles, farmers of America have used Firestone Tires.

The quality which long ago gave Firestone Tires the lead, means more than ever in truck service.

With an increasing number of trucks going into Farm Service, users have the assurance of long mileage, protection to trucks, and protection to loads in equipping with Firestone Tires.

In the wide range of Firestone types, solid and pneumatic, there are tires exactly suited to *your* trucks and *your* roads. See the Firestone dealer near you.

FIRESTONE TIRE & RUBBER CO.
Firestone Park, Akron, Ohio

Branches and Dealers Everywhere

more dirt to reach the oil than gets to that in an automobile, which travels over surfaced roads. And even when in dust the speed of the automobile gets it past before the dust can enter the vital parts. The answer, then, to the lubrication problem is attention. The operator of a tractor must keep the oil clean. Whether it is necessary to drain the crankcase and refill with fresh oil once a week or once a day is dependent on the operating conditions, but the oil must be kept clean in a tractor motor. These two things are not the principal factor—they are merely handicaps. Remember them, however, in passing judgment.

Lubrication and character of load are only factors. Work done in revolutions is the real measure. Get these facts and a new respect for the motor in your tractor.

In the average automobile the motor revolves 2300 times to the mile.

In the average tractor the motor revolves 34,000 times to the mile.

The ratio of revolutions of the motors—tractor to automobile—is 15 to 1.

This means that every time you drive your tractor one mile your automobile would have to cover 15 miles to do the same work. During a season of 120 days a tractor will average about eight hours a day in operation, at a speed of at least two miles an



C. L. Butler

hour or an average distance of 16 miles a day. This is equal to 240 miles a day in an automobile. A day's work with a tractor calls for more revolutions of its motor than a trip from San Francisco to Fresno in an automobile—from San Francisco to Los Angeles every two days. That would be 27,000 miles every four months. The life of an automobile is figured at five years, and the average automobile travels less than 5000 miles a year. The average tractor, then, does more work in four months than the automobile in five years. Consideration of that fact inspires a new respect for a tractor motor.

We all know automobiles. I use one, a good one, famous for speed on the track and stamina across the continent. It cost over $2000. It has been about 20,000 miles in the last two years. It has been driven farther and probably faster than the average, but not so hard nor so fast as the motor in a tractor. It has had good care. Yet today there is over ten-thousandths play in the pistons—more than twice too much—and the valves have been ground at least six times, and the main bearings on the crankshaft have been scraped in once, and the connecting rod bearings are all either new or have been refitted, and the wrist pins in three or four of the pistons are now oversized, and there are some new rings on the pistons—leak proof to keep some of the oil down in the case—and countless little ignition, spark plug, carburetor, water pump, generator, etc., etc., adjustments and repairs. Oh, yes! I know there are some that run 50,000 miles without ever lifting the hood. That sounds well but it seldom happens.

Am I disappointed with my car? Not in the least. Has it cost too much to operate? Certainly not. It has had hard service, seen some rough trips. Cost some money to keep it in shape—sure! You can't ride on the train for nothing My automobile did and is doing all that can be fairly asked of it. The longer it goes the more it costs to keep it going.

Now let's give the tractor a chance. Crowd the money spent on your automobile motor during the last five years into four months, and how does it look? Get ready to spend as much or more on your tractor motor every season. Possibly you run your automobile only a year or two and then get a new one. If so your repair bills are small. If you were to get a new motor for your tractor every month or two, you would be doing as well by it—the proportion of work done is the same. Use your reason when appraising the value of your tractor motor. You can't bleed blood from a turnip. Don't expect the impossible. Measure your motor in revolutions not years, and every one will be satisfied.

And the sweet part of it all is that the costs are not prohibitive. Say, for example, that you operate your tractor 16 miles a day for 120 days. Assume that you have 120 acres which you plow once with a three bottom 12-inch plow and cultivate ten times with implements six feet wide. Traveling 16 miles a day with three 12-inch bottoms you would plow six acres; cultivating, you would double that. In the 120 days' operation of the tractor 20 days would be spent plowing and 100 days cultivating your orchard of 120 acres. Plowing six acres a day for 20 days equals 120 acres (once over). Cultivating 12 acres a day for 100 days equals 1200 acres (120 acres ten times over). Total acreage covered in 120 days at 16 miles a day, 1320 acres; 1320 acres at 10c per acre, $132.

One hundred thirty-two dollars intelligently spent on your tractor motor during every four months would keep it in perfect condition and replace it with a new or factory rebuilt one as often as needed. This is, of course, provided the motor is not abused.

The user of a tractor must prepare himself to pay for his tractor work on a basis of work done, not years in service. The manufacturer who assumes responsibility for his machine over a period of time instead of on a basis of work done is a poor risk for a conservative banker.

This fact is beautifully illustrated by the motor of a tractor. Working eight hours a day average to travel only 16 miles, the motor revolves 544,000 times, or 16,320,000 a month, or 65,280,000 times a season of 120 days. It looks like a liberty loan and must be given as careful consideration by all concerned.

Tractor motors must be measured in revolutions, not years.

TOO MUCH FOR SAM

At the end of three weeks of married life a Southern darkey returned to the minister who had performed the ceremony and asked for a divorce. After explaining that he could not grant divorces, the minister tried to dissuade his visitor from carrying out his intention.

"You must remember, Sam, that you promised to take Liza for better or worse."

"Yeassir, I knows dat, boss," rejoined the darkey, "but—but she's wuss dan I took her for."

TEAGUE QUALITY

CITRUS TREES

Orange, Lemon, Pomelo and Lime, bud selected (pedigreed) trees, subject to immediate delivery. Correspondence invited and prices cheerfully quoted.

Founded in 1889

R. M. Teague Citrus Nurseries

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California's Biggest Mid-winter Event!
At San Bernardino, February 14 to 23

PAGEANT OF PEACE

California Fruit Growers Golden Tribute to Victory

80—Beautiful Girls—80

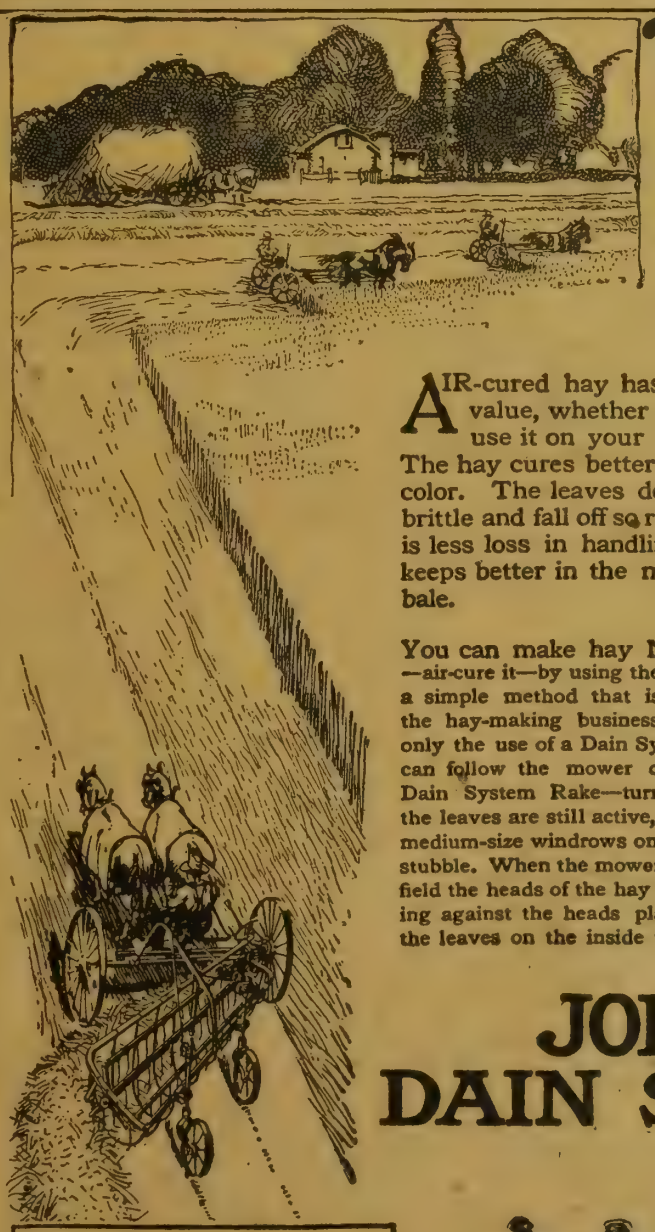
A gorgeous spectacle portraying the splendor and riches of the citrus fruit industry.
A million oranges in a beautiful wonderland garden of fruits and flowers.
Seven Bands and Free Vaudeville Entertainment.
Auto Show and Industrial Show.
Citrus Institute for California Growers February 20-21.

FIFTY CENTS SEES IT ALL

A Midway of Rollicking Fun

California Cultivator

Costs Only $1.00 Yearly



"Nature's Way" of Air-Curing Hay The Dain System

AIR-cured hay has the greatest value, whether you sell it or use it on your farm for feed. The hay cures better and holds its color. The leaves do not become brittle and fall off so rapidly. There is less loss in handling. The hay keeps better in the mow, stack or bale.

You can make hay Nature's Way—air-cure it—by using the Dain System—a simple method that is revolutionizing the hay-making business. This requires only the use of a Dain System Rake. You can follow the mower closely with the Dain System Rake—turn the hay while the leaves are still active, delivering it in medium-size windrows on clean, dried-out stubble. When the mower passes over the field the heads of the hay fall back. Raking against the heads places the bulk of the leaves on the inside where they cannot sun-scorch, and the stems outside, insuring thorough evaporation of moisture.

By adjusting the angle of the teeth, the density of the windrow is controlled, allowing free circulation of air. AND THE DAIN SYSTEM RAKE HAS THE WIDEST RANGE OF TOOTH ADJUSTMENT.

It is an easy rake to operate. You can put machine in and out of gear, change the angle of the teeth and raise or lower the raking head with levers that are easily accessible from the seat.

The Dain System Rake has unusual capacity. This is made possible by the high steel arch and an exclusive feature—the inclined frame, which is highest at the point where the windrow is largest.

The Dain System Rake is enabling thousands of farmers to make hay that grades high. Get this extra profit out of your hay land by employing the Dain System of air-curing hay.

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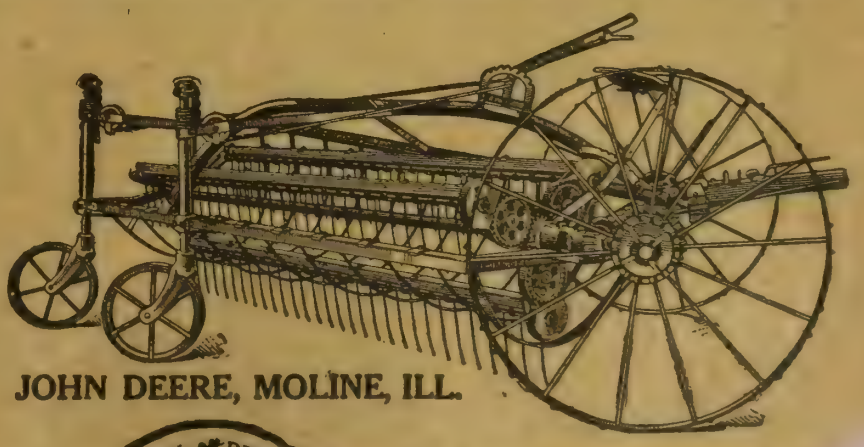
"The Dain System of Air-Curing Hay"—12 pages describing a simple method that is revolutionizing the hay-making business.

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Mowers	Hay Stackers
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and practically every tool required on the farm. Write today for your copy. Ask for package DR—14.

JOHN DEERE DAIN SYSTEM RAKE



JOHN DEERE, MOLINE, ILL.

GET QUALITY AND SERVICE — JOHN DEERE MOLINE, ILL. THE TRADE MARK OF QUALITY — JOHN DEERE DEALERS GIVE BOTH



A Famous JERSEY with a champion long distance record for twenty-five consecutive months of 2,067 pounds of butter.

They Must Be Healthy

The cows with the big production records are first of all healthy cows. Perfect health is more responsible for their scores than breeding or any other single factor.

It is a fact that more than 80% of the poor milkers in almost any dairy can show remarkable gains in milk production by the most simple home treatment and observation.

Such common and dreaded ailments as Abortion, Barrenness, Retained Afterbirth, Scouring, Lost Appetite, Bunches and such other complaints as arise from low vitality of the digestive and genital organs are readily eliminated by simple home treatment and judicious use of KOW-KURE. Almost all diseases can be reached by this wonderful medicine. The cow can then thrive on Nature's food and increased milk flow is inevitable.

You can add hundreds of dollars to your milk income by spending a few dollars yearly for KOW-KURE. Send for our valuable free book, "The Home Cow Doctor." It gives directions for the use of Kow-Kure in each disease—also contains a wealth of general information valuable to any cow owner.

Buy KOW-KURE from feed dealers or druggists; 60c. and $1.20 packages.

DAIRY ASSOCIATION CO.
Lyndonville, Vt.

KOW-KURE



Pennsylvania Comes to California for Berkshires

ONE of the most important transactions ever consummated in Pacific Coast Berkshire circles was effected last week when Paul F. Krause, manager of the Sycamore Farms, Douglasville, Pennsylvania, visited a number of leading California herds ond selected 33 head of sows and boars for shipment east.

This is the second shipment of California Berkshires to Pennsylvania and both went to the same farm. It will be recalled that two years ago Milton R. Thomas purchased Grand Leader 2nd, grand champion at the Panama Pacific International Exposition, and 20 sows, from A. B. Humphrey, proprietor of the Grape Wild Farm, Escalon. The initial shipment attracted wide attention throughout the East.

Last summer Mr. Thomas entered the army, the herd was taken over by a relative who retained most of the Grand Leader offspring. So well did the California blood do, that the owners determined to build their herd around this blood and knowing that California was the fountainhead came West a second time.

Mr. Krause secured 10 gilts and two native sows, together with a fall boar by Big Leader, a son of Grand Leader 2nd, and a boar by Majestic King 6th, grand champion at the 1917 California State Fair, from Mr. Humphrey. All of the sows and gilts are rich in the blood of Grand Leader 2nd.

G. M. York, Modesto, furnished four gilts sired by Ringleader, a son of Grand Leader 2nd. The Butte City Ranch, Butte City, contributed eight gilts by Mayhew's Leader, a son of Grand Leader 2nd, and a young boar by Onward, son of the much talked of English boar, Epocal, but out of Escalon Fashion Princess, a daughter of Grand Leader 2nd. Anchorage Farm, Orland, furnished two gilts, daughters of Star Leader, the greatest son of Grand Leader 2nd, and two Superior Lustre gilts. Homer Hewins, Jr., Calistoga, put in two granddaughters of Grand Leader 2nd.

Considerable significance must be attached to this transaction. It indicates, first of all, that California breeders of any kind of live stock can be certain of a market much wider than their own state, if they produce the right kind of stock. Distance is no great factor when you have what the buyer wants. It also indicates that our breeders can, and are, producing Berkshire hogs that are the equal of any.

There is no reason to assume that what the Berkshire breeders have accomplished cannot be duplicated by breeders of other kinds of pure bred stock.

Mr. Krause was greatly impressed with the natural advantages of this state for live stock production. In commenting on his purchase Mr. Krause said:

"When I started west I expected to see good hogs, but I am frank to admit that I did not expect to find so many. I think I never saw as many Berkshires in any one county as I saw in Glenn County—they were everywhere and the quality was good. I am very much impressed with the opportunities of this state. But when one stops to think, why shouldn't your breeders raise the best? The climatic conditions are such that practically twelve months of green feed is possible, and I believe that this accounts for the very unusual size I noted in fall farrowed pigs. Your breeders really have a tremendous advantage over the East, where we are handicapped by long cold winters. In California, pigs farrowed in August or September can be turned on grass at weaning time and will have it all through the winter, while with us, fall pigs have to be kept in most of the time. Naturally California pigs have more size than ours, and I don't see why your breeders cannot build up a big business by furnishing Eastern breeders fall farrowed stuff to put in their fall sales the following year. California is attracting a lot of attention in Eastern live stock circles and I am confident that some day this state will be numbered among the great live stock states."

A Broader View Than Your Own Herd

Generally speaking, one cannot fail to be impressed with the character of men attracted to the business of pure bred live stock production. There is undoubtedly a fascination about the business that attracts men of a rather definite type. They are big, broad and generous, and the rare fellowship noted in the ranks of all breeders cannot be found in any other line of business. No business that the writer is familiar with is quite so dependent for its success, as a whole, on the integrity of the individual as is the breeding business. And the statement is ventured without hesitancy, that no business is conducted on a higher plane.

Occasionally, though, dissensions will develop and factions form. This is all very well in a way, if these differences of opinion will eventually lead to an improvement of the breed. But too often petty jealousy is at the bottom, and after being fanned from an insignificant beginning and allowed to continue, the net result is no personal satisfaction to either side and a setback to the breed. Which is simply a way of saying that these breeders' quarrels are a boomerang that will in the end hit the dissenters harder than any one else.

The future of all herds of pure bred live stock in this state is so full of possibilities and the field is capable of such tremendous development, that it would seem that the sooner such pettiness is eliminated the more profitable for all concerned.

There are hundreds of prospective breeders in this state today. Probably not one in ten has decided what breed he will select, but is it fair to assume that he will select the breed that is struggling under a handicap of a breeders' quarrel? Suppose he is really favorable to such a breed and upon investigation he finds a factional fuss, and granting that either side is right, is he likely to know the truth? Is it reasonable to suppose that any man would deliberately choose a breed whose promoters have little good to say of each other? We hardly think so. On the contrary we are rather inclined to think that he would want to associate himself with some other breed.

No breed is strong enough that the breeders can afford to permit a ruction in the ranks. It is inexcusable. There is room for all the breeds and breeders. The game is too big for littleness at any point.

Of course if there are those who must have their fuss, no one will object. But if they are willing to sacrifice their interests for the sake of their personal satisfaction, they might just as well make up their minds to step aside and watch the other breeds go by.

Be a booster. Speak well of the other fellow and his herd. If his stock is good it deserves to be spoken well of; if it is not—let the public form their opinion without your assistance. If the other fellow whips you in the show ring or beats you on sales there is probably a reason, and the chances are that he has better stuff. The thing to do is to determine to beat him by producing better animals—not by knocking him.

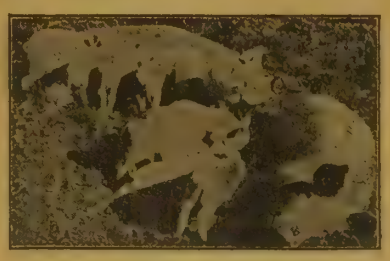
Every time a good herd is brought out or a good sale is made your business is helped. Every time you speak ill of your fellow breeder or his operations you hurt your own business.

NEW ORGANIZATION OF NORTHWEST LIVE STOCK INTERESTS

The live stock breeding interests of the Northwest have set in motion a plan of organization that promises much for the live stock development of that section.

Owing to the failure of the 1918 Portland show the breeders decided to attempt a plan of organization that would not only assure a winter show at Portland but would operate on a broader plan to the advantage of the

MONTELENA HERD



Large Yorkshires

Have large litters. Service boars of exceptional quality, in best breeding condition. They are strong, active, long, deep fellows, with big bone and splendid heart girth. Come and see them, or write to

A. L. TUBBS CO.
Calistoga - California

Raising the Standard of California Bacon

Grand Champion Boar **Grand Champion Sow**
Sacramento State Fair



Berkshires

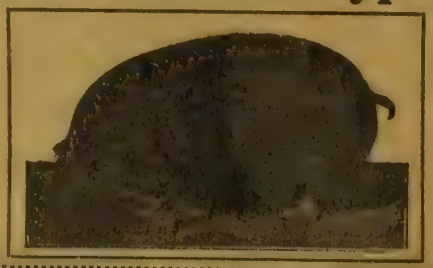
Forty-three of our litters this year averaged ten to the litter. We sell foundation sows and boars to head your herd from our easy keeping, heavy producing strains. Write to

JAMES MILLS ORCHARDS, Hamilton City, California

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett
Hanford, Kings County, Cal.





Flush Cows After Calving

Protect your herd against Contagious Abortion and Barrenness.

Barrenness or Sterility, like Abortion, Retention of After-birth and Premature Birth, is nearly always caused by infection of the reproductive organs by the germs of Contagious Abortion. Unless this infection is promptly overcome by the use of a powerful but safe antiseptic, it may permanently affect the reproductive organs so that the cow will continually fail to stick.

Every time a cow drops a calf—whether alive or dead—by premature birth or aborting, whether the after-birth is retained or not, her reproductive organs should be flushed out, because that is where the infection is developing.

B-K, the powerful non-poisonous antiseptic, is scientifically correct for this work. Used as a douche for the uterus, it quickly brings the after-birth, dissolves the slimy albuminous matter, kills the germs, stops discharges and controls the infection. B-K does not cause straining, but is soothing and heals the tissues.

Send for "evidence" and free Bulletin No. 52 "Contagious Abortion." If your dealer does not have B-K send us his name

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CASTLEVIEW BERKSHIRES

If you attend the Western Berkshire Congress Sale at Davis on February 20th do not overlook our consignment of

Two Grand Sows

Castleview Ranch

P. O. Box 56 **Santa Rosa**

Polands for Profit



I Breed and Raise

Strictly big type Polands of best blood lines properly developed. Bred sows and gilts, and a few fall boars for sale at prices that are reasonable. Satisfaction guaranteed. **R. J. Yates, Orland, Calif.**

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entire live stock fraternity of Oregon and Washington, in particular, and the Northwest in general.

As stated above, the proposed plan contemplates a live stock show, but the big idea is to further the cause of better live stock. O. M. Plummer has been selected as general manager. The board of directors will consist of 40 members, representing every breed of live stock.

The organization will have strong financial backing. The city of Portland has agreed to duplicate any amount up to $250,000 and it is expected that a fund of $500,000 will be raised.

In a recent letter addressed to Professor Gordon H. True of the University of California, Plummer states that he will really be live stock commissioner for the breeders of the Northwest and that he plans to make his office "a clearing house for all live stock information, and to institute an aggressive campaign to eliminate the scrub."

Present plans call for a show classification with prizes second only to the International and the National Dairy Show.

80,000 PIG CLUB MEMBERS

In the recent report issued by the bureau of animal industry of the United States department of agriculture the following statement appears:

During the year 25 specialists working in 18 states supervised 35,980 members in the boys' and girls' pig clubs, an increase of 66 per cent over the year before. The present enrollment is more than 80,000 in 28 states. Records for more than 12,000 pigs show an average daily gain of 1.14 pounds and very satisfactory profits. Seventy-one per cent of the reporting members raised pure bred pigs. Financial aid by bankers plays an important part in the success of the pig club work. In Mississippi more than $50,000 has been lent to pig club members. The increase in production of pork due to club workers is evidenced by the fact that in several states the club members are shipping their hogs to market in carload lots. The pig clubs have been the forerunners of swine breeders' organizations, and in many states there are counties standardized to one breed of hogs as a result of the introduction of that breed for pig club work. The specialists have advocated economical production by the use of forage and pasture crops and the feeding of garbage and table scraps.

DISCOVERS CURE FOR GLANDERS

The Italian-American News Bureau, published in Rome, says several reviews of medicine and veterinary surgery in Italy speak of important researches looking to the cure of glanders, which afflicts horses and may also attack man, who almost invariably succumbs. At the beginning of the war the spread of glanders, especially among the horses of the Third Army, suggested to the colonel commanding, Dr. E. Bertetti, director of the veterinary service of the army, the idea of utilizing the victims of glanders in making experiments in regard to its curability.

Obtaining permission of the war ministry and the supreme command of the army the experiments were begun at Caorle in a sanitarium rigorously quarantined and equipped with all the latest scientific and surgical appliances.

Dr. Guido Finzi, head of the Institute of Pathology and Medical Clinics of the Superior Veterinary School of Turin, assisted Dr. Bertetti. After two years they announced that glanders was curable, not only in its chronic stages but also in its process of evolution.

The importance of the discovery and the evidence of the results obtained led the two experimenters to ask for a commission to make practical tests of their discoveries. The results fully confirmed the results announced.

NO WONDER

Mrs. Baye: "She is simply mad on the subject of germs, and sterilizes or filters everything in the house."

"How does she get along with her family?"

"Oh, even her relations are strained."—Tit-Bits.

Sooner or later you will buy a

DE LAVAL

CREAM SEPARATOR

If you have any use for a cream separator, it's only a question of time before you buy a De Laval.

Many buy a De Laval to start with and so avoid a lot of "separator grief."

Others buy one, two or three different machines before they finally learn by experience that "the best is the cheapest" and get a De Laval.

That's why, in the older dairy sections where separators have been in general use for many years, you'll find most of the machines are De Lavals.

"Claims" don't mean much to such farmers. They've had lots of separator experience. "Performance" means a thousand times more to them than claims.

They've watched the De Laval "perform" for several decades. They know that it is reliable and they stick to it, just as does the creameryman who is also "separator wise."



Why not be guided by the experience of these men and buy your De Laval "Sooner" instead of "Later?"

Order your De Laval now and let it begin saving cream for you right away. See the local De Laval agent, or, if you don't know him, write to the nearest De Laval office as below

Over 2,325,000 De Lavals in Daily Use

De Laval Dairy Supply Co.

The Largest Dairy Supply House on the Pacific Coast

ALPHA GASOLINE ENGINES
IDEAL GREEN FEED SILOS
ACME FEED CUTTERS
JAMES BARN EQUIPMENT
VIKING ROTARY PUMPS
LAUSON TRACTORS

——EVERYTHING FOR THE DAIRY——

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Breeders and dealers in American Jacks and Jennets.

Jacks and Jennets for sale at all times. Come and see them.

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Alfalfa Seed

Common Variety 25c. per lb. **Smooth Peruvian 30c. per lb.**
Hairy Peruvian 40c. per lb.

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Delivery to You by Prepaid Freight

Delay Buying Until You Have Compared My Samples With Seed Others Offer

E. F. Sanguinetti

Yuma, Arizona---The Home of the Hairy Peruvian

Prize Winning Berkshires

Two High Class Jr. Boars, choice $65.00. Six Fall Boars, choice $50.00.

Sired by Amos Rival.

F. P. Hall **Perris, Cal.**

Allied Horses Clipped

Horses of Allied armies were clipped regularly. Army veterinarians knew that clipped horses were much less liable to sickness—did better work and gave longer service. The machine adopted was the Stewart Ball Bearing No. 1. The Stewart lasts a lifetime and costs only $9 75. Send $2 00—pay balance on arrival. Or write for new 1919 catalog.

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Dept. 101, 12th St. and Central Ave., Chicago, Ill.



Catalog, barn plans and full information FREE —write today.

Make Your Winter Barn Work Easy

YOU CAN NO MORE AFFORD TO CLEAN OUT YOUR BARN WITH A WHEEL-BARROW THAN TO CUT WHEAT WITH A CRADLE. One cuts into your legitimate profits just as surely and as deeply as the other—IT ROBS YOU OF MONEY which should be in the bank, and of luxury which should be in your home.

Louden's Litter Carrier Outfit

stops the waste. Makes work lighter and life pleasanter — especially in winter. Saves daily many hours of the hard disagreeable work—barn cleaning with a wheel-barrow in cold, wet weather!

American Pump Co.

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Planet Jr. users get the biggest crops

They do their cultivation quicker, better and with less labor, for Planet Jrs. are scientific garden tools that work easily, rapidly and with thoroughness. Used by successful farmers and gardeners for over forty-five years. Planet Jrs. last a lifetime and are fully guaranteed.

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Illustrates Planet Jrs. in action and describes over 55 tools, including Seeders, Wheel-Hoes, Horse-Hoes, Harrows, Orchard-, Beet- and Pivot-Wheel Riding Cultivators. Write for it today! *Agencies in all principal Pacific Coast cities.*





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Economy Stock Powder
A general conditioner, a worm expeller and a disease preventive.
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We specialize in selected SEED POTATOES; Certified White Rose, American Wonders, British Queens, Burbanks, Garnet Chilis, and other varieties. Also fancy, recleaned Alfalfa Seed. Write for prices.

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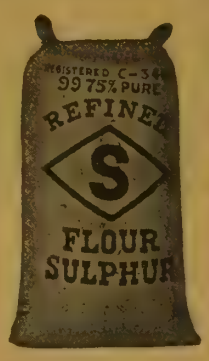
There is no argument as to the best and cheapest source of available nitrogen for worn out frosted orchards. Where

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is used the fruit never fails to set. Apply to orchard now for best results.
Mention crops interested in when writing for free information and literature.

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321 Stimson Bldg., Los Angeles, Cal.

Livingston, Merced County, farmers are planning to grow large acreage of sugar beets.



SULPHUR

It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards SIX times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

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To create additional available plant food, drill into the soil 100 to 400 pounds per acre of our Diamond "S" Brand Powdered Sulphur. Write direct to

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624 California Street, San Francisco, Cal.

We are equipped to make immediate shipment. Send for illustrated booklet; price list and samples, and please state for what purpose you use the sulphur, quantity needed, and date of shipment preferred. Tel. Kearny 871.

Much Interest in Milking Shorthorns

Thomas Harrison, who has recently moved his herd of milking Shorthorns to Santa Rosa, states that there exists a very active demand for breeding stock and that it is his belief that during the next few years a large number of herds will be established in this state.

The appreciation for Shorthorn cows that have been developed along lines calculated to develop performance at the pail, has increased very rapidly during the past few years for the very good reason that these cattle meet the demand of the small farmer who does not care to enter the dairy business in a specialized way, but who does want to keep cows that are profitable to milk and that can produce a calf that is more acceptable to the butcher than straight dairy bred calves.

Mr. Harrison was born in England and came to this country a number of years ago to accept a place with James J. Hill, the railroad builder, who was one of the first to advocate the milking Shorthorn for Middle West farmers.

At the present time, the Harrison herd consists of about 24 cows in milk but he plans to increase the herd to about 40 head.

Foothill's Pioneer, a son of General Clay and out of the imported cow Tassel, a 10,000 pound cow, is at the head of the herd.

One of the Largest Berkshire Herds

One of the largest herds of registered Berkshires maintained in this state is owned by the James Mills Orchard Corporation, Hamilton City

Several years ago when Mr. Mills began his operations in the upper Sacramento Valley where his company controls several thousand acres of land, he was quick to note that there was a vast quantity of valuable feed in the shape of stubble, interplanted orchard crops and fruit that was going to waste and he became convinced that hogs could be utilized to better advantage than other classes of live stock, and being a firm believer in the efficiency of the well bred hog over the scrub he began collecting a valuable lot of as good Berkshires as were obtainable.

At the present time about 2000 hogs are being handled and of this number about 400 are pure breds. The plan under which the herd is being developed calls for as rapid replacement of the grades with pure breds as is possible, and it is expected that within a few years nothing but the latter sort will be in the herd.

Mr. Mills says that his experience in handling large numbers of hogs has been very satisfactory and that the hog department has always registered a profit, but that he has noticed that the better the hog the greater the profit.

The Mills herd is headed by Ames Rival 7th, grand champion at the 1918 state fair, and includes many excellent sows.

Western Berkshire Congress Sale

With the approach of the fourth annual Western Berkshire Congress and sale at Davis, Berkshire interests on the Pacific Coast are looking for one of the most successful meetings in the history of their breed on this coast. It will be a sort of a two-day Berkshire exposition with meetings, a banquet, barrow contests, carcass contest, students' judging contest and a judging ring of sale animals.

Secretary Homer Hewins, Jr., of the congress, gives an idea of the meeting in his letter to the breeders which is in part as follows:

"The Western Berkshire Congress will hold its fourth annual meeting and guarantee sale at University Farm, Davis, February 19 and 20. This promises to be the biggest event of the kind ever held in the West and you are invited to attend. Wednesday there will be a students' judging contest in which all the sale animals will be judged by the students for prizes. Fat barrows in pens and individuals will also be judged. Wednesday night there will be a banquet and goodfellowship meeting.

"Thursday is Sale Day and establishes a new record for hog sales as it is a guarantee sale and guarantee means just that. Each animal sold is guaranteed to be as represented and for 60 days from sale date the Western Berkshire Congress guarantees the purchaser of any animal that proves not to be as represented either a refund of his money or an exchange with the seller for an animal equally good.

"A secret committee will pass upon the merits of each consignment and animals that are not desirable will not be sold."

Another Star for the Guarantee Sale

The highest record bull ever offered for sale on the Pacific Coast is the latest entry for the Holstein Guaranty Sale to be held at Sacramento on March 27. He is a son of Adirondac Wietske Dairy Maid, the cow that recently broke the Pacific Coast record by producing 41.03 pounds butter in seven days and is still on test at this writing. This young fellow is a show bull and is sired by a 30 pound son of the $50,000 bull King Segis Pontiac Alcartra. He is consigned by Bridgford Company, who own the sire and dam. The Bridgford Company is making its greatest consignment to date in this sale, including three cows above 30 pounds, of which the largest record cow is the 37 pound cow Boweda.

McAlister & Sons have consigned a wonderful lot of daughters of their famous herd sire It, among them a daughter of K P. Tola, a daughter of K. P. Idyl Segis, and others out of dams from 29 to 32 pounds. They have also consigned a great 31 pound cow, and a granddaughter of Rag Apple Korndyke 8th that has the third highest milk record in the world for a two year old heifer.

A. W. Morris & Sons have consigned among others some splendid daughters of Prince Gelsche Walker, out of 30 to 32 pound dams, and all bred to the 34 pound bull Sir Aaggie Mead De Kol, who is the only bull in the world whose seven nearest dams average over 1000 pounds butter in one year.

These consignments are a sample of the quality throughout this sale and for the entire sale it is claimed by the management to be the highest bred, best individual lot of Holsteins ever assembled for a one day sale anywhere on earth.

Annual Shorthorn and Hereford Sales Announced

Announcement has been made that the annual sales of the California Shorthorn Breeders' Association and the Pacific Coast Hereford Breeders' Association will be held at the University Farm, Davis, during the week of April 7-12.

It is also probable that President L. A. Nares of the California Cattlemen's Association will issue a call for a general meeting of that organization to meet at Davis the same week, and an effort is being made to induce the California Wool Growers to meet a

the same time.

If all the plans materialize, and there is no reason why they should not, the week mentioned will be a memorable one for the live stock interests of the state.

Last year for the first time each of the cattle breeders' associations held a consignment sale. The Hereford sale was held at Davis and the Shorthorn sale at San Francisco. Each sale was declared a success, but at the time the feeling was expressed that if the two could be held at the same time and place that much better results could be looked for, and it is encouraging to note that the two associations can work so harmoniously.

The number of cattle to be offered in either sale has not been announced but it is probable that around 75 or 80 head will be sold by each set of breeders.

All who are interested in better cattle should make their plans to attend the two sales.

Catalogs of the offerings will be issued in due time and can be had by communicating with W. R. Madden, Dixon, California, secretary of the Pacific Coast Hereford Breeders' Association, and D. J. Stollery, 320 Sharon Building, San Francisco, who is secretary of the California Shorthorn Breeders' Association.

SHORTHORN MEN MEET AT SAN FRANCISCO

At the annual meeting of the California Shorthorn Breeders' Association, held in San Francisco, Thursday, February 6, the following directors were elected for the ensuing year: T. T. Miller, Los Angeles and Hollister; C. W. Hawkins, Hollister; Professor Gordon H. True, University Farm, Davis; Thomas Dibblee, San Francisco; Paul Foster, San Francisco.

Mr. Hawkins was elected president and David J. Stollery will continue to serve as secretary.

The retiring president, A. W. Foster, was host at a dinner tendered to the members of the association.

During the meeting, plans were completed for holding the annual association sale at the University Farm during the week of April 7 to 12.

THOUSAND DOLLAR BOAR GOES EAST

Dave Brant of the Elliott Brant Rancho reports sale to C. K. Hearn of Bellgrove Farm, Virginia, of Duroc boar, "Ebro" 264933.

This boar, it will be remembered, was the head of our herd of registered Duroc hogs purchased for us by Prof. J. I. Thompson. This animal was just a year old, weighed 500 pounds and was first prize and champion at the last California State Fair, in his class.

This boar was an outstanding individual in every way—a beautiful show animal. He was sired by a "King's Col" boar. King's Col get won more prizes for "get of sire" than the get of any other boar in America. He was out of a "Golden Model" sow—famous for their wonderful conformation.

The boar was sold, to head a herd of similarly bred sows at "Bellgrove," for $1000 cash and was fully insured.

Mr. Brant adds: "J. B. Manley is now in Nebraska trying to purchase for us sows of these blood lines, which have proved to be the big winners in the Middle West. We only expect to maintain a small herd of sows but these must be absolutely right in every way and will be headed by the best boar in the country."

ANOTHER BIG SALE

Rare opportunity is offered to secure one of California's finest ranches. Some of the richest land in San Joaquin Valley, watered, equipped, stocked, all ready for making of money. It is located in Tulare County and is known as the Whitten Ranch. There are 160 acres, 100 of which are in alfalfa, with barns, hog pens and sheds, and in fact all buildings arranged for live stock operations. It may be purchased with live stock and equipment, or otherwise, with easiest kind of terms, ten per cent down and ten per cent annually, interest at seven per cent.

In fact it is going to be put up at public auction by the manager, F. F. Allen. Rhoades and Rhoades do the auctioneering. Particulars regarding this great offering may be had in formal announcement on another page. The date of the sale is February 27, and 28 if necessary.

To Be Sold at Public Auction
The Whitten Ranch
Pride of Tulare County

With its full complement of tools, farm implements, live stock, furniture and furnishings; in fact EVERYTHING GOES

LIVESTOCK

The Whitten Ranch has for years been noted as one of Tulare County's show places. Not only is the ranch itself, one of the best developed, best appointed, best improved farms in Central California, but its fine horses, fine cows, fine hogs and fine sheep are so well known that it is not necessary for us to go into details in regard to the live stock offered in this great sale.

Horses

1 Team heavy Percheron mares.
1 Team medium Percherons.
1 Team matched sorrels.
2 Heavy mares.
3 Heavy mares.
1 Heavy horse.
1 Percheron colt seven months old.

Cattle

1 Registered Holstein bull.
Colantha
An excellent butter fat bull.
1 Young Holstein bull about eight months old.
1 Young Holstein bull about six months old.
2 Young Holstein bull calves.
10 Fresh Holstein cows.
26 Holstein heifers one and one-half to two years old.
6 Holstein heifers six to nine months old.
4 Heifer calves.

Sheep---Shropshire

1 Registered buck.
1 Young buck.
12 Ewes one year old.
25 Ewes about two years old.
18 Lambs.

Poland-Chinas

1 Registered boar.
Ideal Jumbo Boy, registry No. 311109. This fellow is a beauty and good enough to head any herd.

One of the best looking sows in Tulare County with six pigs eight weeks old.

A granddaughter of Hartsook's Big Bone Girl.
6 Bred gilts one year old.

These are beauties, just as good as money can buy, and all registered, and from well known families. Among these you will find:

Madam Sunshine No. 731430.
Madam Jumbo No. 731428.
Red Rose No. 731422.
Madam Big Ben No. 731412.

All of the above Poland-Chinas are top notchers and will compare favorably with the best.

Durocs

100 Gilts—mostly Duroc, some grade.
140 Barrows—mostly Duroc, some grade.

Implements, Tools, Machinery, Etc.

Too Numerous to Mention in Detail

Here is an opportunity for every farmer in Tulare County to buy that hog, that sheep, that heifer, or that cow as a foundation for a future herd. The live stock that is offered speaks for itself and will need but little help from the auctioneer.

Many a farmer, year after year, goes without that tool or that implement which, while necessary, has always seemed to be a little beyond his reach. Here will be the opportunity, and a little money will go a long way at such a sale; and the

RANCH

160 acres, less one acre used by the Sausalito school; 100 acres in alfalfa, 36 acres already planted to barley, balance being utilized for hog pens, corrals, houses, etc., etc.

WATER DEVELOPMENT. Three wells, equipped with electric power, furnish water for irrigation and domestic purposes.

Without a doubt this is the best equipped stock ranches in Central California. There are about 20 acres cut up into 40 fields, hog tight, with concrete watering troughs in each field; a large farrowing house, and modern up to the minute.

The former owner of this ranch, a man of ability and energy, spared no money nor time in developing this ranch into a most scientifically laid out farm. While inspecting the property you will be impressed at every turn with the foresight he must have had.

The main house is most substantial and a comfortable home. In addition there are two houses for married help. There is also a bunk house with five rooms, also shower bath, running water, etc. for the help. The outbuildings, including barns, pump houses, milk house, etc. are well constructed and well designed. If you want to operate a dairy or a stock ranch, or both, there need be no delay, nor could the most exacting buyer suggest any improvement.

Some one is going to buy Tulare County's finest farm for less money than the improvements could be put on it today and on terms that are ordinarily asked for raw land, the purchaser to put in the improvements. The Real Estate will be sold on the following terms: Ten per cent cash at the time of sale. Ten per cent per annum thereafter until fully paid, with interest at the rate of seven per cent per annum, payable semi-annually. Personal Property: Items less than $100.00, cash. Horses, cash. All other items: cattle, hogs, sheep, implements, etc. where the sum exceeds $100.00, one-third cash, and balance in three and six months time with interest at eight per cent.

This valuable property will be offered at 10 o'clock

Thursday, February 27

and will be positively sold to the highest bidder. All bids are on the naked ranch. Nothing goes with it; no tools, no implements, no furniture. These will all be sold separately as well as the hay in the fields, the corn in the crib; in fact, everything goes.

We are expecting the greatest crowd that ever attended an auction in Tulare County and Jim Lee, the ranch cook, will be on hand with a lunch for every one at 12 o'clock.

Come Early

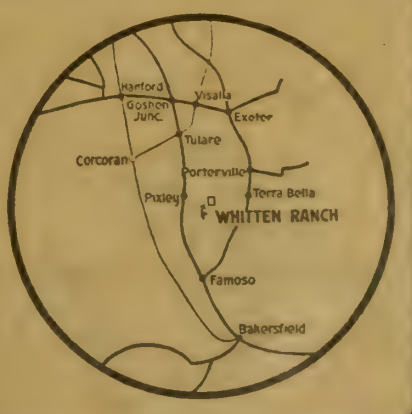
Colonel Rhoades will start the sale at

9 a.m. Thursday, February, 27, 1919

This sale will long be remembered in Tulare County as one when every man found what he long wanted. *For further information address*

RHOADES & RHOADES, 1501 South Main Street, Los Angeles, Cal., or FRANK F. ALLEN, care of Whitten Ranch, Route 1, Box 64, Terra Bella, Cal.

The map will show you the exact location of the Whitten Ranch. It lies about seven and one-half miles east of Pixley on the main county road, and is about the same distance west of Terra Bella in what is known as the Poplar District. Those coming from the West side, leave the boulevard at Pixley, turning east, where the signs will show them the way. Those coming from the East side, leave the boulevard at Terra Bella and follow our signs.



F. F. Allen ***Whitten Ranch***

A Wonderful Offering of Holsteins

The 1919 Guaranty Sale of registered Holsteins, to be held at State Fair Grounds, Sacramento, California, on Thursday, March 27, will contain the most wonderful group of individuals ever assembled for a one day sale anywhere in the world.

This strong claim will be amply sustained on sale day as the remarkable individuals come into the sales ring, and in following announcements of this sale we shall set forth facts of sensational interest to every Holstein breeder in America, for there are animals in this sale worth a continent wide trip to see and own.

THE GUARANTY SALE

The catalog of this great event is being prepared, and it would be well to request a copy early as copies will be mailed only on application.

Management

California Breeders Sales and Pedigree Company

J. M. Henderson, Jr., Pres. C. L. Hughes, Sales Mgr.
Sacramento, California.

SEVENTH SEMI-ANNUAL SALE

OF

King's County Poland China Breeders Association

Saturday, February 22nd, 1919

Kings County Fair Grounds
Hanford, Calif.

80 Head 80

Bred Sows, Gilts and Boars

TO BE SOLD WITHOUT RESERVE FROM THE BEST HERDS IN KINGS COUNTY

CONSIGNORS:

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J. M. Bernstein	W. Bernstein	F. D. Ross

Auctioneer: Col. Ben. A. Rhoades

For Catalog or Information Write to

F. D. Ross, *Secy.* **Hanford, Cal.**

Hauser's Digester Tankage

GIVES GREATEST VALUE FOR LEAST MONEY
IT MAKES THEM FAT

Hauser Packing Co. Los Angeles

Stray Thoughts of a Cowman

Written for California Cultivator By A. L. Spellmeyer

We read that the packers had a publicity fund of $3,200,000 and it would seem lately they are getting more than they paid for, so they should be happy. No man has a kick coming when he gets more than his money's worth.

Opposition to logical improvements in the handling and control of food products which may tend towards lowering living cost is merely greasing the skids.

Some of the commission men who are considered friendly to the packers seem to think there will be small spring cattle demand and prices may go lower. From the word we receive from about all the West these men had better wake up or they will be left at the post. Such a demand has never been known for cattle as has been already indicated, and spring conditions seem to be favorable for good grass everywhere.

Up the Coast they have had some more rain and now many of these men want cattle, now, pronto, especially big steers. Wanting and getting is a different proposition. We hear that big steers are held all the way from $75 to $90 by the head for spring delivery in range condition, and that 900 pound steers are running over 11 cents at feeder valuation right here in California. The Southerns have started out asking $37.50 to $39 for spring yearlings, $44 for cows, twos steers about $60 and threes up anything they dare to ask. The new government figures, notwithstanding all the close estimating and increased numbers from taxation, rather than actual increase in number, only show 287,000 increase in cattle last year. Totals are several million less than this country had ten years ago.

Where did the $3,500,000 put out in drouth loans go? Those poor devils down around Holbrook didn't get any of it, although they spent hundreds of dollars in wiring every known government department at Washington for help. Some of them might favor legislation to have all the men connected with the power of loaning money for drouth relief visit these drouth districts in a body. The best time would be after the winter freeze quits and when the thaw starts, around the water holes fringed with dead breeding stock. Gas masks should be provided.

It seems Los Angeles and San Francisco are now killing beef for export, and that several thousands of canners are being killed weekly, the plants running full tilt. It looks as if this Coast was going to have increasing beef demands each year, and if not easy to get good cattle now, what will it be later? The normal reserve seems to be exhausted here as in other markets, and that the old packers' buyer maxim "more cattle than money to buy them with" will fail this time.

Why is there not a uniform method of valuation of live stock in making income and excess profit returns? It is always well to be foresighted and look ahead. While neither cowmen nor sheep men have any considerable taxes to pay this year, as there has been more loss than profit in the Southwest, prospects are good for next year. One man values his sheep at $6.00 and another at $20. One man values a cow at $20 and another at $100. The more valuation the less tax to pay. Why not arrive at a uniform valuation based on market value and let everyone pay alike? It's only the big outfits that can afford the kind of bookkeeping which makes plausible the big valuations, and most of these have been in business longest and originally bought cheapest.

While it is open season on packers we must admit they have some darned good qualities. They are efficient and in many ways must restrain their ardor for profit in order to encourage producers, or they won't have anything to sell. Not many producers or consumers either want to see them under government ownership. All producers or the average cow man asks is for them to keep their mitts off the markets and money and quit playing games. Some things get so big they run the men who own them instead of the men running the business, and encourage the idea that profits and the business are above any other consideration. No cow man, feeder, or good citizen want to see the packers hurt or their business injured, and no one denies their right to a fair return for their work.

If the things we are told are true (and most of us believe the country is greater than any group of men), and wrongs must be corrected, for the good of the country and its production, and if control of producer, feeder, retailer and packer will help stabilize meat conditions and lower costs of living, let it come on.

Some mighty fine men represent the packers, and aspersion on their individual honesty of purpose would be unjust. There may be some slight abuses and matters which could be improved, but nothing that long term government loans to stockmen, and a government controlled stock yards, would not correct. Let us have some action. Arguing it out won't help production we need now.

Relative to cattle versus beans, we hear that up the Coast many cattle men cannot buy stock for their depleted ranges until they can get money, and they cannot get money until the beans are sold. We hear that there are over a half million bags stored in one county of unsold beans.

This state has, we understand about 65 per cent of the 6,000,000 bags of beans in the country or over $40,000,000 worth. Just think of it, 3,900,000 sacks of beans, enough to feed on an exclusive bean diet a million and a half men for a hundred days.

Stockmen are the experts on the bean question, and any experienced bean eater can state truthfully that a straight bean diet would be a sure cure for Bolshevism. Russia isn't so far away from California and needs food. Let them have our surplus beans. To elucidate:

Those of us who have lived on beans from necessity rather than choice for considerable periods know they are a concentrated and sustaining food. It takes a lot of hard work

VALUE TELLS

To maintain the high standard I have established I am consigning to the Poland-China sale, Hanford, February 22, the extremely high class sow King's Jumbo Lady and Betsy H, one of the best sows in Kings County. Also four gilts by the $700 boar, King's Big Bone Leader, and two growthy young boars. One by Young Jumbo and one by King's Big Bone Leader.

Careful investigation will prove these animals worthy your consideration.

BERNSTEIN'S RANCH
W. BERNSTEIN, Prop.
HANFORD, CALIF.

Carruther's Shorthorns and Berkshires

Choice collection of breeding cows—mostly Scotch—and representing the leading families, headed by Count Glory, grand champion at the last three state fairs, and Hallwood Villager. Bulls for sale at reasonable prices. Berkshire herd headed by the noted boar Ames' Rival 100. Correspondence invited.

W. M. CARRUTHERS, Live Oak, Cal.

DUROC WEANLINGS

by "Orion-Defender" and "High-Model" boars. The best pigs we have ever raised. Price $35.00.

W. W. EVERETT,
River Bend Farm St. Helena, Cal.

The Jersey

Dollars in profit go with Jerseys. They actually "milk money." They feed less. They look real value. Jerseys are a gilt-edge investment for the one-cow home or the hundred-cow dairy farm. There are a thousand proofs of Superiority. Write to Breeders for prices and pedigrees. Let us send you "Jersey Facts", free.



The American Jersey Cattle Club, 322 West 23rd St. New York City

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right
S. F. WILLIAMS
ORLAND, CAL.
Member Orland Jersey Cattle Club.

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REGISTERED JERSEYS
Young bulls from proven dams in Register of Merit
GUY H. MILLER
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ALL MY RECORDS
are made under ordinary dairy conditions. The farmers cow is
The Jersey
YOUNG BULLS FOR SALE
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Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
W. J. HACKETT
MODESTO, CAL.

Get One of My Jersey Bulls
to increase the production of your herd. They are rich in the blood of the great cow, Gertie of Glynllyn.
Visitors Welcome Correspondence Invited
A. A. Jenkins
R. R. Box 46 Tulare, Cal.



Lower per cent of butterfat

Dairymen handling Holsteins do not hesitate to admit that the milk of this breed contains a lower percentage of fat, but in view of their enormous yield of milk they average more butter per cow and they produce a larger margin of profit.

If interested in
HOLSTEIN CATTLE
Send for our booklets—they contain much valuable information.
HOLSTEIN - FRIESIAN ASSOCIATION OF AMERICA, Box 120 Brattleboro, Vt.

HOLSTEIN-FRIESIAN CATTLE
Registered young bulls from best families.
Registered Berkshire Pigs
Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.
Careful attention given to mail orders.
Whittier State School
Whittier, California

Some of the finest
GUERNSEYS
in the West are at
Hollow-Hill Farm
Colton, Cal.
Only Bull Calves For Sale

Herefords-Shorthorns
250 Head Eastern
Registered Bulls and Cows
HARRIS & SONS
Los Angeles

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

to make a man so fit he can start the morning with about four platefuls of the succulent bean, ride all day, and finish in the evening and consume more beans.

The various methods of cooking and preparation will be soon learned by the man in camp who has only beans, flour and coffee. Bean soup is O. K., and there are regular boiled beans with or without bacon rind, and there are beans fried with a stray onion overlooked in the [redacted] of the kiax, but if a man is a fancy cook and wants a cha[redacted] can have mashed beans. It [redacted]ame the wildest Bolshevik to [redacted]ans for three or four months.

Blood thirst and anarchy [redacted]d vanish from his morbid mind[redacted]e would have to work hard in ord[redacted] eat the beans and have to eat them in order to work. Truly a panacea. Nobody ever did see any bad cowboys who were working on a bean diet, as they were too busy working to keep up their appetites, so they could each meal look the festive bean right in the eye and show they were not quitters. Let's prescribe beans for anarchists.

WHAT THE CALF CLUB MEANS

By Frank D. Tomson of the American Shorthorn Breeders' Association

IT IS questionable whether any more useful venture has been made in the matter of the adoption of improved bovine standards than that of forming boys' and girls' calf clubs. In various communities, counties and states these calf clubs have been organized. The extension departments of several state agricultural colleges have taken this work in hand and out of it has come some very remarkable results. The breed associations have materially aided in the formation of such clubs through local banks, more especially where registered calves have been selected for the fitting contests. The American Shorthorn Breeders' Association has been particularly active in this line of education and extension work, and has encouraged many a boy and many a parent to substitute registered Shorthorns for the grades that had previously been grown on the farm.

The contests held under the direction of the several college extension departments have usually been conducted on a strictly beef basis. The calves used in these contests are usually grades of the several beef breeds with an occasional cross-bred or pure-bred calf represented. Under such a plan the calves are started on feed at a stipulated date, the care being given by the boy or girl who has entered the contest, and has either chosen or been assigned the calf. The feed and care provided are left to the judgment of the fitter largely within a few prescribed limits. The effect is to create a keener interest on the part of the fitter in the development of the animal. The fitter is asked usually to make up a statement of the weight of the calf at the beginning and of the plan followed in the fitting, and this effort has naturally led to closer attention to the matter and a deeper interest in the outcome. The contests usually run for a period of three to six months and are concluded at a date agreed upon, sometimes at a local fair or at a county or state fair. The contest is usually the most interesting part of the program, whether held at the state fair or a lesser occasion. It is an inspiring sight to see fifty or more boys and girls, with the calves which they have fitted, lined up for the final ratings. There is many a surprise and many a triumph that will have a lasting effect. The showman's instinct is quickly uncovered and many a loser leaves the ring with a determination to return another day and hold a winner.

The practice of the Shorthorn Association has been to encourage the adoption of registered Shorthorn calves for the contests and then at the conclusion sell the calves in an auction sale after they have been passed on in a prize contest. The fitters are permitted to bid on the calves whether their own or the entries of others. This gives the owner the choice of letting his calf go at a price that seems to him satisfactory or placing a higher bid and retaining it. In this plan there is developed a business instinct that is quite as useful as the fitting experience. In the majority of cases the

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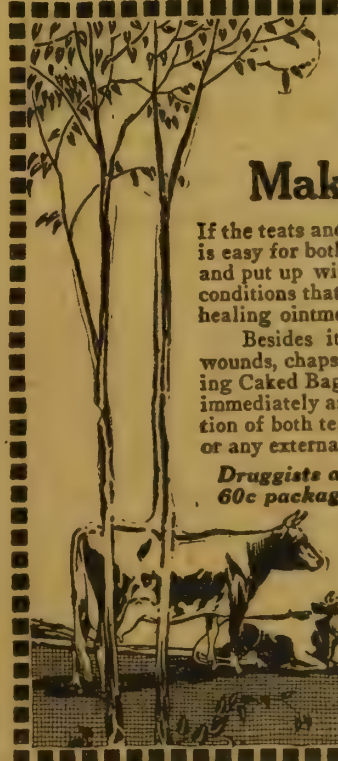
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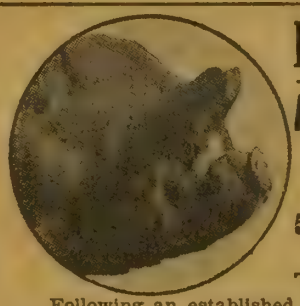
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UNIVERSITY FARM, DAVIS, CAL.

Thursday, February 20

50—Selected Bred Sows, Gilts and Boars—50

The Offering:

Following an established precedent, the Western Berkshire Congress offers for sale 50 head of carefully selected bred sows, gilts and boars. Every animal selected for this sale represents, to a high degree, the most acceptable type of modern Berkshire—size, quality, vitality, bone and prolificacy being insisted upon. Every sow listed is guaranteed to be a breeder or purchase price refunded.

Berkshires are the profitable hog. They are money makers. There never was a better time to enter the hog business than NOW. The scrub must go, and this sale offers an opportunity to replace the low producing scrub with a profitable pure bred at a reasonable price—your own price.

Remember, every bred sow sold is a guaranteed breeder

The few boars to be offered are of the highest class and fit to head good herds or go into any kind of a herd and sire the kind of pigs that will be profitable. The blood lines are the best, the type is right, the quality is first class and the price—your own.

Breed Berkshires—The Standard Hog, The Hog of Quality, Style and Vitality

The Congress Meeting:

The Annual Meeting of the Western Berkshire Congress will be held the day preceding the sale. Matters of vital interest to the hog industry will be discussed by men competent to talk on every angle of the business.

A Fat Barrow Contest will demonstrate to all the reasons why the Berkshire is the Universal Breed.

A Carcass Contest will be conducted as a demonstration of the killing qualities of the Berkshire.

A Student's Judging Contest will bring out emphasis on the finer points of this great Breed.

The Berkshire Dinner will be held the evening before the sale.

A 2-DAY BERKSHIRE EXPOSITION

Meeting: Wednesday, February 19th. Sale: Thursday, February 20th, 1 o'clock.

Catalogs and other information may be secured by filing applications with the Secretary.

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calves are purchased as a lot and then appraised and allotted to the contestants at the appraised price. Local banks have played a very important work in financing and in many cases organizing these clubs and seeing them through to the final windup. The banks have found that these clubs have stimulated a vast amount of interest in better live stock standards not only among the young people who are the principal factors in the plan but among the land owners and tenants throughout the community as well. They have found that it is a good business move for the bank and for the entire neighborhood.

Preference in these pure bred clubs is for heifers of breeding age, and they are usually bred after they pass into the hands of the contestants and brought into the sale with this added advantage and value. For this reason it is desirable that a few good bulls be included in the contest in order to insure an adequate supply of bulls for use on the heifers, and also to provide a better class of bulls for the various herds in the community.

We have in mind one bank in Illinois that has placed the club on a three year basis. Nothing is to be sold from the club except the surplus bull calves until the three year period is completed, and then the produce from these heifers originally purchased is offered at auction. The value of such a plan is easily seen. The only objection that might be offered against it is that the time might seem rather long to the boys and girls in the contest. They might allow their interest to lag before the time had expired.

The great value of these clubs is that they start the young folks along the road to higher standards in an entirely natural and effective way. They learn without the irksome experience of having to be taught as the average boy understands the term. They become business men and women at the outset, and, once having acquired the practice, it will grow. The advantage of the plan followed by the Shorthorn Association is that it puts into their hands the standard at the outset that ordinarily they might be years in attaining. In the usual course of things it is a long stretch from a herd of common or grade cattle to pure breds. This plan shortens the distance—in fact, it eliminates it altogether.

Not only this, but it serves to tie the boy permanently to the farm who might otherwise become identified with other lines and lose the advantage the home farm with its equipment and established good will offers. Many a master in the art of bovine breeding will grow out of these club contests who received his first inspiration therein. It is constructive work of first importance, and its further extension will have a most useful bearing on the permanency of the industry.

LIVE STOCK NOTES FROM ARIZONA

A heavy fall of snow the latter part of December covered the higher elevations, particularly in the northern part of the state. This caused some temporary discomfort to cattle, and resulted in some losses, which were however more than offset by the fact that the snow served to extend the area where grazing animals could find water, and also by the improvement of the range resulting from the melting snows. This snow fall had largely melted in January and another heavy snowfall came the first of February. In the vicinity of Pinedale nearly two and a half feet fell. At Flagstaff, Prescott and Williams, a little less than two feet. Rainfall over the desert section of the southern part of the state aided materially in helping out the feed for the thousands of sheep that are wintering there.

The heavy snows have given the hunters of predatory animals an opportunity to get in some effective work. Two cow punchers near Flagstaff have invented a coyote trap to catch a whole pack at once. Recently they caught twelve in one night. George Ainsworth of Walnut Creek killed a female lion and three young ones a few days ago. Ramsey Patterson, a government hunter, has killed six mountain lions in the past month near Skull Valley. L. E. Croxdale, also of Skull Valley, recently brought in about 30 coyote hides.

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We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

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Live Stock News Notes

Live Stock Commission About Through

C. B. Cunningham, president of the California Swine Breeders' Association, and who for the past 18 months has been a member of the live stock commission for the federal food administration for California, states that the work of the commission is practically completed.

During the war period the live stock commission rendered high service to the live stock producers of this state and was instrumental in securing some very important regulations relating to different phases of the industry. Indeed, on several occasions, the work of the California commission attracted the attention of Washington.

Buys Berkshires and Shorthorns

H. M. Hanman of Crystal Springs has purchased from W. M. Carruthers, Live Oak, the two fall yearling Berkshire gilts, Live Oak Lady 2nd, and Live Oak Lady 3rd. These two gilts were in the winning exhibitors' herd at the 1918 state fair. They were sired by Ames Rival 100 and out of Rival Lady 34th. Both are bred to Mayfield Superbus.

Mr. Hanman also secured a June Shorthorn calf sired by Count Glory and out of Silver Rose, a granddaughter of March Knight.

A Correction

In the issue of February 8, reference was made to the Castleview Berkshire Ranch, Calistoga. This ranch, as is quite well known, is at Santa Rosa and is owned by J. Francis O'Connor. When Mr. O'Connor established the ranch he selected the name, Castleview, which was the name of his grandfather's estate in Ireland, so named because it was in sight of a famous Irish castle.

During the past year Mr. O'Connor has perhaps transferred more Berkshires on the books of the American Berkshire Association than any other breeder in California, owing to the fact that he liquidated the famous Brush herd, and purchased and resold most of the Berkshires in Hopland herd.

Recent sales from this herd include 10 bred sows and gilts to the newly established Pure Bred Sow Farm, Sacramento.

Elliott Brant Sells Guernsey Bull

The Elliott Brant Rancho reports sale of a Guernsey bull to Seward Rickerson, Hermosa Beach. "The bull is sired by one of our 'May Rose' bulls and is out of one of our big A. R. cows. He will head the herd of Mr. Rickerson's grade Jerseys. This cross is proving to be a very profitable one."

Making for Better Stock

Dr. E. J. Weldon, popular Sacramento Holstein breeder, is now secretary of Jane Garden Farm, owned by Fred W. Kiesel, Sacramento. Dr. Weldon's own herd is still doing business, however, as his great young cow Ontario Blonde Pietje is now on test and has over 33 pounds butter to her credit in seven days. This young cow was originally sold in the guaranty sale last December by Mr. Kiesel to McAlister & Son, Chino, for $850. The McAlisters made a 30 pound record on her as a four year old and then consigned her to the Sacramento June sale, where she sold to Dr. Weldon for $1700. With her present record, coupled with her splendid breeding and individuality she is worth several times her last selling price. At freshening she dropped a fine bull calf sired by It.

A 37 Pounder

Adirondac Wietske Dairy Maid, one of the top Holstein cows in the Bridgford Company herd at Knightsen, is on test and has to her credit 37.12 pounds butter and 795 pounds milk in seven days, giving her the third highest butter record in California. Two of her sons have been sold in public sales of California Breeders Sales and Pedigree Company, one of them now being owned by H. E. Cornwell, Modesto, and the other by D. D. Elmore, Tulare.

Daughter of a King

Ruby Walker Pietertje 3d, a daughter of the famous King of the Black and Whites, has made over 30 pounds butter and over 600 pounds milk in seven days. The sire is at the head of Henderson Company herd, Sacramento, and he thus becomes the only sire of a 30 pound daughter that is backed on both sides by three direct generations of 30 pound cows.

Opportunity

Walter F. Mitchell, Visalia, will offer a splendid lot of registered Holsteins in his public sale on April 10. He will sell all of his cows of miking age, retaining only the young heifers, and will sell also the choice herd sire Prince Hiske Walker, to whom most of the females are bred.

Will Retire

E. R. Putz, Laton, will disperse his herd of Holsteins at public autcion on April 9. There will be 37 registered cows, heifers and bulls in the sale, and about the same number of high grade cows and heifers. Mr. Putz feels that he has earned retirement after an active life in the dairy and breeding business, and his sale will provide an opportunity for others to secure the choice animals which he has developed.

Some Picked Toppers

News of the guaranty sale which will be held by the Holstein breeders at Sacramento to March 27 indicates the most important Holstein sale yet held in the West. The highest record cows ever sold in the West have already been entered. In addition to picked tops from leading California herds there will be some really sensational consignments from Carnation Stock Farm, Hollywood Farm, and Albert E. Smith, all of the state of Washington. The Washington entries include a number of outstanding females bred to Judge Segis and to the $106,000 bull Carnation King Sylvia.

Red Cross Calves Bring $43,843

During the National Western Live Stock Show held at Denver last month 1050 heifer calves, donated by Colorado and Wyoming cattlemen to the Red Cross, were sold for $43,843. Each calf carried the brand A.-R.-C.

New Poland-China Records

If the record breaking hog sales being made in the East are true criterions, there must be an abiding faith among Eastern breeders in the future of pork production.

The most recent record to be hung up was registered when Fred Sievers, Audubon, Iowa, sold 38 head of sows and gilts for $28,700, an average of $760. A spring gilt by the $10,200 Col. Jack topped the sale at $1700.

The day before, R. W. Halford, Manning, Iowa, sold 40 head of Poland China sows and gilts for an average of $640. In this sale the world's record price for a sow of any breed was established when Mammoth Giantess was sold for $3400.

Eastern Chester Whites For Billiken Herd

C. B. Cunningham, whose Billiken herd of Chester Whites is one of the best known in the West, is planning to expand his breeding operations and has placed several orders with leading Eastern breeders.

Recent sales include the good sow, White Eagle Tessie, by Missouri Lad and out of a state fair grand champion, to F. N. Wood, Jr., of Menlo Park and a Billiken boar to Ernest Gammon of Hood.

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UNCLE SAM—AGRICULTURIST

Continued from Page 199

way for the promotion and practice of better methods.

Space limitations prevent more than cursory mention of the scope and achievements of the many federal farming offices at the national capital. The recent war time work of the various agricultural agencies is significant of the vast variety of labors which they perform. For example, the bureau of chemistry assisted the war and navy departments in preparation and testing of munitions of war, in addition to doing valuable experimental work such as producing charcoal for gas masks, water proofing leather, conservation of alcohol, sugar and glycerine, water proofing uniforms, supplies and materials and aiding the signal corps in chemical research work—all in addiiton to carrying on much of its normal investigational work.

The forest service has protected Uncle Sam's extensive wooded areas and has influenced the production of much wool and mutton by offering free range to thousands of sheep ranchers. It disseminates information about forests and their protection and development, while recently it has been of great service to the war department and shipping board in supplying facts about the value of various woods, their strength, seasoning and adaptability for airplanes, ships, military vehicles, and the use of alcohol derived from wood by chemical processes. During two recent years an additional 1,000,000 head of live stock have been placed on forest ranges, representing about 25,000,000 pounds of beef, 16,000,000 of mutton and 4,000,000 of wool.

The federal department has stimulated production, increased its control of plant and animal diseases, reduced losses from cattle ticks, hog cholera, tuberculosis, predatory animals, and crop pests; and in conjunction with the department of labor it has helped farmers to secure more labor. It has safeguarded seed stocks and has aided farmers in securing high grade seeds at cost; in combination with the treasury department it has loaned money from the president's special fund to distressed farmers in drouth stricken districts. It has helped in transporting live stock from feed-short sections; assisted in the marketing of farm produce and, under severe handicap, teamed with the countrymen in securing an adequate supply of fertilizers. At the direction of the president it is administering under license the control of stock yards and of the ammonia, fertilizer and farm equipment industries.

The bureau of animal industry, which wages constant warfare against animal diseases and which also has charge of meat inspection work, has accomplished remarkable work in ridding the South of cattle ticks. Of the area originally quarantined 52 per cent, equivalent to 379,312 square miles, are now clean of ticks and available for extensive cattle raising operations. During the last five years the department has reduced hog cholera losses 50 per cent, from $75,000,000 in 1914 to $32,000,000 during the year ending March 31, 1918. Work is in progress in stamping out bovine tuberculosis in 40 of the states. The first list of 1000 owners of herds of pure bred dairy cattle which are certified as clean of turberculosis has been published.

At present the federal meat inspection service covers 884 establishments in 253 towns and cities. Last year a total of 58,629,612 animals including 10,938,287 cattle, 3,323,079 calves, 8,769,498 sheep, 35,449,247 hogs and 149,503 goats were slaughtered and examined, an aggregate of 7,905,184,925 pounds of meat.

The bureau of markets, through its market news service now distributed through 90 branch offices over 14,000 miles of leased wires, has facilitated the shipping operations of producers and distributors who deal in produce, fruits and vegetables, butter, eggs, cheese, grains, hay and seed. Information is also given out on wholesale meat prices and the movement of live stock to market as well as the "in" and "out" movements of cattle from certain feeding districts. This bureau now has charge of the issuance of all reports of live stock receipts and prices from the Chicago Union Stock Yards as well as the enforcement of the grain standards act.

The bureau of crop estimates, with its regular monthly and annual crop reports and its special inquiries for countrywide information relating to various phases of agriculture, is a qualified interpreter for the farmer. It assembles and deduces from facts and figures what the farmers grow, the condition of the plantings at various seasons of the year and the prospects for harvest as compared with previous years. Approximately 200,000 farmers report to the department regarding crop conditions in their localities and supply the mass of material on which the government crop estimates are based.

The weather bureau benefits the farmer by advising him about storm conditions so that he can arrange his calendar of field work to correspond with the findings on the weather map. The bureau of plant industry counsels him as to what crops he should grow in his rotation and how he should prepare his seed bed. The bureaus of plant industry and entomology help him to combat plant pests and insect diseases while the bureau of soils advises him what fertilizers to use and whether or not his soil is acid and needs lime. The bureau of chemistry will tell the farmer about the different kinds of commercial lime and what material will be most suitable for his local application. The states relations service aids those counties desiring farming experts to secure agricultural agents who assist the farmers in every way possible so that the farm income may be increased while farm life may be made more attractive. The bureau of markets helps the farmer to dispose of his surplus crops or fat live stock and suggests ways in which he can improve his marketing operations. The office of farm management shows the farmer how to keep tab on his annual net income so that he may eliminate the leaks and losses which often are parasitic on the possible profits. In a word, Uncle Sam has provided an efficient agency for practically every farming exigency which can arrive, all these institutions being amalgamated to form the federal department of agriculture.

George Washington first suggested the organization of a branch of the national government which would be devoted to the interests of the farmers, while Benjamin Franklin, when he served as agent of Pennsylvania in England, sent home silk worm eggs and mulberry cuttings to start silk growing. After the Revolution, American consuls and naval officers of the United States continued the work started by Franklin by sending home seeds and crop cuttings and by aiding in the introduction of new breeds of domestic animals. The first commit-

Used By Three Generations of American Farmers

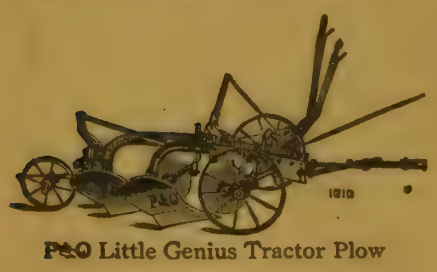
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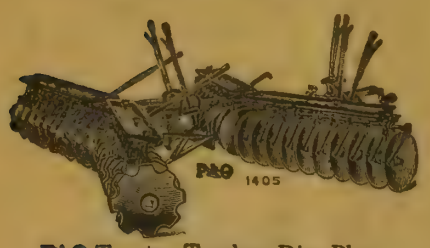
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Simplicity. The founders of this company determined upon the principle of simplicity and this feature has been applied in the building of all P&O Implements for more than three-quarters of a century. The P&O Line is noted for this—the absence of superfluous parts, and yet for the masterly provision for all needed and useful adjustments.

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The P&O Line has been delivering the goods for over 76 years. It is a line built upon the idea that quality must receive first consideration—must be maintained regardless of any other consideration. It is not only a real quality line, but is a complete line, consisting of Plows, Harrows, Planters and Cultivators in all standard styles and sizes.

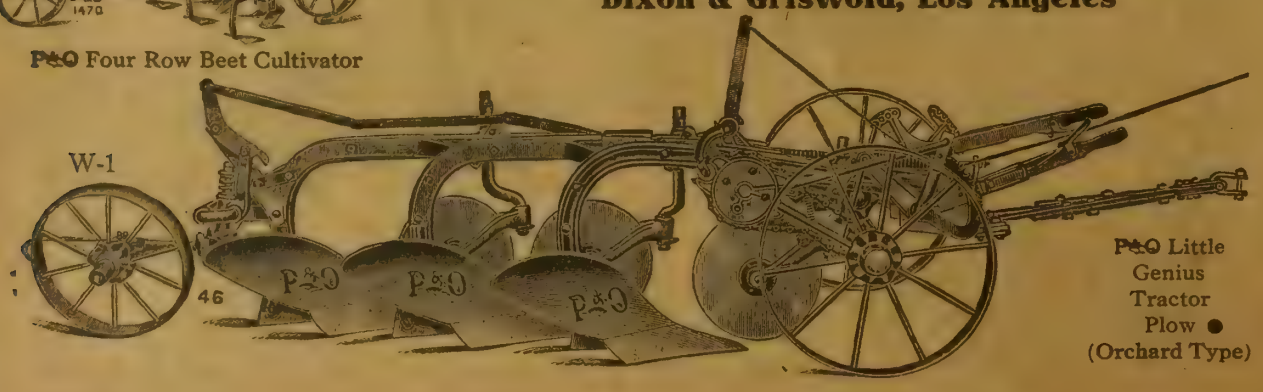
P&O goods are sold exclusively through the retail implement dealers, and we have agencies throughout the country. We shall be pleased to send our catalog describing the entire line of P&O Tillage Implements or the P&O Tractor Plow Catalog to any address. If you are interested in Tractor Plows, Tractor Disc Harrows, Tractor Listers or any other Tillage Implements, it will pay you to study the P&O line before purchasing.

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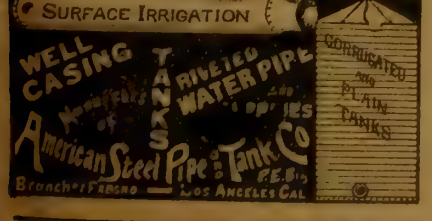
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To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

tee on agriculture was appointed in the house of representatives in 1820 and in the senate in 1825. Eleven years later the commissioner of patents assumed the responsibility of accepting gifts of seeds and distributing them among the farmers. In 1839 congress made its initial appropriation of $1000 for the collection of agricultural statistics and for other agricultural purposes. Similar funds were appropriated in 1942 and 1844 and have been repeated annually since the latter date.

Up to 1862, under the direction of the commissioner of patents, work has continued in collecting agricultural statistics as well as the distribution of seed. The department of agriculture, under the leadership of a commissioner of agriculture, was established by a special act of congress of May 5, 1862, the same year that the Morrill law for the establishment of agricultural colleges was passed. Honorable Isaac Newton was appointed the first commissioner of the new government department. By 1880, under Commissioner W. G. LeDuc, the department had developed to include six divisions—chemical, seed, entomological, statistical, microscopical, and botanical, in addition to the general office, experimental garden and grounds of 40 acres, laboratory, museum and library. Four years later, the bureau of animal industry was formed to protect and promote our live stock interests. In 1886 the division of forestry as well as other divisions, including economic ornithology and mammalogy, as well as pomology, were created.

In 1889 the department became an executive department with a secretary at its head who occupied a place in the president's cabinet. At this time the functions of the department had expanded to such an extent that they involved practically all lines of agricultural efforts of general interest in the United States as well as other lines of acivity related to agriculture. Norman J. Coleman was the first secretary of agriculture, being succeeded by Jeremiah M. Rusk. During the regime of Mr. Coleman the Hatch bill, which created the office of experiment stations, was enacted. Under the administration of Mr. Rusk the first Farmers' Bulletin was published; investigations of foreign markets were conducted; epidemics of pleuro-pneumonia were controlled and the weather bureau was established, it being transferred from the signal corps of the war department.

The units or organization of the United States department of agriculture have been changed from time to time to meet growing conditions, and at present include eleven bureaus, two offices, one division, two boards and the library. The bureaus are Weather, Plant Industry, Animal Industry, Markets, Chemistry, Forest Service, Soils, Crop Estimates, Entomology, Public Roads, Biological Survey, States Relations Service. There are also the Division of Publications, office of Solicitor, office of Farm Management, Federal Horticultural Board and Insecticide and Fungicide Board.

SUGAR AMPLE

The prospective production of sugar for the season of 1918-19 is about 188,000 short tons less than the annual average for the five years just before the war which, as compared with a total of 18,750,000 short tons, is not of great significance, and the current crop is regarded by the United States department of agriculture as practically sufficient to meet a normal world consumption even if present stocks did not exist. Attention is called to the fact, however, that the world sugar supply is not normally distributed. There is a shortage in the beet sugar production in Europe of 50 per cent of the prewar average, amounting to about 4,150,000 tons, while in the same time the cane sugar output has increased by 3,842,000 tons, and the beet sugar crop of the United States is 131,000 tons above the prewar average, though the smallest since 1914. No considerable increase in beet sugar production is expected within the next 12 months, though it is expected ultimately to exceed that of prewar times.



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All loans made on an amortization plan whereby the borrower repays the principal gradually with each interest payment.
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TREES

For Sale—Budding Cloth 50c yard. Navel, Valencias, Pomelo, Tangerine, Lime Buds $2.25 thousand prepaid, also leading varieties citrus nursery stock. Selected and pedigreed buds. Order quick for early delivery. Cyrus W. Wilhite, Citrus Nurseries, Glendora, California. Box 154.

Budded Avocados, Fuerte, Sharpless, Lyon, Dickinson, Blakeman, Puebla, Spinks, Taft, Linda, Rey, Queen, Knight, and others. A fine stock of field grown trees, $2.50 for one, $2.00 each by the 100, 25c per tree for packing. Newbery-Sherlock, 2202 East Colorado St., Pasadena, California.

For Sale—250,000 Homegrown fruit trees. Apricots, apples, pears, peaches, walnuts, etc. All stock guaranteed first class in every respect. You will save money by writing for our descriptive catalogue and low prices. Orange County Nursery Co., Box 235, Anaheim, California.

Eureka Walnuts are the best grafted on Paradox roots. They resist blight. You are sure to get the real thing by placing your order with us. We graft Eurekas only. Geyer Bros. Walnut Nursery, 214 S. Alamansor St., Alhambra, California.

Tuscan and Phillip Cling Peaches, No. 1 stock. Bartlett Pears on Japan blight resistant roots and a general line of best varieties California grown trees. Inspection invited. Prices reasonable. Phone Downey Exchange 692, Los Nietos Valley Nursery, Downey, California.

Grafted Walnut Trees — Placentia Perfection and Eureka. A careful selection of grafting wood from the best groves of Southern California has been used on best black root stock. C. W. Story, Rivera, California.

For Sale — 10,000 Grafted Walnut trees and all leading varieties of fruit trees. Trees can be bought from Third & Bush Street Nursery Company, Santa Ana. Phone 938-W. Residence Phone 769-R. R. E. Franke, Prop.

BUDDED AVOCADOS
All varieties, field grown stock $2.50 each F. O. B. nursery, Mathers Avocado Nursery, 137 N. Fair Oaks Avenue., Pasadena, California.

For Sale—Budded Mission Olive Trees; ready for planting; buds selected from choicest trees; special price for large lots. D. C. McCallum, Oroville, Phones 251 or 138.

Walnut Scions—All the standard and new varieties; Pecan and Pistache scions; Pistache seed absolutely guaranteed. Send for list. Tribble Bros., Elk Grove, California.

Ciro Barbaccia, New Nursery. French and sugar prunes and walnuts. Low prices. 406 Bird Ave., San Jose, California.

For Sale—Fruit and ornamental trees, grapevines, berry plants, etc., at low price. Buy from an ex-soldier. Burke's Nursery, Lodi, California.

Sacks and Burlap for balling trees; before you buy sacks or burlap see me or write. Boyle 1800. J. Ross, 313 N. Boyle Avenue, Los Angeles.

Olive Trees—Mission, Manzanillo. Propagated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, California.

Placentia and Eureka Walnuts on black root. A general line of high grade nursery stock. A. R. Marshall Nurseries, 1212 Ross St., Santa Ana, California.

Trees for Sale—Bartlett and Wilder pears, Imperial and French prunes, also cherries, four by six, fifteen cents. Write M. Sharpe, Vacaville, California.

Apricots and Olives. Good thrifty stock and carefully grown. C. E. MOYER, Hemet, Riverside County, California.

Eureka and Placentia Perfection Walnut buds for sale. E. Holve, Fullerton, California.

For Sale — Choice, young, thrifty Citrus Trees. W. W. Burns, 631 Security Bldg., Los Angeles.

2500 Nonpareil Almond, 250 Peerless, 12¼c;. Packing extra. C. W. Story, Rivera, California.

BUDDED AVOCADOS.
MATHER'S AVOCADO NURSERY, 137 N. Fair Oaks Avenue, Pasadena, California.

TREES, TREES, TREES.
No War Prices.
Cash Nurseries, Sebastopol, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—8000 Mission and Manzanillo olive trees. All kinds citrus trees. York Nurseries, Highland, California.

RABBITS

TOO MANY BUCKS
Ten choice New Zealand red bucks, 9 months old, weights average 7 lbs.; fine color, brown feet, fat and vigorous; worth $5.00, will sell at $3.50 each. 1 New Zealand red buck, 20 months old (father of above 10), weighs 9 lbs., rich color, massive frame, at $6.00. This buck's mother took the blue ribbon at the P. P. I. E. One beautiful Belgian buck 10 months old, weight 8 lbs., price $5.00. One standard Belgian buck, 18 months old, weight 9 lbs., at $5.00. N. Z. Red Belgian and Flemish does with young or bred, all in fine condition. Ask for prices on what you want. Every doe guaranteed good mother. R. Daniels, Walnut Creek, California.

For Sale — New Zealand rabbits. None better, with litters or without, always in stock. Los Angeles Route 9, Box 485 Vermont Heights, West Athens. Burlingame Rabbitry.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

ENGINES

For Sale—5-10 Avery Tractor in Good Condition. D. U. 4 Bosch magneto. Extra strong guards on wheels for orchard work. Clarifier on carburetor. Also two 10-inch bottom Oliver tractor plows, with rolling coulters. Can be seen at C. Stone's ranch, Casitas Avenue, North Pasadena, California. Mail address, R. F. D. No. 2, Pasadena. Home phone Fair Oaks 1670.

Yuba Tractor for Sale—Have one 18 horse power and one 20 h. p. both in good running order and plowing every day. Will sell either. Reason for selling, don't need but one. See them pull 5 plows each on rolling ground. Cheap for cash. Hugh Montgomery, San Gorgonio Ranch, Banning, upper highway between Beaumont and Banning.

For Sale—2½ h. p. Gas Engine and Blower for mine; 20 h. p. Fairbanks-Morse engine; 175 h. p. De La Verne oil engine; 1700 ft. belt-driven air compressor. Clarence F. Lock, Contracting Engineer, 302 Commercial Street, Los Angeles. 61634.

For Sale—One Cleveland tractor in good condition; new engine just put in; new track, all bearings overhauled; practically as good as new machine. Price $1200 cash. Inquire Nels M. Poulsen, 1413 Grant Street, Selma, California.

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale at a Bargain—18-35 Yuba Ball Tread Tractor in first class mechanical shape; plows and double disk harrow included. Apply D. P. Corcoran, Gridley. Phone 33-F. 24.

A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D. Co. California.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

Bargain—One Secondhand and one new Cleveland tractor. W. B. Knapp, 2074 Center Street, Berkeley, California.

For Sale—Bean Tractor in best condition with new improvements. L. F. Raftery, Owensmouth, California.

HOGS

THIS IS TO ANNOUNCE OUR

FIRST ANNUAL FARM SALE

To be held in the town of BUTTE CITY, Glenn County, California, at 1 P. M., SATURDAY, MARCH 1, 1919. We will sell 20 Registered Shorthorns, 30 Registered Berkshires, 20 Registered Shropshires, and 15 Ponies. This sale is primarily to advertise the ranch. We do not expect high prices, but we know that every animal we sell will make a market for more in the future. It will be a buyer's opportunity. All stock of very best breeding. COL. W. H. HORD will conduct the sale. Butte City is 16 miles southeast of Willows; 25 miles southwest of Chico; 19 miles north of Colusa; 80 miles north of Sacramento.

BUTTE CITY RANCH,

W. P. DWYER and W. S. GUILFORD, Owners.

"Billiken" Chester Whites. Practically sold out. One yearling boar, one bred yearling gilt, due to farrow in April, and five fall boar pigs are all I have now for sale. Sows are bred for March and early April farrows. I have recently added some new blood lines in the way of bred sows. My stock is the best obtainable and there is none better in the West. Will book a limited number of orders for weaned pigs, spring farrow, to be shipped at weaning time. C. B. Cunningham, Mills, Sacramento County, California.

O. I. C. BREEDER'S NOTICE
I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

For Cheap Hog Feed plant JERUSALEM ARTICHOKES; cheaper than alfalfa, and a winter feed. Tubers $5.00 per 100 lbs.; 1000 lbs. and over 3½c per lb. CALIFORNIA NURSERY COMPANY, Niles, California.

Bargains in Poland China Sows. All immune. Good mothers and prolific. Registered stuff. Also boars. Write for details. N. C. Hansen, Coachella, California.

At Service—D's Wonder, the large type Poland China boar. Sows called for, fed and delivered. M. Hayward, 4 blocks east of P. O., Hawthorne, California.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLITS, CALIF.

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Castleview Ranch, Santa Rosa, Cal.

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We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

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SPECIAL OFFER
To introduce my world and national grand championship blood to farmers and breeders, I will sell a limited number of boar pigs, 6 to 9 months old, at two cents above the market price. They are by Baron Duke 201st, national grand champion, Winona Lee Champion 6th, first prize junior yearling 1917 State Fair, and from 650 pound prize winning sows. We will sell nothing that we would not use ourselves. Sandercock Land Co., 906 K St., Sacramento, California. In charge Natomas Land Sales.

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Thirty or more head of the cream of the breed. Orion Cherry King and Col strains. 700 pound senior yearling sows, in pig. One 900 pound 2 year boar, O. C. K. Several boars ready for service, perfect in type. Champions in sows. Gilts of the very best breeding, bred and open. All of the mammoth type. The best ever offered at any sale in California. You make your own price. Date of sale, March 18, 1 o'clock, sharp. Place, Garden City Sanitarium, San Jose, California. On car line one mile from station. Terms cash or its equivalent in paper. L. J. Belknap.

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GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
A. B. HUMPHREY,
Escalon, San Joaquin County, California.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

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We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

For Sale—Berkshire boar Pacific Star Masterpiece 2nd 241131—2½ years old. Nil Goethes Masterpiece 198190, dam Star Belle Betsey 226782. Splendid herd header. J. E. Moltzer, Van Nuys, California. South Sherman Way, corner Rita Street.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Masterpiece-Superbus strain Berkshires. Choice stock from prolific breeders. Geo. A. Stingle, San Gabriel. Ranch Garvey Ave., two miles SW. of El Monte.

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FOR SALE: REGISTERED POLAND-CHINA BOARS. J. R. CARHART, FULLERTON, CALIFORNIA.

MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Duroc-Jerseys — We breed the champions. Peter, Lamson & Walker, Devore, San Bernardino County, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

POULTRY

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially Interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

Thoroughbred Barred Plymouth Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Limited number settings December and January $2.50 for 15 eggs, chicks March, April and May 30c each. Call mornings. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California. Phone 5599.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Baby "Chicks" and Eggs for Hatching from pure bred McFarland strain S. C. White Leghorns. Carefully culled and Hoganized for heavy egg production, not simply "CHICKS" but stock as well. Sonoma Valley Hatchery & Poultry Yards, Sonoma, Sonoma County, California. R. D. 2, Box 48. F. J. Hansen, Prop.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

Bankrupt Stock of brooders, Cypher incubators, fancy corrugated paper egg boxes, roup and other medicines, galvanized feeders. Sell whole or part less than wholesale cost; 1716 Filbert Street, Oakland.

Baby Chix — Barred and White Rocks, Reds, Buff Orpingtons, Black Minorcas, Buff and White Leghorns from Hoganized stock bred to lay. Reasonable prices and pleased customers our aim. Tobener Hatchery, Washington Avenue, San Jose.

For Sale—Incubators made by poultrymen for poultrymen. 60-224 and 540 egg sizes. Prices $15, $32.50 and $52.50. Freight paid in California. Poultrymen's Cooperative Milling Association, 1516 Industrial Street, Los Angeles.

S. C. R. I. Reds Exclusively. Pacific Coast Aristocrat strain. Baby chicks and hatching eggs from high class exhibition Hoganized stock. Order early. Rosedale Poultry Farm, Route A, Box 200D, Ceres, California.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Sly's Rhode Island Reds—Exhibition quality Hoganized stock. Hatching eggs from six grand matings. Catalog free. Albert Sly, 1642 Middleton Place, Los Angeles.

Our Single Comb White Leghorn hatching eggs and baby chicks need no fancy name nor our praise. They will speak for themselves. The Golden Rule Poultry Farm, Wessels Bros., Shingle, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California.

700 White Leghorn Chicks from Hoganized stock with heavy egg records. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Choice White Wyandotte breeding cockerels, $5.00; eggs $3.00 and $5.00 per 15. Baby chix. R. W. Stawetski, Route B, San Jose, California.

Hoganized White Leghorn Roosters $3.50. Would exchange for White Leghorn hens. Mrs. G. E. Rasdall, No. 27, Shawmut, California.

For Sale: Leghorn Chicks from high quality heavy laying stock. Prices right. Madera Hatchery, Madera, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Schellville, California.

White Leghorn Chicks from good laying strain of Hoganized and trapnested stock. Rose Hill Hatchery, Turlock, California.

Bred-to-Lay and Vitality. Rhode Island Reds, 200 egg birds. Eggs $3 to $5 per 15. Eva V. Conklin, 1445 Portola Ave., Los Angeles, California.

We Have the Large heavy laying S. C. White Leghorns. Order now for early chicks. Tupman Poultry Farm, Ceres, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

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POULTRY

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S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. We hatch our own eggs and sell chicks and eggs from our own hens only. We have 1500 chicks yet to sell for middle of March, otherwise we are all sold out. Hatching eggs from our high record hens at $5.00 and $10.00 per 15. Write us for prices on second season hens and yearling cock birds for April first delivery. These males are all bred from 200-egg hens or better and by hatching from them in May and June you will get eggs next December. If you really want the best in Leghorns, let us hear from you. ENGLANDS EGG RANCH. The home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

"Best Chicks I Ever Bought; Greatest Layers We Ever Had." Why? Bred 20 years to lay 200-290 eggs yearly. Brown, White, Buff Leghorns; Barred, White Rocks; Reds; Anconas; Minorcas; Orpingtons; ducks, turkeys; clearing customers $5. Valuable circular with proof free. Chicks; half booked to April, reasonable. 40,000 egg hatcheries full now. Many repeat orders, monthly, yearly. Breeders, pullets. James Beeson, Pasadena, California.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Setting Eggs from the Sunny Slope Poultry Ranch is sufficient to warrant quality of production. We will sell setting eggs only during 1919. If you want birds that will produce quality and quantity, place your orders with us. You will then ever be a satisfied customer. Sunny Slope Poultry Ranch, Longden Ave., Box 789, San Gabriel, California.

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Baby Chicks Every Week. Order early and get the date you want. White and Brown Leghorns, Rhode Island Reds, Barred Rocks, Anconas; also hatching eggs. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

Finest Hatchery in the World. Chicks, White Leghorns, Rhode Island Reds. 10s, 1000s, hatched right in our $60,000 brick and concrete hatchery from our Hoganized heavy layers. Stock, eggs. Pebbleside Poultry Farm, Sunnyvale, California.

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Book Your Orders with the Stevenson Hatchery, 19 Center Street, Watsonville, California, for Day Old Chicks Black Minorca, Barred Plymouth Rocks, White Leghorn or Anconas from first class utility stock.

White Wyandottes: Large vigorous cockerels from heavy laying strain. Satisfaction guaranteed. My price is right. Eggs $3.00 per 15. J. W. Nicholson, Wasco, California.

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Dark Cornish Livingstones, prize winning cocks. Hatching eggs; 3804 Winter Street, Los Angeles.

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The Keep on Herd, Registered Jerseys, strong breeding, type and production, money makers. We offer selected animals, both sexes, from Register Merit ancestry with big records. Prices reasonable. Satisfaction guaranteed. Dr. H. W. Hand, Orland, California.

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Registered Shorthorns (beef) calves and yearlings for sale. Both sexes, reds and roans. Choice goods breeding. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—Eight months pure bred registered Ayrshire bull, $150. Redwoods Ayrshire Farm, La Honda.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

Registered Guernseys for sale. P. J. Weisel, Santa Fe Springs, California.

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Agents for the Income Tax Bookkeeper—Government requirements and extensive newspaper publicity create demand; something entirely new; so simple a child can keep it; every farmer, merchant and professional man needs our book; which retails at $3.50; practically a self-seller, makes a friend and booster of every buyer; big profits to agents, $15.00 to $30.00 per day; sample copy to agents on receipt of $2.00 with privilege of returning. Address THE INCOME TAX BOOKKEEPER, 321-323 Monadnock Bldg., San Francisco, California.

You are Losing Money if you farm without a soil analysis. Write me today for free proof of this statement. I can show you. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, California. Phones: Office Pico 843, Residence West 702.

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Wanted — Free Homes for attractive, healthy, normal boys from seven to eleven years of age with privilege of adoption. Apply Children's Home Society, 2414 Griffith Ave., Los Angeles.

If You Want to Earn Money during spare time at good pay at home or traveling, write J. H. Yetter, Manager of Salesmen, 115-117 North Broadway, Los Angeles.

Walnut Grafting Wood For Sale—Selected Franquette, Mayette, Eureka and Payne, 5 cents foot. Bowman-Kuhn Ranch, San Jose, California.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Safety Razor Blades Re-edged, 30 cents per doz. Howards, Box 93-E, Los Gatos, California.

For Sale—Chicken manure in car loads. Cheapest and best fertilizer. McDonald Sons, Phone 101, Watsonville.

For Sale Ten Thousand Nursery Stakes, ⅝x¾ inches, 3 feet long. Address 508 West Grove Street, Visalia, California.

LIVE STOCK

For Sale or Trade—The Imported French coach stallion "Croissant." He is a beautiful brown color, sound in every way and weighs 1650 pounds. A city ordinance prevents us using this horse, therefore we offer him for $600 cash or trade. Sawtelle Livery, Feed & Fuel Co., Sawtelle, California. Both phones.

For Sale — Registered Black Percheron Stallion, seven years old. Weight about 1700. Terms reasonable. John-Secrest, Escalon, California.

For Sale—One Percheron Stallion and one Mammoth Jack. Colony Holding Corporation, Atascadero, California.

FOR RENT

For Rent—Near Redlands, Calif, three acres of irrigated land. Address J. H. Behymer, 9 East Lenox Street, Chevy Chase, Md.

FARM LANDS FOR SALE

40 Acres irrigated by the fertile waters of the "Orland Project." Easy to level. Half in crop. Living water all summer. Mostly creek bottom. Sandy loam. 60 rods to highway, 40 rods to railway station. Good school, pure water. Joins bearing orange grove. Nothing better for alfalfa, olives, figs, almonds, prunes or peaches. $175 per acre. One-third cash, balance 7 years. Would divide the land to suit. Address owner, Hall T. Brown, Box 398, Orland, California.

For Sale — 160 Acres Govt. land near Hinkley Station, school and store. Surrounded on all sides by deeded land. Some just over the line is producing very heavy crops alfalfa and is held at $300 per acre. Water everywhere under this land at moderate depth. Very level; $1500 improvements; altitude 2300 feet. Remarkably healthy. Were no cases of influenza. Catarrh, bronchial and pulmonary affections rapidly disappear. Price $4000. Address Owner, Box 106, Arlington, California.

For Sale Right Now at Ojai, California—Ten acres good land, 5-room modern bungalow, garage, grainery, large barn, 6 h.p. gasoline engine and pump. Plenty of water. Wire for fencing. Everything new. This place intended for our home, lost my husband, now compelled to sell at a great sacrifice. Price $6000. Money required $2000. Mortgaged back for balance at 6 per cent. Hollway—1003 Title Insurance Building, Los Angeles.

For Sale—Mountain Ranch — 320 acres(ten miles from Geyserville. There is about 40 acres in cultivation which is planted in prunes, cherries, hay and a family orchard. The place has a fine view, new buildings, good pasture, plenty of good water, will sell for $8500. Write for particulars, Owner, Box 241, Healdsburg, California.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

For Sale—Imperial Valley's best fruit farm, on one of the main canals, mile and half from best town in Valley—grapes, apricots, and alfalfa. Will be sold in 20 and 40 acre tracts. Price and terms reasonable. Address C. A. Myers, R. F. D. No. 2, Box 16, El Centro, California.

For Sale—40 acre ranch in good condition, 18½ acres bearing prunes, 5 acres almonds, 5 acres alfalfa, balance in other crops. Cement, piping for irrigating. Electric pumping plant; abundance of water. Close to town. Good location. Address, Owner, Box 346, McFarland, California.

Ideal Location for Almonds and Deciduous Fruits. Will sell 40 acres with gravity water at $250 per acre, in Banning, Riverside County. Elevation 2600 feet; 300 miles from malaria. Hugh Montgomery, San Gorgonio Ranch, Banning, California.

For Sale—160 Acres in Turlock Irrigation District near Modesto. Price $100 per acre. On ten years time, 10 per cent first payment. Produced $6000 worth of crops last year. Address Owner, 1320 12th St., Modesto, California.

100 Acres Adjoining Shafter, partly improved, good well, pumping plant, small house and barn; at $60 per acre is cheaper than any unimproved land in same locality. G. W. Squire, Box 102, Angiola, California, owner.

10 Acres Good Land, fenced, near Galt, California. $800 loan. Would exchange for smaller place, clear or small loan. Also lot on High Street, Melrose. Price $325. Address Route A, Box 245 A, Acampo, California.

160 Acre Foothill Ranch, 30 in cultivation, 70 will cultivate, balance pasture. Implements and stock, all for $3000. Write for particulars. R. A. Winsor, Hornbrook, California.

Wanted to Sell, trade or exchange 80 acres of alfalfa land in Imperial Valley for a dairy having 40 to 100 cows with lease on place to keep them. Address Frank C. Dias, Holtville, California.

For Sale—On easy terms, 20 acre almond grove, planted four years ago, with well and pumping plant. J. H. Schneider, R. 2, Box 333, Pasadena, California.

For Sale—$2000 cash, 20 acres good land near railroads and highways. Write or call. J. C. McClaskey, R. B., Oroville, California.

For Sale—160 acres relinquishment at Hinkley, California. Cheap for cash. Henry J. Hartman, R. F. D. 1, Box 168, Pasadena, California.

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USED RANCH MACHINERY
Guaranteed to do same work as new.
WE SELL FOR LESS. CALL AND SEE.
WINDMILLS: 8-ft., $29.00 to $35.00; 10-ft., $39.00 to $45.00; 12-ft., $55.00 to $65.00; 16-ft., $135.00; 12-ft. Aermotor and steel tower $110.00.
REDWOOD TANKS
New and used GALV. TANKS, all sizes. 1000 gal., $39.00; 2000, $53.00.
1000 gallon, $19.50; 2000 gal., $26.50; 3000 gal., $33.00; 4000 gal., $39.00; 5000 gal., $48.00; 50,000 gal., $250.00; 100,000 gal., $350.00.
RANCH TOOLS: 10-ft. Hoosier Drill $95.00; mowers, $45.00; Fresno, $16.00; beet drills, $35.00. Fine 2-gang disc plow, $75.00; Avery tractor only used month $450.00, runs like new. Deere 14-in. riding plow, $35.00; brand new P. & O. tractor plow, $230.00; 3-gang disc, $85.00; 3-4-gang disc plows $120.00 to $150.00; spike harrows $10.00 to $18.00; cable 10c; 2-row Killifer bean cult. $25.00 to $45.00; weeder $8.75.
PUMPS. Another double acting Ames 20 inch stroke, capacity 25 inches at 100 feet, $175.00; Bulldozer pump jack, $49.00; large size, $98.00; No. 6 horiz. Gould centrifugal, $95.00; No. 4 two-step, $150.00; No. 7 vert. cent., $150.00; many others, also rods, pipe fittings. Also buy good serviceable material. DEMMITT CO. Upstairs, 120 No. Main. Yard 816 Yale. Los Angeles.

Retiring from Dairy Business—Will sell one eight unit Calf-Way milking machine, only been used six months. Address J. Devlin, Box 291, Napa, California.

SEEDS AND PLANTS

I Will Have One or Two Tons of Sorghum seed, especially selected for syrup making qualities for sale as long as it lasts. Send for list of different varieties, with description, prices and instructions for planting to get best results. Can send seed by parcel post. MARION GRABER, Hawthorne, California.

The Garden Beautiful in California by Ernest Braunton, a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant, also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

Plants Grown on Contract. 20 years' experience; select seed, tomatoes, peppers, cabbage, sweet potatoes, egg plant. Any quantity, shipped to all points. Large quantities at reduced rates. L. C. Johnson, Pomona, California. Phone 2032.

Choice "Early Stone" tomato seed at $2.50 per pound; choice "Italian Pear" tomato seed at 50c per ounce. H. Luther, Cucamonga, California.

Strawberry Plants — Klondyke, Brandywine and other varieties. Best plants, quick service. Wholesale and retail. Price list free. V. R. Allen, Seaford, Delaware.

Fresh Seed—Golden Tankard Giant half Sugar Rose, Mammoth Long Red Stock Beet—70c per pound, postpaid. Western Seed Co., 116 E. 7th Street, Los Angeles, California.

Strawberry Plants—Try our strong rooted everbearers. Americus, Progressive, Superb. Americus, $1.50 per 100; $3.00 per 250. Send for catalog. F. L. Moffet, Ellensburg, Washington.

Peruvian Alfalfa, Amber Cane, Milo Maize, Sudan Thousand-headed Kale, Artichokes, Seeds. Write for circular. Box 501, Fowler, California.

Cabbage Cutter, six knives, slices vegetables rapidly, excellent for potato chips. Prepaid $1.00. Three for $2.00. Lusher Brothers, Elkhart, Indiana.

For Sale—Florida Sour orange seed and California sweet seedling orange seed. Order early. Milo Hunt, Whittier, Phone 250.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees, Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

Rhubarb Plants — Wagner's Giant Crimson Rhubarb plants, extra clean, 50 cents per dozen. $3.00 per hundred. Curler Bulb Co., Seabright, California.

WANTED

Graduate of Davis and Corvallis Agricultural Colleges, single man, just out of army, wants position as ranch manager where experience gained as manager of Oregon State Farm will be appreciated. References exchanged. Must be $150 or better. Box 10, Care Cultivator.

Wanted—Position as Ranch Manager U. S. or Mexico; experienced executive in general farming, cattle, hogs, irrigation and development work; speak Spanish. References. Address R. G. P., care of California Cultivator.

Have Two More Salary positions to offer first to returned soldiers, sons of farmers preferred. Agreeable work. References exchanged. Have employed two at $112 per month. State business experience. Address No. B-14, Care Cultivator.

Wanted — To Buy California Mountain Apple Ranch. Must be on a paying basis, level enough for tractor. By one who understands apple culture. Box 8, Cultivator Office, Los Angeles.

Wanted—Man with rig or auto sell Rawleigh's Products. Established demand—large profits. Healthy. Pleasant. Permanent. Give age, occupation, references. W. T. Rawleigh Co., Oakland, California.

Wanted—To hear from owner of good farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minnesota.

Two young women want position on ranch. Have had practical experience in hog raising and general farming. E. C. B., Care of California Cultivator.

Wanted—By American, married man, position on up to date dairy farm where ability and experience are required. Box 15, c/o Cultivator, Los Angeles.

Want to Hear From Owner of Farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minnesota.

TURKEYS

Giant Bronze Turkeys — Gold Nugget strain. Prove their superiority by winning Gold Special Sweepstakes for best turkeys at the following great shows: Arizona State Fair, 1916; Texas State Fair, 1917; California State Fair, 1917-1918; Los Angeles Show, 1917-1918; Pacific Coast Land and Industrial Exposition, Oakland, 1918. An unequaled record. Large turkeys can be raised at practically the same cost as small ones. Toms for sale that will increase size and improve any flock. I am the originator of the Gold Nugget Strain. J. Will Blackman, 607 East Third St., Los Angeles, California.

Turkey Eggs For Sale—Mammoth Bronze Turkey Eggs after March 1st 25c each or $20.00 per hundred. Have 70 hens weighing from 10 to 14 pounds. Toms 22 to 25, 90 per cent fertility. Guaranteed. If interested preserve this ad. it won't appear again this year. Prices f. o. b. Gardena. C. P. Emerson.

For Sale—Young Tom Turkeys, Mammoth Bronze. Also Bronze and Mammoth Bronze eggs. Robinson Turkey Ranch, San Dimas, California. Covina phone 902.

For Sale: Mammoth Bronze baby turkeys with hints as to rearing. Palo Pino Turkey Ranch, Box 503, Monterey, California.

For Sale: Bourbon Red Turkeys.—Eggs for hatching $5.00 per setting of 13 eggs. Book your orders early. Albert E. Balmer, Martinez, California.

Turkey Eggs—For sale, eggs from thoroughbred Mammoth Bronze Turkeys. Gobblers from the famous "Gold Nugget" strain. Carrie Andrews, San Gorgonia Ranch, Banning, California.

For Sale—Golden Bronze Turkeys.—Big boned breeding Toms of America's best strain. Eggs in season. M. M. Reiman, Planada, California.

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Think More "How Good" Than "How Cheap"

Pianos like everything else are priced according to their intrinsic worth.

When you buy a piano it is usually intended for a life time—then special care should be used in its selection.

It is to your interest to go to a reliable dealer, and when making your selection think more of how good a piano you can get than how cheap you can buy it.

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WHO'S GROWING OLD?

I know a man of forty-five,
They call him Old Man Clover;
He isn't sure that he's alive,
Or that the war is over.
"When I was young," he lately said,
"I was a lively fellow,
But now I see the end ahead;
I'm in the sere and yellow."

When I encounter such a jay
I think of Annie Rainey,
Just one-and-eighty to a day,
Awake, alert and brainy;
Not over-strong of body, yet
She spends no time a-dreaming;
You couldn't fool her on a bet
With any sort of scheming.

The one reads hymns and epitaphs,
The other reads the papers;
The Old Man weeps, the other laughs
At little children's capers.
The one looks back, the other sees
Into the bright Tomorrow,
She's living day by day, while he's
Immersed in musty sorrow.

Young optimist, a health to you
Old Father Time is kidding;
Your course is straight ahead and true,
'Tis Old Man Clover's skidding..
Pay no attention to the jokes
The calendars print yearly;
They're meant for clock-observing folks,
Who measure Life most queerly.
—Charles B. Driscoll.

A FATHER AND HIS BOY

THIS is an account of a farm father who is trying to keep his boy on the farm. From present indications we believe he will succeed. Consequently, an account of the method he employs may hold helpful suggestion for other farm fathers who look forward with somewhat of dread to declining years and the day, when for lack of sons or sons-in-law who are interested in agriculture, they must rent the farm to strangers or to such as can do the physical work which it demands.

The father in question has put in the best years of his own life developing a farm of between 200 and 300 acres in a fertile and productive region of the Middle West. He has spent close to a quarter of a century establishing a herd of milking Shorthorns. There are three daughters and one son in the family. Building hopes on future sons-in-law is considerable of a venture, inasmuch as girls are quite as likely as boys to have a leaning toward city life. Consequently, this father has felt that the only sure way of keeping the farm in the family would be to create in the boy a love and a liking for the farm, a liking so deep that the lure and call of the city would make no permanent or lasting impression.

Off and on for a couple of years the writer had noticed an announcement in agricultural papers of this particular man's herd of milking Shorthorns. The advertising bore a name for which we will substitute that of "Smith." It is of more interest to note, however, that in connection with his own name the father coupled that of his son. Thus the firm name read, "R. W. Smith & Son." It is upon this fact that our story hangs

Recently, being within ten or a dozen miles of the farm we decided to pay it a brief visit. The elder Smith kindly responded to our suggestion made over the telephone and came after us with his automobile.

"My boy would have come but he is helping a neighbor thresh," he informed me as we rode along.

"Is your other son at home?" I ventured in order to make conversation, "the one associated with you in your Shorthorn business?"

"Oh, this is the one—the only son I have," he corrected.

"How old is he?"

"Well, he's getting to be quite a boy," the father replied with just a trace of pride. "He'll be finishing high school in a year or two."

We were beginning to get our bearings. The man at the steering wheel believed evidently in taking his son into the business instead of simply developing a business and presenting it to him by means of a last will and testament.

"I'll just leave you here," he said as we drew up at the farm, "while I run over with the car and take the boy's place on the stack. He'll be right back in the machine. I want him to show you the stock himself. This is his end of the business, you know."

Here certainly was something new—a father who would take his boy's place in a threshing crew in order that the former's sense of ownership might be deepened and gratified through the exhibition of the stock on the place to a total stranger.

In a few moments the auto returned with the junior Smith at the wheel. He was a "boy" sure enough; already, however, the "son"—from a purely business standpoint — was showing abundant signs of promise. We hadn't talked with him five minutes before we found that he had everything connected with the dairy end of the farm at his fingers' end. Furthermore, he appeared to have acquired the sense of ownership which was the aim of his father—also the pride which rightly accompanies an accomplishment that is worth while.

"See that cow over there," he pointed. "She's 12 years old but she's gone 6300 pounds of milk to the middle of August and her year won't be up until the twenty-first of November. She'll go better than 8000 pounds by that time—better than some of your Guernseys."

We passed from one point of interest to another about the place—the "boy" and "son" explaining meanwhile.

"Father's given me this end of the business to run," he volunteered. "I get along all right when there isn't any school but there's times when I have to have an extra man in the barn in order to keep up with my books. Still, I make all the tests and keep all the records. See! Isn't that a fine bunch of yearling bulls? I'll be selling some of them pretty soon."

We were beginning to think that already there was more of the "son" than there was of the "boy."

"How old are you?" we queried of the lad before us, trying not to be too much interested in his answer.

"Pretty near old enough to go up to Madison to the agricultural school," he replied with a grin.

Then we knew that this boy would stay on the farm.—Successful Farming.

THE NEW COOK

The lumber barge "Lucy" had been loading all morning at the Delat company's wharf. The sweet smelling smooth pine boards were piled high upon her deck, and in the little wharf office Captain Swanson sat in a swivel chair looking out at the stevedores, who bending beneath the long loads they carried on their shoulders, moved hither and thither before him, living symbols of labor.

As he gazed out of the window, a knock fell upon the door, and he shouted a gruff "Come in."

The man who entered was unkempt, short and red faced.

"I seen yer advertisement in th' paper," he said, "'bout yer wantin' a cook, an' come down t' see if you had one yit."

"Are you a cook?" the captain inquired.

"Yer bet I be; I'm about th' cookiest cook that ever trod a deck. Is th' job open?"

It was; indeed, the loss of his cook had seriously disturbed Captain Swanson. The stranger was engaged.

"Better git right down in the galley and git dinner," the captain said.

"Whattel I give 'em?" the stranger asked.

"Oh, give 'em rice; that's fillin'."

"All right; how many be they t' feed?"

"Twenty-five," he replied.

The stranger disappeared in the hold of the boat. He found a huge bag of rice and an old pair of scales. Filling a wash boiler with water, he set it on the fire. He weighed out 25 pounds of the rice and dumped it into the boiler. He discovered salt, and added that. And then he sat on a keg and waited "fer her t' bile."

Presently "she" began. Up, up, nearer the top of the boiler rose the rice. The cook seized a dipper and a pan and dipped out a quantity of the rice. Again it boiled up. He seized another pan. It was boiling over faster than he could dip. Every dish and pan in the galley was filled. He turned over the keg on which he sat and filled that. Still the miraculous boiler continued to boil over. At last in sheer despair and fright he rushed upon the deck, crying:

"Mate, mate! Fer th' love o' Heaven, don't take on enny more lumber; we gotta cargo o' rice."

And with that he was over the rail and speeding up the wharf. The next day another advertisement appeared in the Gazette, asking for a cook on the barge "Lucy."

MORE MEAT SUBSTITUTES

Beans and Rice

Two cups cooked kidney beans, two cups cooked rice, four cups tomato sauce.

To make the tomato sauce: Brown three tablespoons of flour in one-fourth cup of drippings or vegetable oil and mix with one quart of strained tomatoes and one tablespoon grated onion. Cook sauce five minutes; combine hot rice and beans; pour over them the hot sauce and serve.

Creamed Peas or Beans

One pint dry peas or beans, one-half cup milk, one teaspoon drippings, two teaspoons syrup, one teaspoon salt, pinch red pepper.

Soak beans in cold water over night or until hulls rub off easily; rub between hands until all skins are removed; boil slowly with just enough water to cover them until thoroughly done; pass through a ricer; add other ingredients; whip as for creamed potatoes; serve hot.

Fish Kedgeree

One and a half cups flaked cooked fish, one egg, four tablespoons rice, one teaspoon chopped onion, salt and pepper to taste, two tablespoons dripping.

Wash rice and drop slowly into fast boiling water, with a teaspoon of salt, and boil fast until tender (about twenty minutes). Drain well, and dry in a colander. Boil the egg hard, cool it in cold water, and chop it coarsely. Melt the fat in a saucepan, stir in the cooked rice, add the fish and seasoning. Make it very hot, then add the chopped egg, and serve at once.

If onion is liked, fry it lightly in the fat before putting in the rice.

DRIED POTATOES—EATABLE AND UNEATABLE

READERS of this page will recall request of subscriber for some method of cooking dried potatoes that would make them eatable. Here is another:

In your January issue advice was given how to cook dried potatoes, but after being soaked in water two days and cooked one day they are still as hard as pieces of leather.

How we dried them: First peeled and washed the potatoes, then sliced about one-fourth inch thick, then spread on trays and sulphured like peaches. They evaporated in the sun nicely and came out white and nice, but refused to be cooked. Where is the mistake? If you can give me the address of some person who really knows how to evaporate Irish potatoes I would be very thankful, and it would prove an economical blessing for us San Joaquin farmers, as we cannot keep fresh potatoes very long. Sometimes sacks of fine spuds must be thrown to the hogs after being dug a short time.

Of course if spuds must be cooked first before drying it would require factory facilities and would be out of the question for farmers.—Subscriber, Turlock.

This problem was presented to Prof. W. V. Cruess of the state university, who has been for years making study of methods of preserving foods, and he writes:

"At the time the university's publication appeared on the drying of potatoes, the sulphuring process was the only one in use. This process of treating potatoes before drying was used on a very large scale during the Klondike days. When the war broke out this method was used at first for preparing potatoes for army use and was the one recommended in bulletins appearing upon the subject of vegetable drying. However, it was soon found that potatoes dried after sulphuring were as tough as leather and could not be softened by any length of boiling. Experiments performed, however, by a number of experiment stations, including the University of California, showed that a very attractive and easily cooked product could be made if the potatoes were first subjected to a steaming or a boiling process before drying. This process, briefly outlined, is as follows:

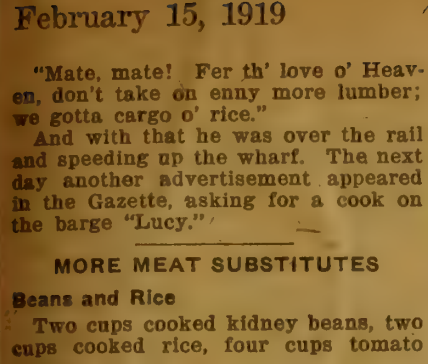
"Peel the potatoes and slice them about three-sixteenths of an inch thick. Dip them in boiling water for three minutes. Stir them constantly while in the water. Remove them, spread on wire screen trays, and dry in an artificial evaporator at not above 150 degrees Fahrenheit until bone dry. If dried in the sun, potatoes will not have as pleasing a flavor as if artificially dried. We do not recommend sun drying for this reason. If you desire to turn out a first class product, the potatoes must be dried artificially.

"I have assisted in the drying of a good many tons of potatoes by this process and have personally used them on camping trips. We have soaked the potatoes during the night and fried them for breakfast with excellent results. The potatoes have a flavor and appearance equal to the fresh article. We have also used them for potato soup at home and have used them for mashing purposes after boiling. They will cook just as rapidly as fresh potatoes."

EPITAPHS IN THE CEMETERY OF FAILURE

He lacked tact.
Worry killed him.
He had no reserve.
He lacked stamina.
He couldn't decide.
He was too sensitive.
He couldn't say "No."
He was almost a success.
He did not find his place.
He clung to his prejudices.
A little success paralyzed him.
He was strangled by selfishness.
He failed to digest his education.
He was too proud to take advice.
He did not guard his weak point.
He did everything "just for now."
He lacked the fire that kindles power.
He did not fall in love with his work.

If you usually get number nine hose, better get nine's and a half from now on. The difference in size will not be noticed but the difference in darning will.



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Mayer

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WORK SHOES

Ask your dealer for Mayer Shoes. Look for the trade-mark on sole.

F. Mayer Boot & Shoe Co.
Milwaukee, Wis.

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Here is the famous Oliver Typewriter offering you a saving of $43. The $57 Oliver is our identical $100 model, brand new, never used. Not second-hand nor rebuilt. The same as used by many of the biggest concerns. Over 700,000 sold. We send an Oliver for Free Trial. Not one cent down. If you want to keep it, pay us at the rate of $3 per month until the $57 is paid. This is the greatest typewriter bargain in the world.



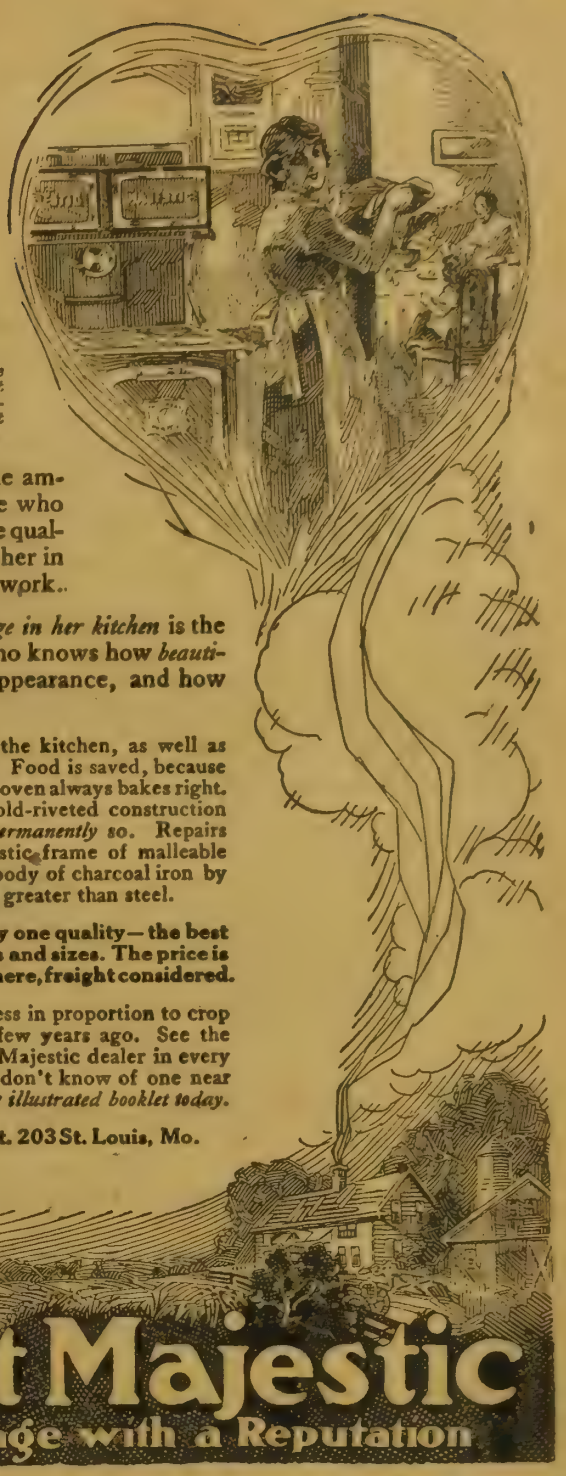
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AUTO WRECKERS
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The heart of the home.

The heart of the home is the kitchen, and the enjoyment of the home life largely depends on the good things to eat that come out of the kitchen.

To own a Majestic is the ambition of every housewife who realizes what this supreme quality range would mean to her in better baking and lighter work.

To have a *Majestic Range in her kitchen* is the hope of every woman who knows how *beautiful* it is in design and appearance, and how sanitary it is in finish.

Majestic means economy in the kitchen, as well as better baking and less work. Food is saved, because the Majestic's perfectly built oven always bakes right. Fuel is saved, because the cold-riveted construction is absolutely heat-tight—*permanently* so. Repairs are saved, because the Majestic frame of malleable iron is unbreakable, and its body of charcoal iron by actual test resists rust 300% greater than steel.

The Majestic is made in only one quality—the best—but there are many styles and sizes. The price is standard, the same everywhere, freight considered.

The price of a Majestic is less in proportion to crop values than it was even a few years ago. See the Majestic soon. There is a Majestic dealer in every county of 42 States. If you don't know of one near you, write us. *Send for free illustrated booklet today.*

Majestic Mfg. Co., Dept. 203 St. Louis, Mo.

Great Majestic
The Range with a Reputation

Grow Wheat in Western Canada
One Crop Often Pays for the Land



Western Canada offers the greatest advantages to home seekers. Large profits are assured. You can buy on easy payment terms,

Fertile Land at $15 to $30 per Acre—

land similar to that which through many years has averaged from 20 to 45 bushels of wheat to the acre. Hundreds of cases are on record where in Western Canada a single crop has paid the cost of land and production. The Governments of the Dominion and Provinces of Manitoba, Saskatchewan and Alberta want the farmer to prosper, and extend every possible encouragement and help to

Grain Growing and Stock Raising.

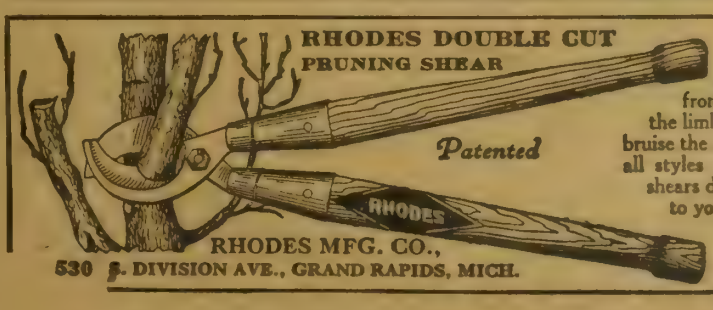
Though Western Canada offers land at such low figures, the high prices of grain, cattle, sheep and hogs will remain.

Loans for the purchase of stock may be had at low interest; there are good shipping facilities; best of markets; free schools; churches; splendid climate; low taxation (none on improvements).

For particulars as to location of lands for sale, maps, illustrated literature, reduced railway rates, etc., apply to Supt. of Immigration, Ottawa, Can., or

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3-5 First St., Sheldon Block, San Francisco, California.
Canadian Government Agent.

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The Wheat Belt of America



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THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

Los Angeles Market

Los Angeles, Feb. 12, 1918.

BUTTER

Produce Exc. Quotations.
Prices to trade 1½ to 2½c higher.
Cal. Extra Creamery 50
Dairy exchange prices last week on extras:

Feb.	5	6	7	8	10	11
'19 ...	46	48	48	50	50	50

Rcts. wk. ending Feb. 11, 194,700 lbs.

CHEESE

Brokers' prices:
California fresh, lb. 28½

EGGS

Exchange quotations. Price to retailers 2 to 3 cents higher.
Fresh extras 41
Case Count 40
Pullets 40
Dairy exchange prices last week on extras:

Feb.	5	6	7	8	10	11
'19 ...	39	39	41	41	42	41

Rcts. wk. ending Feb. 11, 1344 cases.



Sow Morse's Seeds

It is the right start for a vegetable garden that will produce to your satisfaction—a garden that in proper season will

Keep Your Table Loaded With Good Things To Eat

carrots, beans, peas, radishes, cucumbers, celery, corn, tomatoes, squash, melons

and other vegetables from your own garden will keep down the cost of living.

Plant a garden this year but be sure you use MORSE'S SEEDS—specially selected, re-cleaned, soil-tested, always true to name, and dependable.

Morse's vegetable and flower seeds in baskets are sold by dealers everywhere. For prices on quantity lots of any kind of seed write to the largest seed growers in the West,

C. C. Morse & Co.
733 Front Street, San Francisco

MORSE'S SEED

100,000 SEED BED STOCK
50,000
Washington Navels, Valencia Late Oranges, Eureka and Lisbon Lemon and Marsh Seedless Grapefruit Trees

from carefully selected trees as to quality and production. The main consideration in buying citrus trees is to have them not only true to name, but true to the strain and type from which they are budded. The few cents more that you pay for our trees is money well spent and will be returned to you a thousandfold every year during the life of your grove.

WALKER-HUBBARD NURSERIES
First National Bank Building. San Fernando, Cal.

FLORIDA SOUR ORANGE SEED
and
California Sweet Seedling Orange Seed
Seed Bed Stock is Scarce. Plant Seed Now.
MILO HUNT, Whittier, Cal.

POULTRY

Hens: heavy, 30@32; light, 30; colored, 32; broilers, 40@43; fryers, 35; roasters, 30; old cocks, 20.
Ducks, 30; ducklings, 32; geese, 28; turkeys, 34@35; squabs, 40-43; Belgian hares, 20.

LIVESTOCK

The outlook in the live stock situation as regards beef cattle is a puzzle to both producer and slaughterer. Producers are holding their good steers for a higher price than this market can stand to pay. The territorial limits of the outlet for the dressed product, keen competition from a large northern city to as far south as our suburban towns and the opportunity of this northern city to underbuy and under sell the Los Angeles killer due to the greater sources of supply and a better outlet have brought about this condition.

Live stock producers in Southern California who are keeping posted on the markets of Kansas City and Chicago are wondering why the Los Angeles market is not as strong or the prices as high as in those cities. The fact is this limited outlet for the dressed product, and when a certain price level is reached, local retailers are reluctant to pay more; hence the slaughterer is between two fires.

Prices paid for steers and cows are fully steady. Hogs are weak excepting for best grades. Lambs are steady. Mutton is weak.

Following are the live stock prices Tuesday in Los Angeles, f. o. b. packers' yards. Prices at country points are $1.00 to $1.50 per hundredweight less than those quoted:

Good steers, 13.50@14.50; Med. steers, 11.00@12.00; Common steers, 9.00@10.00; Good cows, 10.50@11.50; Med. cows, 8.50@9.50; Common cows, 6.50@7.50; Hogs No. 1, 175-225 pounds, 16.00@16.50; Hogs No. 2, 250-400 pounds, 15.00@15.25; Lambs No. 1, 16.00@16.50; Wethers No. 1, 11.00@12.00; Ewes, 8.50@10.50.

POTATOES

Wholesale selling prices:

Supplies heavy. Demand and movement draggy. Stockton, Burbanks, quality and condition good. Sacked per 100 pounds, fancy 2.35@2.40; choice 2.00@2.15; Idaho Russets, quality and condition fair 1.85@1.90; Oregon, seed stock, White Rose and Red Rose, sacked per 100 pounds 2.75@3.00. Homegrowns, White Rose, mostly 2.75@3.00; few fancy, 3.25. Sweets, best, lug, 90@1.00.

ONIONS

Wholesale selling price, cwt.

Demand and movement moderate, little change in prices. Stockton, sacked per 100 pounds: Browns, best 2.25; White Globes, 3.00@9.00; Lompocs, Browns, 2.25.

VEGETABLES

These are the actual prices obtained February 4 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Wholesale prices:
Beans—String 15
Limas, lb. .....9@10
Cabbage, cr., best .....1.00@1.25
Carrots, doz. 50
Cauliflower — Demand moderate. Carloads f. o. b. cash track, best stock in pony crates, mostly 12's, 75@90, mostly 75@85. Best, cabbage cr., 1.00@1.25; Celery, cr.: Homegrowns, best, 7.00; poorer, 3.75@5.00; Northern best, 8.50. poorer, 50@1.75.
Lettuce, cabbage cr., best.....2.00@2.25
Parsley, doz. 20
Peas, Tel. lb. .....10@11
Peppers, Chili, lb., best 22
Bell, lb., best 25
Pumpkins, lb., best 1½
Radishes .....15@20
Rhubarb, Strawberry, bx. .....1.50@1.60.
Spinach, doz. .....25@30
Squash—Hubbard, best, lb. 2
Tomatoes, Mexico, condition generally good; best 3.50 lug bx.
ity and condition poor, 1.75@1.85.
Turnips, doz. 30

FRUITS

These are the actual prices obtained February 5 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples — Bellefleurs, fy. best, 2.10@2.25; loose, 4@5 lb.; Yellow Newtons, fy. medium size best, loose 5½ lb.; Oak Glen, Rome Beauties 2.75@2.85; Yucaipa, Delicious, fy. large size 3.00; medium and small size 2.50.
Pears: Winter Nellis, lb., 5@6.

CITRUS

Lemons: Fancy packed, 4.00@4.25; local pack, 3.00@4.00; loose, some tree ripe, 2.00.
Oranges: Navels, medium and large size, fy., 3.25@4.00; local packed, 2.50@3.25; loose, 3½@4 lb. Tangerines, 7 lb.
Grapefruit: No carlot arrivals. Tulare County, Seedless, medium and large size, fy., 2.75@3.00. Arizona, Seedless, 3.00@3.25 packed bx. Imperial Valley Seedless, 3.00@3.25; locals, 2.25@2.50.

HONEY

Little change in prices, very little honey left in producers hands, carloads f. o. b. usual terms, Extracted light Amber Alfalfa 20½-21 lb.; Light Amber Sage 23 lb.; Inyo County Comb: Fy. Light Amber $6.25 cs.; No. 1, $6.00 cs.; Beeswax, best 40 lb.

BEANS

The general price trend continues downward with movement slow and draggy.

California sacked Limas declined about 75 cents to a general range of 10.00@11.25 per cwt. with Small Whites steady in Boston at 9.25@9.50. Bulk Michigan pea beans declined to 6.00@6.50 to growers hand picked basis and declined 50 to 8.00@9.00 sacked in leading Eastern markets. Bulk Pintos declined to 4.75@5.00 recleaned basis at Colorado and New Mexico shipping points. Shipments were below the recent average.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:
Tame Oat .....21.00@26.00
Barley .....19.00@24.00
Alfalfa .....17.00@21.00
The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:
Market active, buyers numerous, and offerings light.
Choice dairy hay .....27.00@28.00
No. 1 dairy .....25.00@26.00
Choice Alfalfa .....24.00@25.00
Standard dairy .....21.00@22.00
Standard Alfalfa .....20.00@21.00

GRAIN

Prices on local grain exchange. For government prices see San Francisco market.
Corn Yellow .....2.66@2.67½
Wheat 2.60
Milo .....2.30½@2.40
Barley .....2.00@2.02½

San Francisco Markets

San Francisco, Feb. 11, 1919.

BUTTER

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:
Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½c to 2½c; 1-pound squares, in cartons, 2c to 3c.
Dairy Exchange quotations, lb.:
Extras 50½
Prices extras past week and year ago:

Feb.	4	5	6	7	8	10
'19 ...	47½	48½	49	49½	51½	50½
'18 ...	..	..	52	52	51½	..

Rcts. wk. ending Feb, 10, 309,200 lbs.

CHEESE

Dairy Exchange quotations:
Cal. Flats .....24@26½
Ore. Triplets 39½
Jack, full cream 30

EGGS

Dairy Exchange quotations:
Extras 43
Extra Pullets 41
Prices extras past week and year ago:

Feb.	4	5	6	7	8	10
'19 ...	41	41½	44	44	43	43
'18 ...	..	48½	56	50	43	..

Rcts. wk. ending Feb. 10, 18,648 cases.

POULTRY

We quote to producers, lb.:
Hens, 35@38; broilers, 40@45; fryers, 40@45; old roosters, 24@25; young roosters, 37@38.
Ducks, 29@31; geese, 29@31.
Belgian hares, live, 19@20.
Jack Rabbits, doz. .....3.00@3.25.
Squabs, doz., 3.00@4.00.
Turkeys, dr., 39@41; live, 33@35.

LIVESTOCK

Prices gross weight:
Cattle: The following prices are for grass fed stock. Hay fed brings ½ to ¾c more.
No. 1 steers, weighing 950 to 1100 lbs. alive, 12¾@13; 1200 to 1400 lbs., 13@13¼; second quality, 11½@12; thin steers, 9@10. Cows and heifers, No. 1, 9@10; second quality, 8@9; common to thin, 6@7; calves, 8@12.
Sheep — Lb. gross weight: Wethers, 11½@12; ewes, 8½@9¼; lambs, 14@14½; yearlings, 12@12½.
Hogs—Hard grain fed, weighing 100 to 150 lbs., 16; 150 to 250 lbs., 16½; 250 to 300 lbs., 16; 300 to 400, 15½.

POTATOES

Wholesale selling prices at wharf, cwt.:
Supplies liberal. Demand and movement moderate, sales to jobbers: California, Oregon, Idaho, and Washington Burbanks and Netted Gems, Rurals and British Queen sacked per 100 pounds fy., 1.80@2.00; No. 1, 1.50@1.75; No. 2, 1.00@1.40.

ONIONS

Wholesale selling price on wharf, cwt.:
Australian, Brown and Yellow..1.75@2.25

VEGETABLES

Wholesale selling price:
Artichokes, doz. .....50@1.00
Asparagus, lb. .....40@50
Beans, String, lb. .....25@30
Beets .....1.50@1.75
Brussels Sprouts, lb. .....5@7
Cabbage, cr. .....65@85
Carrots, sk. .....1.15@1.50
Cauliflower: Demand and movement slow. Cauliflower quality and condition generally good. Broccoli quality and condition excellent, prices lower, carloads f. o. b. usual terms pony crates, 80@1.00. Wagon loads track side at country loading points 50@60 dozen heads.
Celery, cr. .....5.00@7.00
Cucumbers, hothouses, bx. of 30.3.25@3.50
Egg Plant, lb., Southern.....17½@22½
Lettuce, Southern Iced, cr.....3.00@3.50
Southern Iced, cr. .....2.75@3.25
Peppers, Chili, lb., 12½@15; Bell...25@30
Peas .....15@20
Pumpkins, sk. .....1.00@1.25
Rhubarb, bx. 3.00@3.25; local, lb.....8@10
Squash—Cream .....75@1.00
Hubbard, sk. .....1.50@1.75
Marrowfat .....1.00@1.25
Spinach, lb. .....3½@4½
Tomatoes, Mex., cr. 3.00
Mex., cr. 3.00
Turnips, bag .....1.25@1.50

FRESH FRUITS

Apples—Newton Pippins.....2.25@2.75
Pearmain .....1.25@1.65
Bananas .....7@8
Olives, lb. .....10@12½
Pears—Winter Nellis .....3.00@3.50
Persimmons, bx. .....1.00@1.25

CITRUS

Box: Lemons, 2.50@4.75; lemonettes,

2.00@3.00; grapefruit, 2.00@3.00; limes, 2.00@3.00; Mandarins, 1.75@2.50 cr.; tangerines, bx., 3.00@3.50; Navel, 3.00@4.75.

BEANS

San Francisco and common rate points: Practically no demand or movement, few sales, prices unchanged. Carloads f. o. b. usual terms sacked per 100 pounds recleaned basis: Red Kidneys, 12.00@12.50; Garbanzas, 9.75@10.00; Small Whites, 9.75@10.00; Large Whites, 7.00@7.50; Bayos, 700@7.25; Cranberries, 6.50@6.75; Red Mexicans, 6.50@7.00; Pinks, 6.00@6.25; Blackeyes, 4.50@5.00; Teparys, 4.00@4.25.

HONEY

Quality very ordinary, condition good. Supplies light. Growers offering freely, anxious to sell. Buyers holding off account decline in prices and adequate supply on hands purchased at high prices. Market unsettled. Cash to producer at country loading point, prices nominal extracted Water White 21 lb.; Sage White 20; Alfalfa White, 19@20; Light Amber, 18; Dark Amber, 17@18; Hawaiian Dark Amber, 13@14; Beeswax, 33@34 per comb; 24 section case White, 5.00; Light Amber 4.50; Dark Amber, 4.00.

SEEDS

Flax .....8@8½
Millet .....5@5½
Rape .....2½@5

HAY

Under date of February 8, Scott, Magner & Miller says:

Receipts the past week 929 tons. Most of the hay arriving has been of very good quality and although it has been difficult to effect sales, yet some have been made at our quotations, but as a rule the market lags and concessions have had to be made to move consignments. The showers of the past few days have been beneficial to growing crops but have affected the northern part of the state mostly, very little having fallen in the San Joaquin Valley. The government was in the market during the week for quotations for about 1200 tons for their encampments but have not placed orders as yet. As the amount requested was small, considering the usual amounts asked for, the inquiry has not disturbed the market.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market — for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat Hay (light 5-wire bale) .....24.00@26.00
No. 1 Wheat or Wheat and Oat hay .....22.00@24.00
No. 2 Wheat or Wheat and Oat hay .....16.00@20.00
Choice Tame Oat Hay.....21.00@23.50
Other Tame Oat hay .....16.00@19.00
Wild Oat Hay .....16.00@18.00
Barley Hay .....16.00@18.00
Alfalfa .....16.00@19.00
Stock hay (in order) .....14.00@17.00
No. 1 Barley straw, bale.....50@80
Damaged hay (all kinds), according to condition.

Citrus Fruit Market

Los Angeles, Cal., Feb. 12. 1919.

The orange market is materially strengthening, possibly to a degree due to the labor troubles in the picking districts which has materially lessened the total shipment. Water separators have been installed in many packing houses and injured fruit has been excluded. Marmalade plants are working day and night. It is now estimated that the total of Valencias for late shipment will not exceed 13,000 cars.

The lemon market is in fair condition with prices ranging from $4.00-5.00, the top price being received for only very fine stock.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 5482 cars, lemons 1863, total 7345. To same date last season; oranges 3535, lemons 840, total 4375. Central California this season; oranges 2928, lemons 330, total 3258. Last season to same date; oranges 1881, lemons 102, total 1983. Northern California; oranges 244, 2 lemons. Last year same date, 202.

AT THE AUCTION

February 5

New York: 16 oranges, 4 lem. Nav. 3.25-4.85, tang. halves 2.85-3.10, lem. 4.25-4.90.

Boston: 5 oranges, 2 lem. Nav. 3.80-5.35, lem. 4.50-4.95.

St. Louis: 2 oranges, 1 lem. Nav. 3.30-3.85, lem. 2.60-4.35.

February 6

New York: 15 oranges, 3 lem. Nav. 3.65-4.75, Navelencias 3.70-4.80, tang. halves 2.40-3.80, Blood halves, 2.15, lem. 4.55-5.05.

Boston: 6 oranges, 1 lem. Nav. 3.60-4.60, lem. 4.60-4.95.

Pittsburg: 2 oranges, 1 lem. Nav. 3.50-4.30, lem. 4.10.

February 10

New York: 26 oranges, 9 lem. Higher. Nav. 3.50-5.10, lem. 4.05-4.95.

Cleveland: 6 oranges, 1 lem. Nav. 2.35-4.15, lem. 4.00.

Boston: 11 oranges, 2 lem. Nav. 3.35-4.70, lem. 4.10-5.10.

St. Louis: 7 oranges, 1 lem. Nav. 3.10-4.05, lem. 2.85-3.90.

Pittsburg: 8 oranges, 1 lem. Nav. 2.15-4.45, lem. 3.05-4.60.

February 11

New York: 31 oranges, 6 lem. Nav. 3.45-5.10, tang. 3.56-3.70, lem. 4.35-4.80.

Boston: 8 oranges, 1 lem. Nav. 3.80-4.55, lem. 4.55-5.00.

Philadelphia: 5 oranges, 1 lem. Nav. 2.00-4.25, tang. 3.55, lem. 2.80-3.95.

MARKET NOTES

California Iceberg lettuce is now going forward in large quantity and is commanding as high as $5.50 per crate at Eastern markets. Imperial Valley is now sending out well up toward 20 cars per day. In one day recently she sent 11 cars to Chicago, 1 to Denver, 1 to Kansas City, 1 to Oakland, 1 to Portland, 3 to San Francisco.

Car lot shipments of mixed vegetables from California last Monday included one carload to Argentine. Other shipments same day aggregated 24 cars to the following points: Chicago, Demming, El Paso, El Centro, Fort Worth, Kansas City, Oakland, Reno, Seattle, San Francisco, Tucson, etc.

California ships about 5 carloads cabbage daily to Chicago.

Imperial Valley has shipped practically all of its spinach. For local delivery some California growers are delivering in the old time round bushel baskets which are commanding about $1.00 per basket.

The increase in the transient or tourist population in Los Angeles through the winter season gives a market which is somewhat different from that of any other section of the country. Especially so in the matter of meats. The market is continually long on low priced cuts while it is hard to secure sufficient choice cuts.

Producers of lamb use care that the lambs do not take on too great weight for the retailers will not buy heavy lambs as lambs but put them in the mutton class or at least yearling, forcing them to a lower price.

Massachusetts uses almost half the wool supply of the United States. During 1918 she used 267,897,312 pounds while the United States used only 605,158,021.

STORRS EGG LAYING CONTEST

Storrs, Conn., January 31, 1919—Report for the thirteenth week, ending January 30.

During the thirteenth week of the laying contest at Storrs, a pen of Rhode Island Whites, belonging to Harvey A. Drew, New Jersey, won first place among the 100 pens by laying 44 eggs. Two pens of White Leghorns belonging to S. G. McLean, Connecticut, and C. Rasmussen, New Jersey, tied for second place by laying 41 eggs. Two pens of R. I. Reds belonging to Homer P. Deming, Connecticut, and Natick Farm, Rhode Island, tied for third place by laying 40 eggs. The Connecticut pen of Leghorns belonging to S. G. McLean has been doing particularly creditable work during the past few weeks. In a relatively short time they have advanced from fourth place to first place among the White Leghorns.

The total production for all pens amounted to 2268 eggs, or 32.4 per cent. The total figure is 266 eggs greater than for the preceding week. It is exceedingly interesting to note that of this increase 242 eggs, or 91 per cent, were laid by White Leghorns. In other words, the Leghorns have begun a rapid climb in egg production, which may be expected to continue, barring unseasonable weather, for many weeks to come.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Jules F. Francis, 369; Samuel M. Monks, 338; Rock Rose Farm, 303.

White Wyandottes

Obed G. Knight, 457; Laurel Hill Farm, 395; Patrick F. Sullivan, 366.

Rhode Island Reds

Laurel Hill Farm, 377; Deer Brook Poultry Farm, 306; Natick Farm, 284.

White Leghorns

S. G. McLean, 380; D. Tancred, 370; L. E. Ingoldsby, 313.

Miscellaneous

H. A. Wilson (White Rocks) 221; Harvey A. Drew (R. I. Whites) 189; S. Bradford Allyn (White Rocks), 164.

REVERSING IT

A New England man was visiting a friend who owns a ranch in one of the arid regions of the West. As the guest was shown over the place, the owner recited the difficulties and obstacles he had overcome in making the desert bloom, and he also touched upon his plans for the future.

"You astonish me, Tom," said the New Englander. "Is it possible to make a living on such land as this, and in such a climate?"

"It surely is. I have made a great deal more out of it than a mere living."

"I am glad to hear that, for you must have laid by something for a rainy day."

"Better than that," said the owner. "With the help of an occasional rainy day I have managed to lay by something for the dry days."

BREAKING THE NEWS

The boss called his typist to his room.

"Miss Keytap, you are a very pretty young woman."

"Oh!" said Miss Keytap, blushing.

"You dress neatly and you have a well-modulated voice. I might add that your deportment is also above reproach."

"I only want to put in a cheerful frame of mind," said the boss, "before taking up the matter of your spelling and punctuation."

Garden Grove hopes to secure the operation of a large dehydrating plant for its vegetables during the coming season.

WEATHER CONDITIONS

San Francisco, Cal., Feb. 8, 1919.

Stations	Rainfall — Wk.	Season.	Norm.	Temp Max.	Min.
Eureka	.93	20.60	26.73	62	36
Red Bluff	.76	15.97	11.97	58	32
Sacramento	.59	9.54	11.79	62	38
San Francisco	.16	14.98	12.93	60	44
San Jose	.22	11.28	9.76	65	30
Fresno	.00	4.31	5.61	70	36
San Luis Obispo	.97	9.24	11.75	64	38
Los Angeles	.05	5.19	2.99	64	44
San Diego	.02	5.32	5.83	64	44

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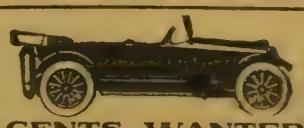
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We have a fine lot of Mission and Manzanillo trees, both on Picholine roots and grown from cuttings. We have had splendid success on all Olive plantings—a most important assurance to you.

Submit a list of your tree wants for special quotation. Do it right now.

We have also a complete assortment of Shipping Plums, Cherries, Prunes, Bartlett Pears, Fall Pears, Peaches, Almonds, Apricots, Walnuts, etc.

Our foot-hill grown trees are free from root diseases common to other localities. Our trees insure your future profits in fruit growing.

And remember—we will accept Liberty Bonds as full or part payment for trees. Write us today.

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Secy. and Mgr.

SILVA-BERGTHOLDT CO.
Newcastle—Cal.
"Behind each tree is our guarantee"

An Incubation Catechism

Written for California Cultivator By Jean A. Koethen

HINTS on Hatching for Amateurs and Beginners.

1. What is the best time for hatching?

February and March are the best months in California. Some hatcheries begin getting chicks out in January, but in most the first hatches come off about the first of February.

2. What is the best hatcher, hen or incubator?

That depends entirely upon what you want and who you are. If you are mechanically inclined and want several hundred chicks, or if you want early chicks and have no sitters, use an incubator. If you don't like tinkering with a machine, or don't want very many chicks, or haven't much time, trust the old hen.

3. Is there any difference in the hatching efficiency of different hens?

Heaps of difference. Avoid hatching with pullets, if possible. They are skittish, hard to break to the nest, and flighty mothers. Not always, but often. Some old hens are too energetic to be good mothers. They may be good sitters but are too anxious to scratch to hover their brood properly. Select a quiet hen. If you can set two at once let the quieter one mother all the chicks while the other hatches another clutch of eggs.

4. How many times in a season may a hen be allowed to sit?

Not more than twice, as a rule. She may hatch a brood early in spring, and another late, if she goes broody again, or she may hatch two clutches of eggs in succession if she is given good care.

5. How soon after they are laid should eggs be set?

The sooner the better. Every day they are kept lessens their hatchability slightly. Don't keep them over a week if you can help it, and do not hold longer than ten days under any circumstances.

6. At what temperature should hatching eggs be kept?

From 50 to 60 degrees is best. If they are much warmer than this incubation may be started; if much colder there is a chance of chilling the germ.



Hatching and Brooding Coop
From Mrs. Koethen's "Poultry for Profit."

7. Why is it important that a hen be dusted well before she is set?

If there are lice on her, she becomes restless and may leave the nest too often or even quit her job altogether. If she is lousy when the chicks hatch, they are almost certain to suffer.

8. What is the best way to break a sitter to her new nest?

Leave her on the nest she has been accustomed to for two days after she goes broody. Then remove her at night to the new nest, put the eggs under her, and cover her up for two days more. Once a hen gets used to feeling a nestfull of warm eggs under her breast, she does not willingly leave them.

9. What is the best feed for a sitter?

Whole corn. If this is not available, cracked corn, milo or kafir or wheat, will answer, but she needs the feed that will best maintain her bodily heat, and this is whole corn.

10. How often should she be allowed or required to leave the nest?

Once a day, preferably towards noon, when the sun is warm. If a hen does not get off herself, it is best to take her off, and see that she eats and then returns to her nest. If she is inclined to get off more than once a day, except in very hot weather, there is something wrong. Either she is annoyed by vermin or she is too restless to be a good sitter and should be replaced by a better one.

11. What is the period of incubation for various kinds of eggs?

Hens, 21 days; ducks and turkeys, 28; geese, 30; Muscovy ducks, 33 to 35 days.

12. What is the object of testing eggs that have commenced to incubate?

There are three reasons for this: (1) To save infertiles while they are still fit for food. (2) To give the fertile eggs more room. (3) To find out, if the eggs have been purchased, how many are infertile. Responsible breeders replace infertile eggs if they are returned.

13. When should eggs be tested?

Generally speaking, on the seventh day and again on the fourteenth day. The beginner will often find it better, especially if the eggs have dark shells, to defer the first testing till the eighth or ninth day, when the live germ is more readily distinguished than on the seventh.

14. Why should there be two testings?

The first testing removes the clear or infertile eggs, but sometimes there are doubtful eggs, which must be left for the later testing. The second testing is intended especially to remove germs which have died after the first testing. If these are left in the nest they rot and poison the air, which should be as fresh as possible for the hatching chicks.

15. How are eggs tested?

An egg tester should be procured. It may be bought for a trifle at any poultry supply store, and is part of the equipment of every incubator. Testing is best done at night. We use an electric globe on the end of a cord. The globe is inserted in the tester, and each egg held before the side opening. If a globe is not available, a small lamp will answer.

16. How are live germs, infertile eggs and dead germs detected?

By the seventh day a live germ looks more like a large spider than anything else. An infertile egg is perfectly clear. A dead germ is usually marked by a red ring, called a blood ring. If an egg looks cloudy, though the germ cannot be plainly seen, it is better to return it to the nest. The germ may be merely slow in developing.

17. At what temperature does a sitting hen keep the eggs?

The temperature of the hen's body is around 106 degrees, but the eggs she covers are not kept at this heat. Those next her breast are considerably warmer than those at the outer edge of the nest. This is the reason a hen moves the eggs so frequently with her beak. Probably the average heat of the eggs is around 103 degrees, though it must often be less when a hen has to cover 15 eggs.

18. At what temperature should an incubator be run?

The first week the temperature should stand at 102 degrees, the second and third weeks at 103 degrees. A little rise in temperature is permitted at hatching time, but if it goes



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"I HAVEN'T an animal on the place," said F. B. Nims of Stockton, recently, in telling a visitor how he handles his work on his ranch in the Sacramento Valley.

"I used to have forty horses and all kinds of trouble keeping drivers for them. Finally I decided to try gas engine power. I bought a 75-horsepower 'Caterpillar' Tractor, a motor cultivator and a 3-ton motor truck, and now my troubles are over. I never want to see a horse again."

The F. B. Nims ranch is irrigated, protected from inundation by dykes. Beans and barley are grown alternately on 500-acre tracts. In the early spring, water is let on to the land from the river until it is entirely covered. Immense gas engine-driven pumps then pump it out until the level has been reduced to a foot or so below the surface of the soil.

In a few days the surface has dried sufficiently for plowing and the big "Caterpillar" 75 Tractor goes to work and keeps at it twenty-two hours a day until the plowing is all done. Then it pulls the seeders for the barley, while the beans are planted by the motor cultivator. Water again is let into the proper level. After the beans are up they are cultivated with the motor cultivator.

At harvest time the tractor pulls a 26-foot cut harvester and bean harvester. The harvesters thresh and sack at the same time and drop the sacks in bunches of ten. These are picked up by the motor trucks and carried to market. The whole cycle of operations is performed by gasoline power.

over 104 some of the chicks may be cripples.

19. What is the best method of hatching with incubators?

The one given in your instruction book. Follow it absolutely. The manufacturer of your machine knows better than anyone else what his machine will do. After you have acquired considerable experience, you may depart from the printed directions, but be very slow in leaving them.

20. When should eggs begin to pip?

If the eggs contain vigorous germs, and temperature has been even and sufficiently high, some chicks will pip the shell on the 19th day. By the 20th day hatching should be at its height. By the morning of the 21st day, every chick that is strong enough to live should be out of the shell. If the temperature has been too low, or the chicks are Asiatics, pipping may not begin until the 21st day, and still there will be a good hatch. Mediterraneans pip the shell a little earlier than the American breeds, and Asiatics are slower still.

21. Why do chicks die in the shell?

Nobody knows exactly. There are many contributing causes which may be responsible. More often than not, lack of vigor in the breeding stock and consequently in the germ, is the chief cause. Sometimes, when incubators are used, lack of moisture is blamed. A sudden drop in temperature might have such a result.

22. If a hen leaves her nest and stays off over night, will the eggs hatch?

They may. If the germ is vigorous and the eggs have incubated two weeks or longer, it is not easy to kill the chick. The earlier in incubation chilling takes place, the greater likelihood is there of loss. If chilling occurs before the 14th day, testing will usually show how much harm has been done. If after the 14th day, put under another hen and give them a chance.

23. Should chicks be helped out of the shell?

Not until they have been given every chance to get out without help. At the best hatcheries no chick is helped. If it is not strong enough to get itself out, it is considered worthless. Sometimes, when the eggs are under a hen, and the weather is warm, it is worth while to partly remove the dried membrane and give the chick a chance for its life. I have seen such chicks live and thrive.

24. Where is the best place to run an incubator?

No place is quite so good as a cellar. The best hatcheries are built partly underground, so that the temperature may be practically even.

25. Why is ventilation vitally important to a good hatch?

Because, during the process of incubation the egg gives off carbon dioxide and takes up oxygen. In order to carry off the carbon dioxide good circulation of air is necessary. When eggs are hatched under a hen she frequently exposes them to the air, and a good deal comes through her feathers at all times. For all that, it is necessary for the welfare of the growing chicks within their shells, as well as for her own, that she leave the nest for a little time each day.

Circular 99 of the college of agriculture at Berkeley gives explicit directions for hatching both with hens and incubators. Send for it.

INCUBATION—AND INCUBATORS

One man says there is practically no difference in incubators—but there is. There is just the same difference in incubators that there is in pianos, in automobiles, in tractors, or in any number of things that could be mentioned. True, incubators are all made for the same purpose—to hatch chicks—and they do it when the attendant does his or her part of the work, but people have notions about the things they buy. Even if the inside parts of all incubators were alike, and only the outside of the machines different, one person would buy one because it was painted red and another person would buy another because it was painted yellow. Then, some people want to pay a high price while others want to pay a low price for what they buy. There are so many people to be served that there must be a variety of things, incubators included, in order for everyone to be satisfied. In buying an incubator, the thing to do is to select the one that suits your notion and your pocket book, and then get it. The incubator catalogs, aside from containing descriptions of the machines, give a lot of good poultry information. Do not delay sending for the catalogs because baby chick time will soon be here again.

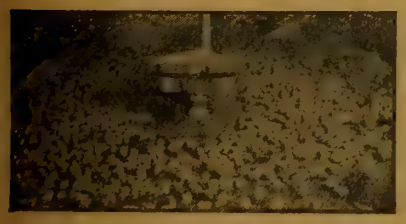
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Marvel has followed marvel since Alexander Graham Bell invented his first simple telephone, the forerunner of the millions in use today.

In these last four decades thousands of Bell engineers have developed a system of telephonic communication, so highly perfected that the same crude instrument which at the beginning could hardly carry speech from one room to another can now actually be heard across the continent. This is because of the many inventions and discoveries which have been applied to intervening switchboard, circuits and other transmitting mechanism.

The vision of the engineers has foreseen requirements for increased communication, and step by step the structure of the art has been advanced—each advance utilizing all previous accomplishments.

No one step in advance, since the original invention, is of greater importance, perhaps, than that which has provided the multiplex system, by which five telephone conversations are carried on today simultaneously over one toll line circuit, or by which forty telegraphic messages can be sent over the one pair of wires. As in a composite photograph the pictures are combined, so the several voice waves mingle on the circuit to be again separated for their various destinations.

By this wonderful development the Bell System obtains for the public a multiplied usefulness from its long distance plant and can more speedily and completely meet the needs of a nation of telephone users.

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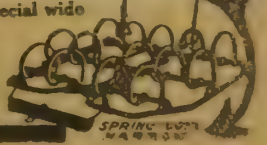
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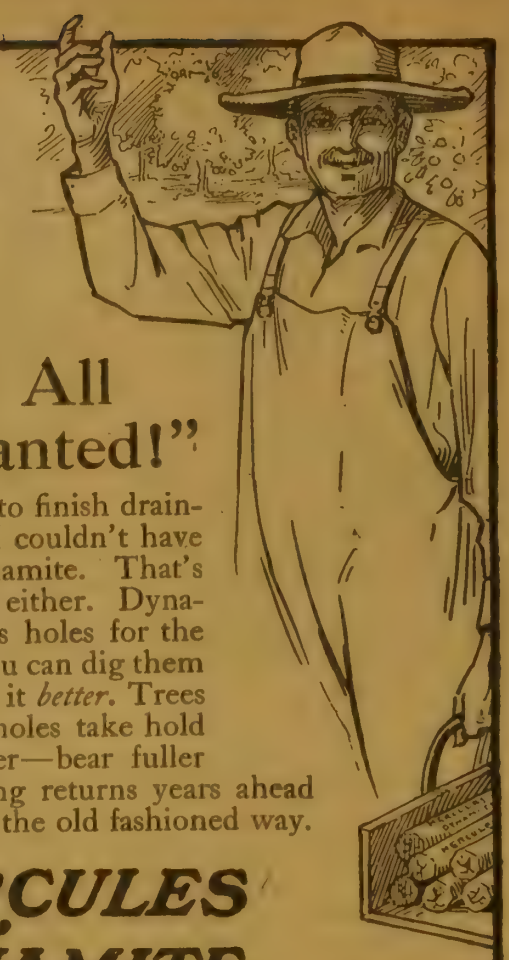
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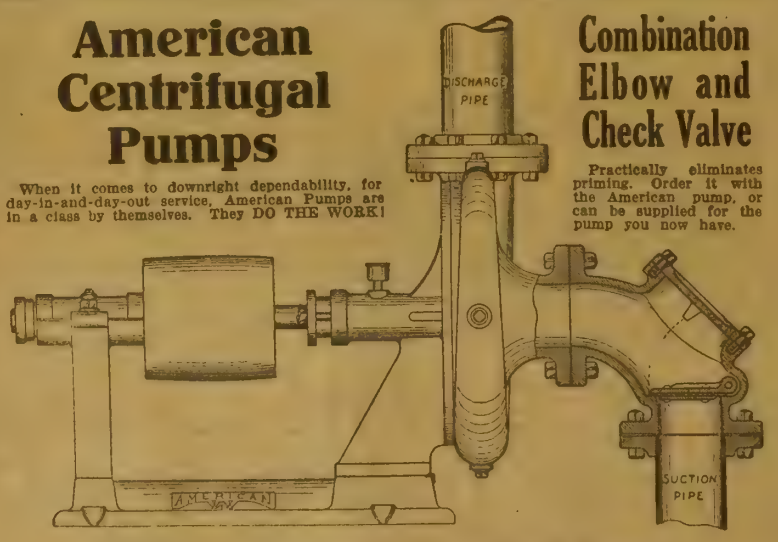
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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Husband and Wife Sign Deed

When brothers and sisters inherit real estate in California does the law require the signatures of their respective husbands and wives to a deed in case of the sale of the property in order to give clear title?—Subscriber, February.

The law of the state specifically states that such signature is not necessary in the respect to the conveyance of the separate property, such as the above is, but private title companies, out of an excess of care do usually require such signature before they will issue a clear certificate.

Community Property

What is community property? Can the husband dispose of real estate without the wife's signature or knowledge? Can a wife have individual property if she earns it herself?—Subscriber, Orcutt.

Community property is all property acquired after marriage by either husband or wife, or both, including real property situated in this state and personal property wherever situated, acquired while domiciled elsewhere which would not have been the separate property of either if acquired while domiciled in this state; there is the exception that property acquired after marriage by either spouse through gift, devise, bequest or descent with the rents, issues and profits thereof is the separate property of the spouse so acquiring it. There is one other exception in that the earnings and accumulations of the wife and her minor children living with her, while she is living separate from her husband, are her separate property. The husband has the control of the community property, but under a late statute the wife must join with him in executing any instrument whereby such community real property is sold, conveyed or encumbered; there is a saving provision in this statute, however, providing that in case of such sale or encumbrance without the wife's signature to a party ignorant of the existence of the marriage relation any action to set aside the instrument on the part of the wife is barred after one year from the date of recording the instrument.

Fence Troubles

Two neighbors having respectively hogs and chickens and calves quarrel as to the building of a fence between them, particularly as to when each shall start and whether hog wire shall be put on or not. So neither starts to build and the animals respectively roam and cause destruction. What can be done?—Subscriber, Dorris.

The Civil Code requires that adjoining owners are mutually bound to maintain the fences between them, unless one chooses to let his land lie without fencing, in which case, if he afterwards encloses he must refund to the other a just proportion of the value, at that time, of any division fence made by the latter. Under that law the one who desires the hog tight fence is entitled to go ahead and fence the division line, when the other fences his property the former can recover from the latter one-half the value of the fence at that time. In the meantime the "estray act" is available for the service of each neighbor, that is either of them finding an estray domestic animal of the other upon his premises has a lien thereon for his expenses and costs as keeping him, as heretofore in these columns explained at length.

Avoiding Probate

Husband and wife own real estate. How can it be arranged so that upon the death of either the property will go to the other without probate proceedings? There are no heirs to receive any share. — Subscriber, Thermal.

The simplest, best and least expensive method is to file a joint declaration of homestead upon the property; then by law upon the death of either the real property descends to the other. There is the method of joint tenant deed under which the property must be deeded to a third party, who then deeds it back as joint tenants with right of survivorship. In either method, upon the death of one of the spouses, a proceeding to determine the fact of death of record is necessary to complete the chain of title; this is, however, generally less expensive than the probate proceedings.

Fence Laws

Are the fence laws the same in all the counties of California? Must one fence his place to keep stock off?—Subscriber, Newhall.

Answering the first question as it is put, the fence laws are by no means the same in all of the counties; in fact they are in a sad state of confusion; many statutes relative to particular counties date as far back as 1850, although not carried forward into the recent publications of the laws, and consequently very difficult to ascertain with precision. Some of the particular laws have been expressly repealed, others have been expressly kept in force by a mere reference, others have been let alone, but subsequent statutes may or may not be held to have effected a repeal; others although not repealed, have doubtless, with change of customs and manner of living, fallen into disuse, but actually remain active, like a snag in a river. Generally speaking, however, one must fence in order to keep stock off, the remedy of the unfenced land owner being to take up the stock under the "estray act," but in that case he has no lien or action for damage caused but merely costs of keeping and sale.

Closing Gate on Public Road

Can A compel B to close a gate newly constructed upon a road that has been traveled by the public for more than 50 years although not a county road? A's place is not fenced excepting at the gate.—Subscriber, Newhall.

Taking the question as it is asked, the answer would be that A could not compel the closing of the gate. But, as frequently heretofore stated, these right of way of the public questions depend so much upon a detailed history of the facts relating to the original alleged acquisition of the right, the manner of its exercise, the attitude of the owners of the land in respect to it and many other particulars that an aswer for which one would wish to be held responsible cannot be given in these columns.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Scabby Pigs

Am writing to know what is wrong with my pigs. Have quite a number and they seem to get scabby, have stiff necks, hold their heads to one side and have sore eyes. They have very good appetite and when they start to the feed fall down and are just as apt to finish at the opposite

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side of the pen. What it it? — Subscriber, El Centro.

There must be a mite that is causing the scabby skin and sore eyes. Scrub them all over with soap and warm water and then wet them with a ten per cent solution of some sheep dip that you can buy at almost any drug store. This better be repeated every few days for the next two or three weeks. Also clean up the pen and white wash it with lime. The fact of their stumbling and falling may be due to rheumatic conditions. Give them each a teaspoon of baking soda in the feed once a day for a week. Changing the feed and getting them into the sunshine may help also.

Poll Evil

Have a horse with the poll evil. What would you advise giving him to cleanse his blood?—Subscriber, San Fernando.

Poll evil is an abscess caused by a bruise and must be treated as such. One ounce of the tincture of iron mixed with the feed and given once a day for a week or ten days is a good blood tonic and may help in the healing.

Chorea (St. Vitus Dance)

I have a Percheron gelding six years old that has had peculiar symptoms for the last three weeks. His whole body seems to jerk at intervals of a minute, more or less. Lately it seems to center around his left leg or shoulder and will sometimes jerk his left foot from the ground. Otherwise he is perfectly healthy and will lead the whole bunch of horses in a half mile run just for fun, then as soon as he stands the jerking begins again.—Subscriber, Victorville.

Can not guess what it may be unless it is St. Vitus dance. That is caused by pressure on a nerve. This may be due to a partial dislocation of the spine and because it affects one shoulder the trouble must be just above or in front of the shoulder. A sudden jerk may put it back in place and he be all right again. May be you can help it by grasping the top of the withers with both hands and pulling it sideways or by twisting the head way around to one side or the other. Do not think that medicine would do any good.

Barrenness

Kindly advise what to do for cows that will not get with calf. They come in season regularly every three or four weeks. Have heard that there is a cure for the disease called abortion. Can you give us the remedy? — Subscriber, Atwater.

There are so many reasons for cows not getting with calf that it is hard to decide what is the reason in your case from so short a description. If they have been aborting then call in the nearest veterinarian and have them treated for contagious abortion. The trouble may be with the bull. If he is getting old change for a younger one. Give the cows exercise to warm them up just before breeding. The time of giving a dose of medicine for every ill is past. General conditions must be regulated also and nature must be assisted in every practical way. Cows that are fed high to force a large flow of milk and given little exercise are apt to be poor breeders.

Fails to Breed

I have a Jersey cow that is nice and fat and giving five gallons of milk daily. She was fresh October 15 and since that time has not shown signs to be bred. Please advise what to do. —Subscriber, Palms.

Cows that are nice and fat and get little exercise are apt to do just as yours is doing. Drive her several miles until she gets well warmed up. Repeat this once a week until she comes in heat and again just before breeding her. Also give her these powders; they may help some. Six ounces of powdered nux vomica, three ounces of the sulphate of iron and four ounces of good corn meal. Mix and divide into 20 powders and give one powder every day in a little feed. If she refuses to eat the feed with the medicine in it then put a powder in a bottle, add a cup of water, shake it up and give it as a drench.

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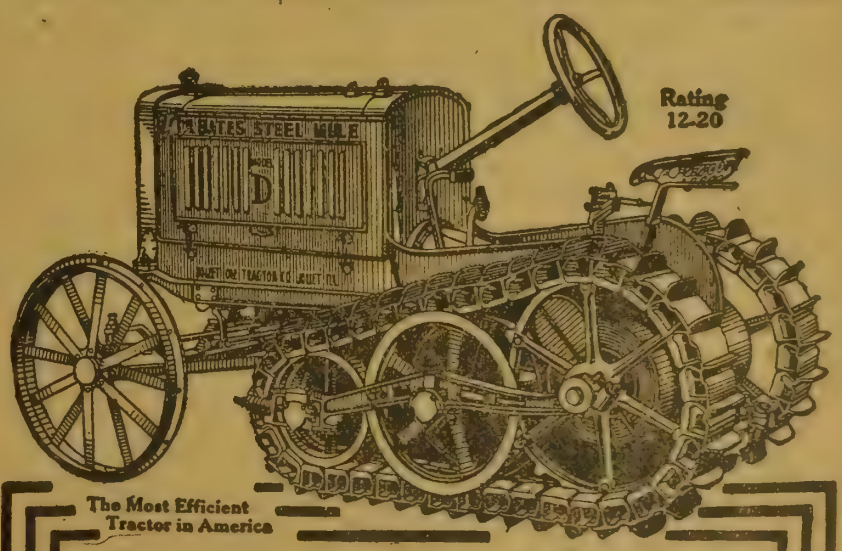
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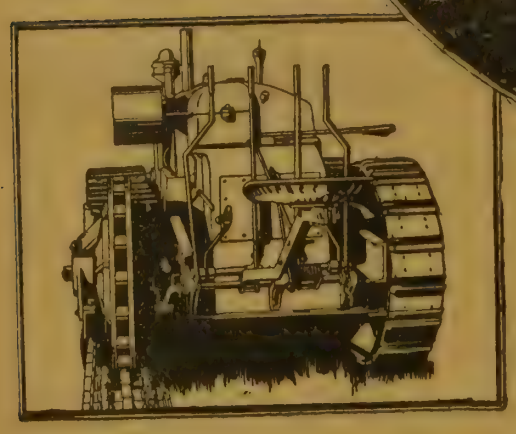
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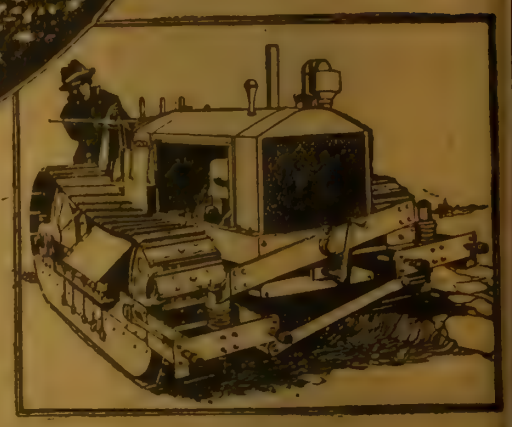
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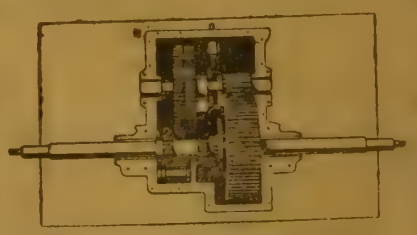
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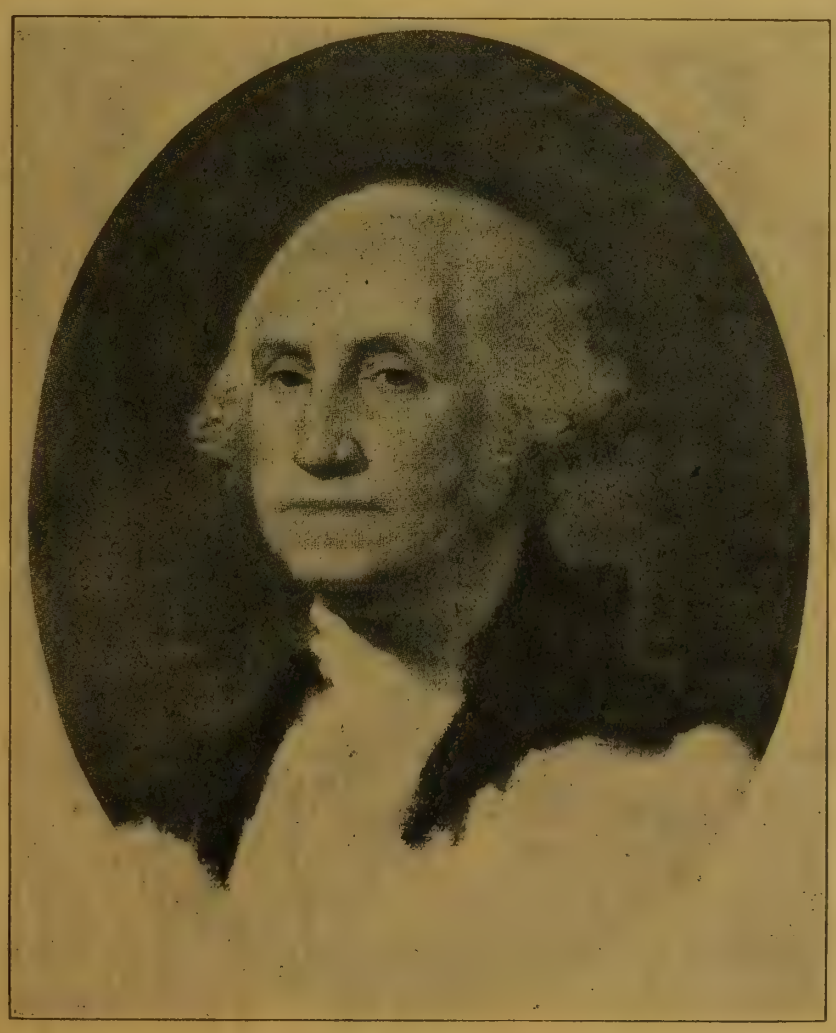
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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — February 22, 1919 — No. 8



THE more I am acquainted with agricultural affairs the better I am pleased with them; insomuch, that I can no where find so great satisfaction as in those innocent and useful pursuits. In indulging these feelings I am led to reflect how much more delightful to an undebauched mind is the task of making improvements on the earth than all the vain glory which can be acquired from ravaging it, by the most uninterrupted career."—George Washington.

It has been maintained that Washington was the first scientific farmer of this country. He grew alfalfa in 1760; he was the first American to raise mules in this country; made his implements and much of machinery with his own hands and was a pioneer in improving breeds of stock. At his death he was the richest citizen of the Republic with 60,000 acres of farming land.

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Vol. LII, No. 8 | Los Angeles: February 22, 1919 | One Dollar Yearly

Pruning the Lemon

By Robert W. Hodgson

THE subject of pruning citrus trees, and particularly the lemon, is one upon which growers have but rarely been able to agree. For 20 years and more this subject has been argued and discussed at various meetings of fruit growers and a large number of so-called systems of pruning have been advocated and used for a time, only to be discarded or changed as experience has revealed their merits or demerits. Indeed, the fact that some growers who have not pruned at all have obtained fairly satisfactory crops has even raised the question in the minds of many citrus men as to whether citrus trees require pruning.



Nature's Way
Top of lemon tree allowed to grow to sucker, or non-bearing wood.

Why Prune Lemon Trees?

It is quite true that in California orange and lemon trees if left unpruned will bear fruit and will oftentimes bear large quantities of it. This quality, however, is nothing more than a gift of nature. Almost any fruit tree if left alone will bear in California. Many sorts will literally bear themselves to death if thinning of the fruits is not done. According to the most exhaustive investigations on the subect, the most important factors influencing the fruiting habit in trees are low atmospheric humidity, high summer temperatures, and intense solar radiation. These attributes are precisely those which characterize our long California growing season. Therefore it is at once obvious that we do not prune primarily for fruit in California. We prune for reasons of convenience in gathering our crops, for convenience in fumigating our trees, and for the development and maintenance of long lived trees. We hear a great deal these days about our trees going back and the necessity of renewing them and this necessity is largely ascribed to the old age of the trees. The writer ventures to make the assertion that properly pruned and cared for otherwise, we need not expect any deterioration in our citrus trees for many years yet. On the authority of Dr. H. J. Webber, dean of the citrus experiment station at Riverside, there are citrus trees in other citrus districts of the world hundreds of years old and more, and still bearing.

There are a number of reasons why lemon trees should be pruned. One is that on account of their vigorous growth habit the trees become too large and unwieldy if not pruned, which considerably increases the cost of picking the fruit and fumigating the trees. Another is that if unpruned, they become so dense as to exclude the light from the interior of the tree with the result that all the fruit is borne on the outer limbs where it is exposed to sunburn, wind inury and other adverse climatic conditions. It is quite possible by pruning the tree so as to encourage the production of inside fruit to carry more and better fruit on a small tree than on a large unpruned tree. The third and most important reason for pruning lemon trees is that if left alone many lemon trees grow up to a wood which is undesirable in that it fruits sparsely and deteriorates early.



Three Kinds of Growth
Mr. Englehart has his hands on sucker growth. Behind the netting is fruiting wood and "white wood", of much less vigorous growth. The three kinds of wood are budded on same tree.

Principles Underlying Pruning Lemon Trees

Polymorphism — Lemon trees, together with certain other tropical plants, possess the remarkable property called polymorphism; that is, they produce different kinds of growth on the same tree. This is inot a matter of bud sporting in the ordinary sense of the word. It is quite true that citrus trees are very prone to give rise to bud sports or mutations, but no two bud sports are alike, whereas there are several very distinct classes of growth regularly produced on lemon and orange trees.

A rational system of lemon pruning should be based on a knowledge of what kinds of growth one can expect in a lemon tree, what can be expected from these different kinds and a judicious selection to the most desirable sort. One of the first men to recognize the fact that lemon trees are polymorphic was J. P. Englehart of Glendora, who has pruned and lived with lemon trees for more than 25 years. Mr. Englehart, who comes from a famil of horticulturists and nurserymen, early recognized that there are different kinds of wood in lemon trees and the very satisfactory results which he has achieved as a pruner have largely been due to his keen powers of observation as to what kinds of wood are best.



Not Nature's Way
Same tree pruned back to desirable growth. Note mass of prunings on ground.

Kinds of Growth

For convenience we may divide the kinds of growth into three classes, on one extreme the true fruit wood, on the other the sucker wood, and in between an intermediate class. This latter class really contains several kinds of growth which are intermediate in nature between the fruit wood and sucker growth. Nearly every grower recognized fruit wood as that slow growing, pendant, small leaved, fine stemmed type of growth which fruits early and bears the best quality of fruit. Similarly, most growers know sucker growth as that vigorous, fast growing, upright, large leaved, coarse grained type of growth which bears fruit only on the end and sooner or later loses its fruiting habit. The intermediate class gives the most trouble. In this class Mr. Englehart recognizes two kinds, "white wood" and "wood growth," both of which are intermediate in nature, being more upright, vigorous and cross grained than the fruit wood.

Continued on Page 246



Two Types of Eurekas In Mr. Englehart's Orchard
One shade tree type; one budded from bearing wood.



Sucker Growth on Lemon Tree
Mr. Englehart is showing where to remove the sucker, leaving fruit bearing wood.

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A Journal of Horticulture, Agriculture and Live Stock

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Saturday, Feb. 22, 1919

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THIS WEEK'S COVER

Perhaps the title, "Father of His Country," was given to George Washington because of his services to his country in being a farmer and a good one. While he paid no income tax he kept accurate account of every farthing expended and every farthing received, and at all times was aware of the true situation from the business side of the farm. As to farming methods here is a sentence from a letter to a friend which sounds somewhat like modern day preachments:

"The aim of the farmers in this country (if they can be called farmers) is, not to make the most they can from the land, which is or has been cheap, but the most of labour, which is dear; the consequence of which has been, much ground has been scratched over and none cultivated or improved as it ought to have been: whereas a farmer in England, where land is dear, and labour cheap, finds it his interest to improve and cultivate highly, that he may reap large crops from a small quantity of ground."

DAIRIES TO EUROPE

The movement of American bred dairy cattle to Europe has begun. The first shipment was of 100 head of high bred Holsteins ordered by the French commission. The dairy division of the United States department of agriculture chose the animals. It is thought this shipment will be a forerunner of many.

It is time for cow testing associations to do more and better work than ever, for tested animals should have the advantage when individuals are being picked for this market.

KILL THEM OFF

This is a good time to dispose of the non-productive old hens. We realize that the beginning of the molting season is the usual time, but with prices of eggs on the toboggan and feeds refusing to slide to any material extent it does not pay to continue supporting hens of indifferent quality. A year ago there was a federal ruling prohibiting disposal of laying hens. That ruling does not obtain this year and the poultryman should satisfy himself as to the worth of every individual.

GRAFT NOW

The land owner who has California native black walnut trees and contemplates using them for quick production of nuts should cease his contemplation and get busy at once grafting. A few practical suggestions are given by Mr. Neff on fifth page of this issue. We have seen some wonderfully productive trees made over from these wild trees of chance planting. The next ten days should see the work of grafting completed.

LEAGUE OF NATIONS

The Pacific Coast is this week given the inspiration and honor of hearing ex-President Taft and many others of the nation's clearest thinkers in the discussion of the plans for a league of nations. Fortunately, however, before the holding of the Pacific Coast meetings the Peace Conference at Paris has almost brought into being such a league. At least it has proceeded so far as to draft the constitution or foundation of such a great organization of nations.

This league proposes to outlaw war and every nation subscribing to it agrees to submit its difficulties to an arbitration board. However, it does not propose to bring into being an organization so loose-jointed as to lack power to enforce its own mandates. If a contracting nation refuses to carry out an arbitration decision the executive council shall take steps to give it effect. All contracting parties agree to submit all disputes to the executive council, and the league takes to itself all supervision of trade in arms and ammunitions in every country in which such control is necessary in the common interest.

The San Francisco meeting is one of nine held the country over with the idea of supporting such a movement but, as now develops, the Peace Conference has already acted, and the effort in these meetings will now be to inform the American people of the provisions of this great document and the necessity for its approval by the congress of the United States.

GEORGE WASHINGTON THRIFTOGRAMS

The 187th anniversary of George Washington's birthday is being celebrated today. Washington, the successful builder of a nation, gave voice to rules for personal and national success which are as applicable in this 1919 year of necessary Thrift as in his day. Here are some of his words on the use of money and resources that might have been written for the present situation in America:

I am no more disposed to squander than to stint.

Economy makes happy homes and sound nations. Instill it deep.

It is not the lowest priced goods that are always the cheapest.

I cannot enjoin too strongly upon you a due observance of economy and frugality.

Keep an account book and enter therein every farthing of your receipts and expenditures.

Promote frugality and industry by example, encourage manufactures, and avoid dissipation.

Reason, too late perhaps, may convince you of the folly of misspending time.

There is no proverb in the whole catalogue of them more true than a penny saved is a penny got.

Nothing but harmony, honesty, industry, and frugality are necessary to make us a great and happy nation.

These statements by George Washington as to wise personal economy might be paraphrased today in the injunction of the National Thrift Campaign—spend wisely, save intelligently, avoid waste—and invest safely; buy War Savings Stamps and Thrift Stamps.

THE ORANGE SHOW

San Bernardino is having some beautiful weather this week and pulling off one big show. The ideal weather has resulted in liberal attendance, and as these words are written arrangements are being made for a citrus institute which will bring a representative attendance of citrus growers from all portions of the Southwest. The features are much as usual, but quality of the fruit is even better than anticipated, and it is remarked that the showing of fine fruit is proof of the slight damage from the season's cold. The show is to close next Sunday night.

WHEELER TO RETIRE

Because of having reached the age of retiring and, in addition, having served for an even score of years, President Benjamin Ide Wheeler of the University of California has tendered his resignation to take effect next July. In tendering his resignation he writes the regents: "I have honestly done my best. I am sure therefore that I shall not be esteemed to be quitting my task, if I ask you to give me your blessing, and let me go. This is my resignation of the presidency to take effect on the above-named date."

CLEANER FARMS

We recently saw the statement that the origin of practically all the typhoid of cities was in rural districts and introduced into the city through water supplies, milk supplies or the transporting of garden products. It is generally accepted as true that the sanitation of the largest cities is far superior to that of rural districts. This is so because it is necessary that greatest care be given where there are large aggregations of human beings, and while this care is not so essential in rural districts, vastly more attention should be given to sanitation there than ever has been. The first duty of the state is to make for healthful living conditions.

IMPORTING MEATS

This country imported over 100,000,000 pounds of meats during 1918. This came principally from Argentine and Canada. Of course there have been vast exports to Europe, but there is no reason why this country may may not produce all its own meats in addition to necessary exports.

GROW A CHRISTMAS TREE

With the forest service making more stringent regulation is the matter of removal of young trees for Christmas tree uses the question which presents itself is: "Why not grow our own Christmas trees and save this annual denuding of the mountain sides?" Besides, Oregon has seemed to secure almost a monopoly of the Christmas tree trade. Let Californians get busy and plant some of their less productive land to firs which will make our own Christmas trees.

ANALYZE FEEDS

The department of agriculture makes examination of many shipments of cottonseed meal and reports that a proportion of these shipments have been found to be deficient in protein. While this deficiency is only slight it means a loss of $100 per car. These feeds should not be accepted unless properly tagged with a guarantee of correctness of report on the tag.

FARM BUREAUS

The Smith-Lever act which provided for the extension of the work of the department of agriculture through cooperation with the state universities and various county governments started machinery which proved a wonderful blessing to agriculture in this country under the stress of war. The act had provided for the initial expenditure of some five million of dollars or more, which sum was to be increased for a period of five years until it reached a total of about nine millions annually. This was to be supplemented by state and county support. The demands of war made necessary more complete organization and greater expenditure of funds, and as a special war measure congress made appropriations totaling, with the regular fund, nearly 17 millions for this work during the past 12 months.

This excess appropriation will end on the first of July, necessitating a material reduction in the activities of the farm bureaus. Congress is considering increasing the appropriation, and we believe should consider it most favorably, though there are some who feel that these particular activities have not resulted in every case in wise expenditure of the funds. To accomplish great results with least money it will be necessary to have a slower growth than was the forced war growth of this movement during the past few years. But notwithstanding mistakes, its value to the country has been very great.

PLANT A TREE

It has been suggested that everybody may well plant a tree as a memorial to the boys who have made the great sacrifice. No finer suggestion could be made. In California let it be a sequoia, a eucalyptus or some large growing tree. In any case, plant a tree. Those of us who have been here a score or more of years can appreciate the magnificent memorial which a tiny seed grows into in that time.

The estimated value of the crops in Arizona last year as reported by the federal reserve bank at San Francisco was $42,267,000 as against $31,193,000 in 1917. Total value of all minerals produced in the state for 1918 was $204,500,000.

Methods of Grafting Walnut Trees

By J. B. Neff

THE grafting of walnut trees which have proven unprofitable either because of light production or an undesirable quality of walnuts can be done successfully if sufficient care is taken in the placing of scions and the necessary attention given afterwards to the young growth.

Scions can be made to grow on stubs of any size but the best results are obtained where those stubs which are three inches or less in diameter are grafted. These will completely heal over in a few years while the larger stubs will have too much uncovered wood, and if special care is not given for a long series of years there is much danger of losing the tree from decay of the heart wood. The working over of old trees can be accomplished by going out farther on the branches to make the cuts and inserting more scions.

Native black walnut trees can sometimes be worked over and production secured from otherwise worthless trees and unproductive land. These native trees are often in the form of a clump of bushes coming from a single root system. In this case two or more of the best can be grafted and a further selection made by taking out all but the best after a year's growth is made. If there is no suitable growth in which to place the scions it will be well to cut off the old wood close to the ground and wait a year until new and vigorous wood is grown in which to place scions.

In selecting this new wood always take that which starts well down on the roots so that it may be able to form its own independent trunk and then take away all the old trunk that can be removed without injury to the new tree. Do not undertake to grow too many trees on an acre.

These old trees are likely growing under adverse conditions, so give the new tree a chance by having nothing closer than 60 feet.

Scions of any convenient diameter can be used but those that are from one-quarter to one-half inch in diameter are the easiest to handle.

The requirement in scions is that they shall be of mature wood, fairly straight, small pith, with two good buds, not shorter than three inches nor longer than six inches. These may be cut at any time after the leaves fall and until the bark begins to slip in the spring. They can be kept 60 days in damp, but not wet, sawdust in a cool place, or can be used the same day they are cut. The success of walnut grafting depends on a few rules which must be scrupulously observed. The white wood of the scion must make an airtight joint the full length of the tongue or wedge that is inserted in the stock. The cambium layer—the line showing between the bark and the wood—on the scion must correspond with the cambium of the stock as far as possible or at least they must cross each other several times, and all the cuts must be covered with wax so as to be airtight.

If the stubs are two or more inches in diameter it will not be necessary to tie the scion but if smaller, and on nursery stock, all should be tied tightly with stout soft twine. In preparing a tree for top grafting it is best to mark the branches in which the scions are to be placed and cut off all others close to the body of the tree, but if the branches are heavy a first cut should be made two or more feet from the trunk so there will be no splitting down on the trunk. This care must also be observed when cutting to place scions.

When the cutting has been finished use a heavy butcher knife to make the clefts for the scions, placing it in such position that a chip about one-half inch thick would be split from the stub, but instead of splitting a full width chip hold the knife so as to split from one side only and with a mallet drive the knife down about two inches. Then use a smooth steel wedge to open the cleft on the deep side and with a sharp knife make the cleft smooth. Cut the scion to fit, put it in place, remove the wedge and cover all the cuts with hot wax applied with a brush at once. Care should be taken to have the hot wax fill the cleft.

The same principles apply in grafting nursery stock, but since the stocks are smaller a tongue graft is most commonly used. The soil is removed from the nursery row until the roots begin to show. The stocks are cut off with a sharp saw about two inches above the roots, or wherever may be high enough to allow the tongue to be made in hard wood. The scion is placed and tied with strong soft twine. All cuts are waxed at once with hot wax. The soil is then moved back to the nursery row and heaped so as to cover the scions. Frequent examinations should be made of the grafting above ground to see that the wax does not crack and expose the cuts. When twine is used above ground it must be loosened after the growth begins but not removed until the scion has firmly united with the stock. After the scions have made a foot or more growth they will need supports to train them in the proper direction.

If there is an excessive flow of sap in old trees it can be controlled by boring small holes in the trunk near the ground, as explained in the Cultivator of February 8, page 172. Any wax that will retain its pliability in cool weather and not run too readily in warm weather can be used provided it does not have any free oils in it, as any oil which will not combine with the other materials will penetrate and destroy the cambium and the work will be in vain.

Grafting Wax

Five pounds resin, one pound wax, one-half teacup raw flaxseed oil. Melt and use hot.



It Takes Nerve but It Pays

When the walnut begins to be crowded it gets lazy and refuses to bear as it should. Then the grower needs his nerve and a sharp mattock. Overcrowded orchards never pay. Take out alternate trees then plant the next orchard 60 feet apart.



Made Over and More Profitable

Here is a walnut tree that did not come up to the standard. It showed blight more than it should; it failed to produce highest grade nuts; it was not allowed to board or to live off the products of the other trees. The four arrows marked "A" indicate where it was grafted. The tree is now producing far more and far better fruit. Arrow "B" points to a former attack of melaxuma which was treated with Bordeaux paste and later with asphaltum. The tree is now perfectly healthy.



Irrigation Engineer Professor G. E. P. Smith of the University of Arizona estimates that 60 per cent of the water served to the farmers this past season from the Roosevelt reservoir had been in storage since 1915 and that without the reservoir not more than one-half of the 205,000 acres irrigated could have been supplied with water, and the yield of crops on even this limited area would have been far less than it was. Reasoning from this analogy, it would not be far fetched to say that the crops produced this season as made possible by the reservoir would considerably more than pay for the entire project.

A large acreage near Dixon, Solano County, is now being planted to rice.

Agricultural News Notes of the Pacific Coast

Northern California

The state tractor school opens at Chico, Butte County, March 17.

One Glenn County sheep grower claims a loss of $700 from dogs.

State tractor school is now being conducted in Gridley, Butte County.

The state motor vehicle department has 374,721 automobiles registered.

The leading cow in the Sacramento cow test made her record on a feed of carrots.

The Hayward Pigeon Club, Alameda County, is planning for a show sometime in June or July.

Machinery is now on the ground for the erection of a cotton gin at Durham in Butte County.

A state highway will connect Suisun and Rio Vista. It will be 24 miles long and cost approximately $350,000.

An irrigation project for Dixon, Solano County, is again being agitated. It is proposed to use the waste waters of Putah Creek.

The city marshal of Woodland refuses to enforce the flu mask law, or rather declares he is too busy with his other duties.

Tehama County farm bureau meetings: Richfield, February 17; Corning, 19; Bend, 21; Los Molinos, 24. Special demonstrations have been made this week.

Napa County is talking up the project of building a concrete highway from Napa to Calistoga, later to be connected with the Sonoma County highway at Healdsburg.

The California Tractor and Implement Association is planning for a big tractor meet and demonstration at Sacramento May 5-10. President Gardner says he expects an attendance of 100,000.

The convention of the California Cattlemen's Association, originally scheduled for February 9-16, has been postponed until some time in April on account of cancelling of dates of the live stock show. Delegates from 49 counties will attend the convention.

Grain farmers who expect to market their grain in sacks next season are being urged by the farm agents to order for their requirements now as the control of the war industries board over jute products will end by May 1 and it is feared prices will be advanced.

The next meeting of the California Cattlemen's Association will be held some time in April. This meeting was to be held at the time of the International Live Stock Show which is now postponed till fall. A report of the marketing committee will be made at this meeting.

General Manager Plummer of the Pacific International Live Stock Commission at Portland pays high tribute to Prof. Gordon H. True of the University of California, calling attention to the wonderful work he did when he was head of the live stock department of the University of Nevada.

A mass meeting of grape growers and wine makers of Sonoma County was held on Sunday, February 9, in Cloverdale. Effort will be made through Theodore Bell to carry the bone dry provision to the federal courts and allow the harvesting of the 1919 wine grape crop. Similar meetings were held at Santa Rosa, Healdsburg and other towns in the wine grape growing section.

Central California

Turlock is now receiving great quantities of cantaloupe seed.

More silos is the slogan in almost every dairy section of the valley.

Kern County proposes to have better distribution and conservation of irrigation water.

Fresno County is discussing county maintenance of parks in different sections of the county.

Tulare Cannery is now contracting for 1919 tomatoes. Price to be paid is not yet determined.

The University of California announces the distribution of tested wheat and barley seeds.

San Jose Grange Patrons of Husbandry recently held memorial services for Theodore Roosevelt.

Horticultural Commissioner Rutherford is warning Stanislaus County potato growers to plant better seed.

County Commissioner Howard of Kings County is giving specific instruction to fruit growers in spraying.

A writer in the Modesto Morning Herald is raising the question of the success of the Milk Producers' Association.

Prof. Whitten of the University of California has been giving pruning demonstrations to orchardists of Santa Clara Valley.

Grain growers of the valley who have not arranged for bulk handling of grain are urged to place orders at once for sacks.

Stanislaus County has 200 acres in spinach practically ready for shipment. The yield runs around 5000 pounds per acre.

Madera County's annual farm bureau meeting was held at Madera last week and the livest subject was that of better markets.

Tulare County board of trade is publishing a road book for that county which deals particularly with mountain resorts and roads leading into them.

Cotton growers of the San Joaquin Valley have generally settled on Pima as the most profitable variety of cotton for that section and the best adapted.

A whaler working out from Monterey recently captured a 62 footer which yielded 90 barrels of oil and two tons of fertilizer, all valued at over $7000.

A bill has been introduced into the state legislature providing for establishment of a state nursery for growing trees for ornamenting the highways. Why?

A proposition for road building has been announced by the board of supervisors of Madera County, a road running west from Chowchilla being the principal part of the plan.

Fresno is urging the immediate completion of the Kings River Canyon road. The scenery of that great canyon is declared to be practically as fine as that of the Yosemite Valley.

Pajaro Valley is making a record this year in the movement of apples. The final clean-up will come much earlier than usual. Less than 100 cars now remain in the packing houses.

Senator Brown is making an effort to secure the passage of an enactment which will permit of state markets open to all, producers and consumers. This is a continuation of his effort begun years ago.

Southern California

Brawley, Imperial County, sends out a dozen cars of lettuce daily.

Imperial Valley poultry show is being held in Brawley this week.

The National Orange Show is in full swing at San Bernardino this week.

Banning, Riverside County, is packing prunes at the rate of 12 tons daily.

Imperial Valley is now shipping its cotton by the way of Los Angeles harbor.

Covina Citrus Association has paid to its growers over half a million dollars.

The slogan of swine raisers of the Imperial Valley is "Eradicate hog cholera."

The course in tractor operation begins at Riverside next Monday. February 24.

The state highway commissioner has recently made inspection of the Brawley-Inyo highway.

Los Angeles County observed last Saturday as Los Angeles day at the National Orange Show.

Elsinore, Riverside County, is advertising itself as a producer of earliest and sweetest of oranges.

San Bernardino County has shipped more than four times the citrus fruit it had this date last year.

Food is coming down. Elsinore, Riverside County, has reduced its rate on water by 25 cents monthly.

Riverside County irrigationists are discussing greater water supplies and more perfect conservation of the supply already in hand.

Representatives of the department of agriculture are making investigation as to sugar beet production in Southern California.

A Corona factory for the handling of citrus by-products held its annual meeting yesterday and made a report which shows that it is a successful institution.

The citrus institute under the direction of Dr. Webber of the citrus experiment station, will convene at San Bernardino, Thursday morning, February 20.

A bean broker has begun suit against a Ventura County Lima bean grower for non-delivery of beans which the broker alleges had been contracted. The suit is to recover $30,000.

The farm center at Garden Grove has been taking up the matter of more profitable poultry culture. Addresses have been delivered by Prof. E. J. Hauser of the University of California.

Victor Valley in San Bernardino County plans general extension of irrigation work. This is one of the richest sections of California and should conserve every ounce of its water.

"True harbinger of spring is creamy bloom of almond tree" is used by the Riverside Press in its invitation to a "True Carnival of Spring" as its trees are coming in bloom in San Jacinto foothills and San Gorgonio Pass and other well kept orchard sections.

Citrus districts, especially those about Covina, have had experience with Bolshevik agitators during this season. A bunch of Russians, together with some I. W. W.'s, have picketed orchards, urged Mexican pickers to throw up their jobs, and it is asserted have made threats of burning packing houses.

The Coast and General

Parcel post packages may again be mailed to Belgium.

The Snohomish gas engine school will be held at Arlington April 5 to 12, inclusive.

Carl Vrooman, assistant secretary of agriculture, has resigned his office because of ill health.

The Walla Walla Gardeners' Association has decided to affiliate with the Northwestern Fruit Exchange.

A part of the new concrete highway between Phoenix and Tempe has been completed and is open to the public.

The administration now estimates that it will be necessary to appropriate $1,250,000,000 to the wheat grower.

Eighteen farmers of Cowlitz Prairie, Washington, have formed an association to purchase hay and alfalfa in Idaho.

The annual convention of the Farmers Union of Washington and northern Idaho was held last week at Spokane.

The new county engineer of Maricopa County, Arizona, is doing considerable work improving the dirt roads of the county.

Hawaiian pineapple canners packed during 1918 approximately 4,000,000 cases of pineapples. The largest previous pack was 2,618,768 cases in 1915.

In addition to carload lots of lettuce, Glendale producers are shipping a considerable quantity of both lettuce and spinach by express to the mining towns of Arizona.

Secretary McClure of the National Wool Growers' Association, recently returned to Salt Lake City from Washington, says growers may expect 40 to 50 cents for the spring wool crop.

Wool growers of Klamath County, Oregon, are organizing. The immediate occasion for the organization was to present opposition to proposed legislation restricting and regulating sheep grazing.

Within the past two years Apache and Navajo Counties of Arizona have changed from bean buying sections to bean producing and shipping sections, while the consumption has increased several times.

The new railroad from Holbrook, Arizona, on the main line of the Santa Fe running south to the pine forests, is nearly completed. Track laying has been finished within five miles of Cooley, the terminus of the road.

Six or seven bunches of mountain sheep which have been protected are now to be found among the rugged and isolated parts of northern Arizona. There are comparatively few of these animals now to be found in the United States.

February 7 was Arbor Day in the following counties of Arizona: Cochise, Gila, Graham, Greenlee, Maripoca, Pima, Pinal, Santa Cruz and Yuma. The fourth day of April will be Arbor Day in the northern counties —Apache, Coconino, Mohave and Yavapai.

Over five inches of rain fell in the mountains above the Roosevelt Dam, assuring a plentiful supply of water for the coming season and also helping materially the range conditions in that part of the country. In the northern part of the state there was a heavy snowfall.

Citrus Culture---Beginners' Hints

Written for California Cultivator By Ernest Braunton

IN OUR last article full directions were given for planting, but no mention was made as to time. The proper time to plant any evergreen tree is when it is ready to grow. Deciduous trees are planted while dormant but there is no period of complete dormancy in evergreens, and they should not be disturbed until ready for planting nor planted until ready to grow. As citrous trees are native to the tropics they will not grow while the soil is cold. The best period for general planting is the second quarter of the year, March, April and May. Some exceptions will later be noted. Trees planted when soil is cold will lie dormant until warmer weather. If the season be cold and wet and the dormancy therefore prolonged, the finer and more tender roots may decay and also decay set in at the cut ends of larger roots. The result is that such trees start more slowly and somewhat feebly, for they have first to make a new set of feeding roots. In light soils planting may be done earlier than in heavy soils.

In the hot interior sections and the great valleys spring comes more suddenly than in coastal regions; the summer commences earlier and the cloudless hot weather makes a shorter planting season or a more risky one. So that while one should wait until the soil is warmer, planting should not be longer delayed, and when commenced should be finished in the shortest time possible. In coastal sections where cooler summer weather prevails planting may continue all summer, although the aim should be to complete the work in June so that the young trees may have a long season in which to get that vigorous growth impossible to trees planted later. Trees planted in July and August cannot make as vigorous growth but will make enough to become firmly established and in good working order for the following spring's awakening. But more care and caution is required for late plantings. Trees must be protected from rapid drying, moved quickly and copiously irrigated immediately after planting.

Heading and Protection

Young trees should have a clear stem of about two feet from soil to lower branch and it is not a good tree where all branches start from the same level, as is the case with the ribs in an umbrella. This makes a weak tree, or weak "crotch," as the tree men call it. It is better to let them head out over a range of six inches or more up the stem. If trees are headed three or more feet when you receive them it is best to head them again by cutting off top at not more than 30 inches from the ground. A citrous tree should be sturdy and compact and at the end of the third year its lower branches should droop to the ground. High headed trees but lengthen the handle of the umbrella and make it farther out of reach and more unwieldy and in great danger in times of stormy weather. Such heads also expose the stem to more serious sunburn.

Thousands of acres are each year set out without protection of stems, but protection should be given for a number of reasons, all good ones. In some sections it is necessary to guard against injury by animals, but such cases are not common. Protection is given, primarily, to prevent sunburn, and is necessary in all sections. Aside from the manifest mechanical injury the sap flow is interfered with, growth retarded and the young tree stunted. Thousands of experiments have proven that stem protected trees make far better growth the first and second year and of course they do to a lesser extent in after years. After the second year the top should sufficiently shade the stem. Stem protectors also prevent the growth of "suckers," and sometimes prevent injury from careless cultivators or irrigators with machines, shovels or hoes. Some wrap with burlap in strips or other closely clinging material. Such do not afford the best protection, except to insects and other pests they harbor, and sometimes retard growth by being too tightly fastened. Close wrapping excludes light and air and makes a tender bark so that if it falls or is taken away the stem is quickly and seriously injured by the sun. The yucca protectors best protect from any and all dangers, allow a free circulation of air around the stem and are far more efficacious in preventing sucker growth than burlap, for buds will push their shoots out through burlap wraps unless thick and tight. Protection pays.

The Pruning Puzzle

How to prune the orange tree is a subject much discussed, but as to the lemon tree all are fairly well agreed. The natural growth of the lemon is to make strong upright shoots of considerable length, on the tips of which young lemons appear in goodly number. I can see such a tree in my garden as I write. Shoots scarcely an inch thick run up six or more feet, branch near the ends and on each shoot are little lemons no larger than a common garden bean. This growth must be cut down to less than a foot high. From these stubs many laterals will spring, each of which will bear fruits. The lemon tree should be pruned each year from the very first year after planting. The tree should be built up of short sturdy branches. All long branches should be cut back to make a symmetrical head of strength, yet this head must not be allowed to become dense, as sunlight and air are necessary to good fruit. Lemon trees must be kept low to reduce the cost of picking and throw the vigor into a smaller area, making a prolific crop of excellent fruits. Some growers establish an arbitrary height, to which all growth is reduced twice or more each year. This height in bearing trees may first be but six feet and as the tree grows it is allowed to gain a few inches each year until it finally reaches a height never greater than ten feet. Some growers keep pruners in the lemon orchards the year around and keep trees clean of all weakly or dead twigs, while thinning and reducing the height as well. No namby-pamby treatment of the lemon will suffice, the pruning must be vigorous—real surgical operations on all strong growths.

With the orange no real pruning is needed for the first five years. One may go over the trees and cut out dead and weakly twigs, but this is mere snipping, not pruning. There may be an occasional strong growth or water shoot to be headed back or entirely removed in order to preserve the symmetry of the tree, but young oranges, well cared for, are quiet, sensible growers and few suckers appear. Unlike the lemon, the orange tree

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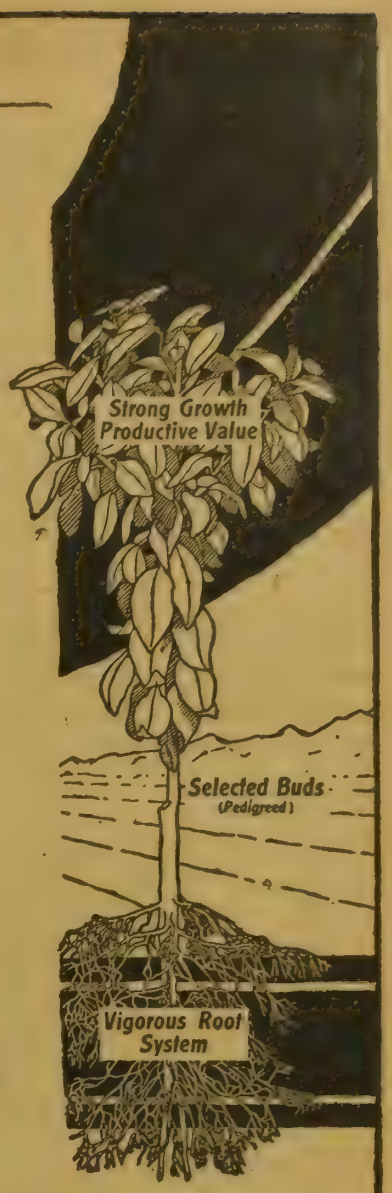
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The Bolsheviki—I. W. W. strike in the citrus groves has ended.

droops rather than shoots upward. In shaping the tree strong growths out at the ends often are forked, one branch growing above the other. Always remove the under one, never the upper, for the latter only will make a strong branch that will not split away, but it is the one of the twain that bears the fruit. Do not thin out the orange to admit light and air, so the branches show. The outside of an orange tree should present a solid mass of obscuring foliage. If light and air must be admitted it should be from the top, down a central shaft. This part of the tree bears the least fruit and this fruit is most difficult to pick. Therefore the central part may be kept thinned out, but not open. When trees become of good size there is no system of pruning that will prove so profitable as that advocated by J. B. Neff in our issue of December 21, 1918. This is the best method for all old trees, no matter of what kind, as it presents the greatest possible area to the outside. The form suggested is that of a deeply corrugated column. The deep corrugations allow the air and light to reach the interior of the tree and greatly add to the area of the outer or exposed surface. Above all avoid pruning away the lower branches and so thrust the bearing surface or top higher up each year. Some old orchards never bear an orange that can be gathered while standing on the ground. Such orchards have been spoiled by improper pruning. Head down rather than head up. The pomelo or grapefruit needs the same care in pruning as the orange.

CONTRACT SUSTAINED

Cooperative organizations have tried various methods of securing a firm foundation or dependable method of handling the business of their members. Simple membership with a determination to depend only on the honor of the member has been tried. Imposing of fines and penalties has also been tried. But we think as a rule today a strict contract between each individual member and the corporate body which handles the business has been found the best.



Up-to-date Packing House

Hollow tile and concrete citrus packing house of the Anaheim Fruit Growers' Association is being equipped with the most modern up-to-date graders and packing house machinery.

Some of California's cooperative organizations handle a business which requires the placing of orders for supplies, the arranging for labor, the construction of packing houses, involving sometimes hundreds of thousands of dollars. No sane director of any such institution will consent to take any such responsibility unless there are back of him dependable contracts which will give him control of the goods he is supposed to handle. These contracts have been sustained in several cases. The latest one is that of the Prune and Apricot Growers, Inc. A general statement of this case is given as follows:

"In the case of California Prune and Apricot Growers, Inc., vs. A. L. Drown in the superior court of Ventura, the association won its first suit against a non-delivering grower. This is the first instance where the contract has become part of a court action, and consequently of considerable importance since this contract is one of an identical series on which all members are signed. During the course of the case the various terms of the contract and fulfillment by both parties were brought out in detail and the result completely sustains the contract in its entirety.

"The corporation was represented by its attorneys, Sapiro, Neylan and Ehrlich of San Francisco. During the course of two days occupied in the hearing of evidence and argument of counsel, every pertinent detail of the contract, from the time it was entered into by defendant and the corporation up to breach on the part of the defendant, was elaborately discussed. Many cooperative contracts have in the past failed to develop the substantial features necessary to the success of organized efforts; but in this case the California Prune and Apricot Growers are assured the greater respect of the trade, the producers and other interested parties. Their contract—the foundation of any cooperative organization—has been on trial and not found wanting."

KILL THE FREAK

Here is the latest in legislation:

"Section 1. It shall be unlawful for any person, firm, corporation, their agents, servants or employees, to operate any machine used for the spraying of any paints or material that contain any poisonous ingredients consisting of lead, arsenic, salts of mercury, benzol, wood alcohol, aniline, paris green, Scheele's green, barytes or other poisons injurious to the health of workmen either by absorption or inhalation.

"Section 2. It shall be unlawful for any firm, person, corporation, their agents, servants or employees, to operate any spray machine for the painting of any ship, building or structure which contains any kind of poisonous ingredients or materials dangerous by absorption or inhalation to the

How Mohawks Ride on Clay Roads

Mohawk, Keaton or Non-Skid treads are excellent clay road tires.

Their big sturdy projections have the faculty of digging down into the slipperiest kind of a road, holding the car safe.

Right from the beginning we have built Mohawk tires, both the treads that show and the parts underneath that don't show, so that they will give the right sort of service, on clay roads, rocky roads, paved roads, or any other kind of roads, and give a lot of it.

We don't believe that Mohawk users want to pick their roads or spend any great amount of time babying their tires.

We have held to the idea that to give Mohawk users the kind of service they want, we must build a tire that is so extra strong it will always give good big mileage and mighty little trouble no matter where the user may choose to drive.

There is nothing mysterious about the way we accomplish it—just the sensible method of using the finest grade of rubber and fabric in the world, building a reasonable quantity of tires so that we can watch each one carefully, allowing the builders plenty of time to do their work right.

We have kept our company on a very efficient basis—haven't a dollar's worth of watered stock or bonded indebtedness and we are satisfied with a reasonable profit. In this way, we have been able to use these expensive materials—more of them than the average tire maker seems to think he can, and have still been able to sell Mohawks at competitive prices.

That's all there is to it.

As far as we know, almost any maker could have done the same thing if he had been organized the same way we have—had the same ideals and had been able to keep away from the temptation of making bigger profits by using cheaper materials and methods.

The point is that most of them haven't done so.

And that is why Mohawks have stood out from among the great variety of tires on the market and have gained such a reputation for consistent high quality.

The best proof of this is that our records prove that 85% of car owners who buy their first Mohawk tires become permanent Mohawk users.

MOHAWK RUBBER COMPANY
AKRON, OHIO

Branches at:
New York Boston Chicago Atlanta Kansas City San Francisco

MOHAWK "Qualify" TIRES



Mohawk Tires—either Mohawk, Keaton or Non-Skid treads—hold a car safe on clay roads. But there are altogether too many of these bad roads in this country. It is estimated that 20 per cent of our roads carry from 80 to 90 per cent of our traffic. In other words, while we have over 2,000,000 miles of roads, if 400,000 miles were permanently and properly constructed in the right place, they would practically complete our necessary highways.

OUTLOOK FOR BEANS IS BETTER

G. A. Turner, president California Bean Growers' Association now in New York wires with the approval of Food Administration Grain Corporation and has the following to say in respect to the American bean situation: "While investigation not completed and present results preliminary the attitude of grain corporation sympathetic particularly in feeling that management of bean business has not been as free from personal bias as it should have been and has led naturally and justifiably to some distrust on part of trade. This condition will be remedied. Disposition of Grain Corporation will be to assist in improving present situation of bean producers and dealers. Exports now freely allowed and foreign governments are abandoning official buying permitting trade to seek ordinary channels. This will tend to help. Grain Corporation considering possibility of making direct purchases under some equitable system of allotment to different localities. This possibility depends on requirements abroad. Cabling Mr. Hoover about whole matter. Expecting another meeting here next week of California and Michigan dealers and others for consideration of possibilities and hope then to determine some definite policy which can be announced and which will restore confidence in future."—G. A. Turner, February 16.

health of the workmen operating such spray machine.

"Section 5. Provides that every violation of the act shall be deemed a separate offense, and upon conviction shall be punished by a fine of not less than $25, nor more than $500, and imprisonment for not more than six months, or both such fine and imprisonment."

In other words, when the poultryman wishes to kill off the mites and other pests in his hen house he must not use a spray pump. The whitewashing of barns or of storehouses may also be interfered with unless it be done with an old broom or by the still slower method of using a paint brush.

These are the days of labor saving, except where labor unionism has run riot and is demanding the very slowest method of doing work.

Every farmer and warehouseman in the state should rouse up and see that this bill is killed.

KILLING WOOLLY APHIS ON ROOTS

Carbon disulphid, in solution at the rate of one-half ounce to four gallons of water and applied at the rate of three-fourths gallon per square foot of soil, will control the root form of the woolly apple aphis and without injury to the trees under suitable conditions, says the United States department of agriculture, in Bulletin 730, recently published. The solution is prepared by pouring the carbon disulphid into the water and agitating the mixture vigorously. When applied on the soil around a tree the liquid penetrates into the ground and the poison gas given off by the chemical kills the pest. Every square foot of infested soil should be subjected to the action of the solution in order to insure complete control. This may be accomplished by pouring the liquid in a shallow basin in the soil around the tree.

In orchard practice where many trees are to be treated the solution is best applied by using a power spraying outfit and two auxiliary tanks. The advantages of this method, according to the bulletin, are, the even diffusion of the liquid and complete aphid mortality in the soil area treated and the safety with which the disulphid can be used. The disadvantages of the method are: the huge amounts of water required, with consequent high cost of labor; the difficulty on any but level ground of preparing basins with level floors, thus insuring the proper distribution of the liquid over the area to be treated; and the wide area of infested roots on older trees, every square foot of which must be treated with the liquid. This last condition precludes the use of carbon disulphid except on small trees with restricted root areas.

Sodium cyanid, kerosene emulsion and deep planting of trees were other measures of control investigated, but they are not recommended by the department.

MOCOCO
SUPERPHOSPHATE
is a wonderful fertilizer for
ALFALFA
Excellent also for Fruit Trees, Vines, etc.
For sale by
The Mountain Copper Co., Ltd.
332 Pine St., San Francisco

When Writing Advertisers, Mention The Cultivator.

Don't Forget
Leonard Coates Nursery
Morganhill
Eucalyptus Trees Should Be Planted Now

TREES
—with roots such as these
are grown only on our foothill soil and location. Hardy—of selected parentage—well-grown—absolutely reliable—and free from root-knot and diseases common to other localities.

We know we can meet your requirements. Our stock of trees is complete. Submit today a list of your wants for special quotations. Remember, behind each tree is our guarantee.

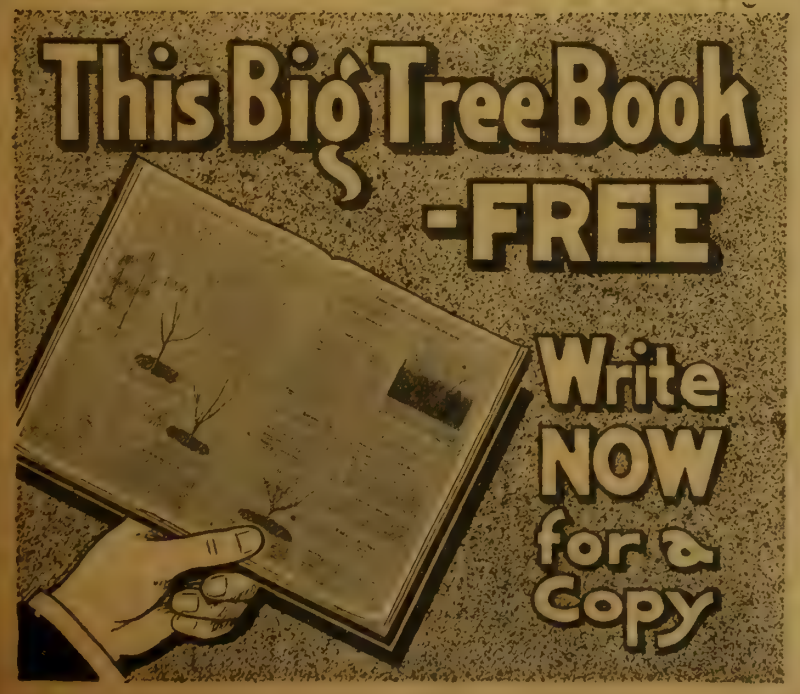
Those who wait will be disappointed. Write now—right now!

J. E. Bergtholdt
Secy. and Mgr.

Why take chances on your trees when we have made it easy for you? Get the right start. Send for our book "California Fruits"—full of practical, dollar-making information. It is based on 30 years' experience as nurserymen and orchardists, for we operate 1000 acres of orchard of our own. Send for this book today—it's *free!*

SILVA-BERGTHOLDT CO.
BOX J NEWCASTLE, CALIFORNIA

—the foundation of SUCCESS in your fruit growing



Fruit Growing Is Very Profitable

There is a strong and increasing demand every year for California Fruits and Nuts.

When you buy trees you want them to grow; you want them to bear; you want them true to name.

Fancher Creek trees are grown from selected buds and properly cared for. Trees are very vigorous and well rooted.

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Write today for our Catalogue and Practical Planter's Guide combined. Totally different from the usual nursery catalogue—chapters on planting, pruning, irrigation and other important details.

Sent Free on Request.

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Grow your own Vegetables!



For a Fruitful Crop—

See that your dormant spraying is done properly. Remember—it takes a long time to grow your crop. A little care now will mean better fruit and bigger profits. Right now you need a general clean-up spray that will not only kill the insects but will tone up your trees. In other words, you need—

Crude Oil Emulsion

No matter what Universal Spray you order you can be sure that it is dependable—uniform in quality—and made under the direction of trained laboratory and field men.

Here are some of the other sprays manufactured or distributed by us: Dormant Soluble Oil; Lime Sulphur Solution; Bordeaux Mixture; Arsenate of Lead; "Triumph" for Citrus Trees; Miscible Oil No. 1 for Olives; Miscible Oil No. 2 for Thrips.

Don't hesitate to write our Service Department—in charge of Paul R. Jones, Entomologist—for expert advice. This service costs you nothing.

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Balfour, Guthrie & Co.

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UNIVERSAL BRAND ORCHARD SPRAY

USE NOW

VIGOROUS, PROLIFIC, DELICIOUS

THORNLESS

Let us tell you about this blackberry

EKSTEIN NURSERIES Modesto, Cal.

Giant Winter RHUBARB

NOW BEST TIME TO PLANT

Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb or Berries, write for special prices. J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, California.

Lettuce Production of Imperial County

By R. G. Risser, Bureau of Crop Estimates

ONE of the two important counties in California in the extensive culture and commercial shipping of lettuce is Imperial. On account of the shorter shipping season of Imperial County, however, it is not yet equal to Los Angeles County in its acreage or in yearly carlot shipments. Yet the daily shipments of Imperial County while the bulk of the crop is rolling exceed the daily shipments of Los Angeles County, with its older growing districts, and Imperial County is considered a real factor in the lettuce production of the United States.

The rise of Imperial County into prominence in the lettuce business was rapid. The crop now going to Eastern markets is but the fourth commercial crop to be noticed in the Imperial Valley. In 1915-16 27 cars were shipped. In 1916-17 there were 413. 1917-18 was an unsatisfactory season, but 982 cars were rolled. The acreage planted to lettuce for the 1916-17 crop was 960, for the 1917-18 crop 2500, and for the 1918-19 crop 2650.

The crop is being grown in widely separated parts of the valley. Standing in the order named, in the relative size of their acreage, the shipping points are as follows: Brawley, Heber-Poppy, Imperial and Meloland. Sixteen shippers are handling the crop.

Movement of the Crop

In connection with the question which is so often asked regarding the period of heaviest shipments, the records of the past two seasons are of value. The following data indicate the percentage of the season's total shipments which rolled each month during the past two seasons:

1916-17—December, 0; January, 1; February, 21; March, 43; April 35.

1917-18—December, 1; January, 10; February, 38; March, 49; April, 2.

Outstanding facts revealed by this table are that March has been the month of heaviest shipments both seasons, practically half of the shipments rolling during that month last year; that February has also been an important month both years, and that over a third of the crop moved in April during the year 1916-17. The season of 1918-19 started out differently from either of these two previous seasons, being earlier than 1916-17 and later than 1917-18. But it is likely to resemble them both in a general way.

The Variety

The variety of lettuce grown in Imperial Valley as in other winter lettuce districts of California, belongs to the crisp head type. Some confusion is caused by the fact that the produce trade in the East knows it as "Iceberg" lettuce while the variety generally offered by seedmen as "Iceberg" is distinctly different, although of the same general type. The variety generally grown in California is known to seedmen as the "Los Angeles Market" or the "New York Market," and sometimes as "Wonderful," and does not have the russet tinted leaves which are characteristic of true "Iceberg." There are two more or less distinct strains of the "Los Angeles Market," both of which are grown. One of them runs largely to heads of the flat type, while the other produces heads which are more pointed or conical. Lettuce in the Imperial Valley, particulary during the early stages of growth, makes foliage of a darker green than lettuce grown on the coast. This is not due to a difference in variety, but to environment. It is presumed that the sunshine is the primary cause of the difference.

How It Is Grown

The land is thrown up into beds after plowing, which run the length of the field and are divided by furrows. These beds are generally made about a foot high and two rows of lettuce are usually planted with a drill on each. Plants are thinned to 10 or 12 inches apart. Planting usually starts about October 1 and most of it is finished by November 30. Irrigation is practiced frequently in the furrows between each alternate row. Single row planting is not widely practiced. In cutting the crop the grower usually goes over his field three different times at intervals of a few days, selecting the best heads each time, throwing them in piles and putting them in field crates for delivery at the packing shed.

How It Is Packed

The stock arrives from the field in crates on flat top wagons. It is aimed to have the product on its way East from 12 to 18 hours from the time it is cut. Trimmers cut off the stump squarely, pick off discolored leaves or dead tips and throw it onto a bench for packing. Packers place it in crates lined with paper, the top of the heads all being packed downward side by side in rows with pulverized ice between the layers. The standard crate contains from three to eight dozen head, according to size and looseness of pack. Four and a half to five dozen heads are perhaps the most common pack. Cars are loaded with from 300 to 350 crates.

PAID IN FULL

In April, 1917 you went into a partnership with James Yeager, American.

You wanted protection for your family, your income and the privileges you deemed necessary to proper living.

Several thousand miles away an army of arrogant, outlaw millions had begun a campaign for ruthless world conquest accompanied by crimes against women, children and property. This horror was striding toward your home.

Yeager agreed to receive training, brave the submarines and fight this menace which had taken on forms more terrible than history recorded. As your part of this partnership you were to remain at home, do your part in financing Yeager's crusade, see that his family had financial assistance and pay him $30 a month. You felt that you had a good bargain.

On October 12 1918, near Verdun, Yeager while performing his duties under the terms of the contract was cut off with a few companions in an exposed position under heavy machine gun and artillery fire. He stood off the foe with his automatic rifle until severely wounded.

After lying seven hours with a companion, reinforcements arrived and two stretcher bearers came with only one stretcher. Your partner Yeager demanded that the other man be taken first. When they returned for Yeager he had been released from your contract—he was dead.

Next April just two years after the signing of that agreement you will be asked to carry out the final part of your stipulation by subscribing to the Victory Liberty Loan. Will you meet that obligation cheerfully or begrudgingly?

YEP!

"It's just as wrong to gamble when you win as when you lose." "Yassuh," asserted Mr. Erastus Pinkley. "De immorality is jes' as great, but de inconvenience aint."—Washington Star.

SEED POTATOES

We specialize in selected SEED POTATOES; Certified White Rose, American Wonders, British Queens, Burbanks, Garnet Chilis, and other varieties. Also fancy, recleaned Alfalfa Seed. Write for prices.

Wm. A. Curtis Co.

San Francisco . . Cal.

Big Moneymaker

You can make $180 a week with fruit and vegetable apparatus. Write at once. Sahara Drier Co. New way fruit and vegetable drier. 20 Eighth Street, San Francisco, California.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Sulphur on the Soil

Your article, "Sulphur and Crop Yield," appearing in the California Cultivator, has been reprinted in our local papers. Our farmers are much interested in the results obtained and expect to make some tests this year. Will you kindly advise me when and just how this sulphur is applied to the soil?—Subscriber, Grand Junction, Colorado.

This question is answered by F. H. Mason, the writer of the article referred to. He says:

The sulphur is sown on the soil, either by hand or machinery, in the same way that grain is sown. It is then plowed or harrowed into the soil, preferably plowed. To insure success it is essential that the sulphur should be very finely ground, or, better still, be in the form of flowers of sulphur, which is a precipitated sublimate. While sulphur seems to have exerted a beneficial influence on all soils, the best and most remarkable results have been obtained from moist, alkaline soils, heavily charged with humus. A soil moisture ranging from 13 to 18 per cent has given the best results, hence more wonderful effects have been obtained in Oregon and Washington where the natural precipitation is greater than in Southern California. Still, if the soil can be kept reasonably moist by irrigation equally good results may be expected in more arid regions. In the case of crops grown from seed, the sulphur should be applied before sowing, with fruit crops before growth starts.

Killing Rodents

Can you tell me if there is a law compelling farmers to kill gophers and squirrels in Monterey County? If so what steps can I take to see that it is done in this neighborhood?—Subscriber, Marina.

Yes. See your county horticultural commissioner.

Paint for Gum Disease

I am pruning an old lemon orchard which has had gum disease and am using linseed oil and a little green point mixed, to cover up cuts and the trunks where I have scraped the dead bark off. I have been told the linseed oil will burn the bark and injure the tree very much. Kindly let me know if this will burn the bark and what is best to use.—Subscriber, Santa Barbara.

Use extreme care in painting with an oily paint over the living bark of orange or lemon tree. It may be used where the bark has all been removed or on the ends of large branches which have been cut off. The best treatment of gum diseased surface is painting with Bordeaux paste: Bluestone, one pound; fresh burned lime, two pounds. Dissolve the bluestone in one gallon water, using wooden or earthen vessel, by hanging it in a sack near the top of the water; slake the lime in about one-half gallon of water. Stir together when cool, making a mixture about the consistency of whitewash. Apply with a brush. May be applied to healthy bark as a preventive. Mix fresh each day or two.

Topping Oranges

What is the proper height to head orange and lemon trees? Would it injure them if headed too high to cut back to just a stub when setting them out?—Subscriber, Fallbrook.

If the nurseryman has not properly topped the trees of course it will be best to do so at planting time but we presume you will find trees when delivered will have been topped at about three or three and one-half feet and are already supplied with some of the laterals which will make the foundation of the tree. If, however, the tree has been allowed to shoot up several feet then it will be necessary to top back and force the laterals to come out where desired.

Sweet Potatoes

Will sweet potatoes mix if they are planted together in the same patch or alternating rows? How would it be possible for them to mix when they have no blossom with pollen to be scattered by bees or insects?—Subscriber, Phoenix.

Such mixing will in no way affect the quality or the use of these potatoes for seed. Of course if the potatoes of the two varieties are similar in appearance it will be understood that care must be taken in digging to keep perfect separation. In the case of the Irish potato where the "seed ball" end is to be used for the purpose of creating a new variety then the matter of pollination enters.

Real Estate Commission

A Santa Ana subscriber sends unsigned letter with request for information as to real estate commission, but the statement is so hopelessly confused that it is impossible to determine what he wants to know. And here is one more reason why it is useless to waste three cents in sending unsigned letters.

Cutting Off Frozen Oranges

As a rule after the severe freez of 1913 in orchards where the fruit was so badly injured as to be unmarketable the fruit was clipped off and plowed under. The theory is that there may be sufficient life in the orange to draw some nourishment from the tree. The fact that it does this is one reason why Valencia growers will permit the fruit to remain on the tree where the frost has not been too severe in the hope that new cells will be formed and the fruit again fill with juice. Presumably your fruit has not been entirely destroyed. In such case at time of picking the sound fruit we would remove that which has been injured and drop to the ground. We would not, however, think the injury severe enough to call for rushing to work at once.

Red Spider

Will you kindly let me know all about the red spider, its habits and the best way to keep it under control? I have an almond and peach orchard which was affected with red spider last year.—Subscriber, Madera.

Such a question calls for altogether too long an answer to give in these columns, for there have been books

Why There Is a Scarcity of Hudson Super-Sixes

No Open Cars to Be Built for Months—Hudson Closed Car Demand Exceeds Production

No automobiles were to have been built after January 1st.

Then, all of a sudden, the ban was lifted.

It produced a confusion the trade had never experienced. For months all makers had been turning out all the cars they could, regardless of the immediate market for them. By spring it was believed automobiles would be so scarce that buyers would accept less wanted makes if they could not get the car of their choice.

Then cars that had not sold freely during the summer and fall would have a ready market when the more desirable makes were out of the way. For one thing—

There Would Be No Hudsons Then

That was one of the expected conditions. Super-Six sales all season, just as they have for three years, absorbed the factory output. Hudson dealers were not able to get cars for future needs. It looked as though they either would have to close up shop or take on one of the less wanted lines.

But withdrawal of manufacturing restrictions assured a limited quantity of Hudsons. Less wanted cars after all, would have to meet Super-Six competition.

Hudson production is now concentrated on closed models, for which there is an excess demand. Some dealers have a limited number of open models—though not enough to meet early spring requirements.

You either must take one of the open cars they now have or wait until late spring if you get a Super-Six Phaeton.

Note Why Hudson Is so Popular

For three years the Super-Six has held undisputed leadership among fine cars.

Remember how it first established itself on the speedway and in countless endurance tests. Rivals refused to admit Hudson had developed a new type motor with greater power and endurance.

Yet those amazing records were made commonplace by later Super-Sixes. Thousands of owners made just as wonderful demonstrations with their own cars, when you consider the conditions, as were those under official test. Every car made converts to the Super-Six. Today 60,000 are in service.

It Created Styles that Others Followed

Hudson created the Sedan and the Touring Limousine. Now more expensive cars have followed and cheaper cars, too, are effecting models of Hudson type.

The seven- and the four-passenger Phaetons are pattern cars for so many other makes, that if it were not that the Super-Six is always a year or more in advance of others, one might be confused in recognizing the true arbiter. Two new types are now ready—the Coupe—a four-passenger—and the Cabriolet for three.

Why Delivery Is Possible Just Now

The Super-Sixes now available in *open car types* are all that can be had for several months. It will be June before full factory production can be resumed.

With the first promise of spring open cars become the favorite type. If you delay, and an open Super-Six is your choice, you will probably find all have been sold. Then you may have to wait until late spring.

The demand for all closed model Super-Sixes is so great that you must speak promptly to assure delivery. With some models this may mean quite a while.

Hudson Motor Car Company

Detroit, Michigan

Its White Triangle and Price are Two of Motordom's Most Distinctive Marks of Value. The Seven-Passenger Phaeton sells at $2200

(1003)

"This Is the Stuff"



"*Now* I can get those trees planted in jig time. The last time that I planted—two years ago—I tried *Dynamite* to blast the holes instead of digging them. You should see those trees now! They're nearly twice the size of my neighbor's, planted at the same time in the old fashioned way. They'll be making good money for me before his are even in blossom."

HERCULES DYNAMITE

"It's certainly great stuff! When you've once used it you'll wonder how you ever got along without it. My advice to you is to send to the Hercules Powder Co. for a copy of their book 'Progressive Cultivation.' This book will tell you all about the uses of dynamite on the farm and in the orchard. And they send it to you free! You just sign the coupon at the bottom of their advertisement and mail it to them. Better send for one of these books today—so you can use dynamite to help you plant *your* orchard this spring."

HERCULES POWDER CO.
1029 Chronicle Building
San Francisco California

Hercules Powder Company, 1029 Chronicle Building, San Francisco, Cal.

Gentlemen: Please send me a copy of "Progressive Cultivation."

I am interested in dynamite for _____

Name _____

Address _____

THE BASIS FOR ORCHARD PERFECTION
TRADE MARK
CROW TREES

Prune Trees

We can still supply a few thousand each:
FRENCH on Myro., almond, apricot and peach roots.
IMPERIAL on Myrobalan.
SUGAR on Myro., almond and apricot.
CHERRY, leading commercial sorts.
JAPANESE PERSIMMON, American grown, sure to grow.

A Full Line
of all that is best in Fruit, Nut and Ornamental Trees, Vines and Plants; and our prices are low. Write for our Price List; free.

Crow's Nurseries
Gilroy California

Clean Potato Seed

Hundreds of Potato growers are availing themselves of the opportunity to get clean potato seed that has been dipped in a solution of corrosive sublimate by

Aggeler & Musser Seed Company
620½ So. Spring St. Los Angeles, Cal.
Write for their 1919 Catalog

DiscHarrows



We have nine distinct styles of Disc Harrows. A Harrow for every use. 3 feet to 12 feet in width of cut. 14 to 20 inch discs, solid or cutaway. No assortment so complete. Call and see them or write for catalogue. We are headquarters.



ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

published on the question. Would suggest where one wants to know all about the red spider to write Agricultural Experiment Station, University of California, Berkeley, California, and ask for Bulletins 145 and 234, both on the red spider of the citrus fruits. In addition ask for Bulletin 297, "The Almond in California." On page 56 and following pages formulas and methods of handling the pests are given. In a word lime-sulphur, commercial solution, one gallon to ten gallons of water, applied before buds open in the spring. Then during growing season dry sulphur is dusted into the tree with blowers, or lime-sulphur, commercial, referred to before, may be used after leafing out at the rate of 35 gallons of water to one gallon of the commercial mixture. The control of red spider is also discussed at considerable length in the monthly bulletin of the State Commission of Horticulture, Volume VII No. 3, Page 112.

White Wyandottes

Have been thinking about raising White Wyandotte chickens this spring. Are they good layers? What color and what size eggs do they lay? Does the meat retain its flavor after the fowls grow old?—Subscriber, Encinitas.

White Wyandottes are amongst the finest of our general purpose fowl. They are good layers, laying eggs in color from cream to very light brown, medium sized, and the meat is of the finest even with the older birds. The commercial egg fowl of the Pacific Coast is the Leghorn, but where just enough eggs to supply the home are wanted there is nothing better than the American breeds.

Borer

Please tell me how to prevent disease and borers in young fruit trees, especially in plum and peach, which always are on the southwest side of the tree. How can I prevent apples from getting wormy on the tree?—Subscriber, Merced.

For the borers which infest the trees on the southwest side the best protection is a system of pruning which so shades the trunk that it never sunburns and makes for conditions attractive to the borers. However the peach tree borer has no need for conditions being bettered for he proceeds to attack healthy tree trunks. Where these are already infesting the trees it is well to either use sharp knife or chisel and cut out the pest, or, better, use wire and insert it into an opening which may be made into the channel and force it to follow until the worms are killed. Then band a strip around the tree, running well below the soil, at least eight inches wide, using asphaltum, or if preferred here is what is known as the California whitewash: Quick lime 30 pounds, tallow 4 pounds, salt 5 pounds, enough water to make mixture flow freely.

Garden Tractor

A letter without address makes request for information as to $100 "garden tractor". We believe there is no such machine put out. There is a garden tractor but its cost is more than double the amount suggested. We hope that the $100 garden implement will yet come.

PRUNING THE LEMON

Continued from Page 237

What to Expect From Different Kinds of Growth

Sucker Wood—If a tree is allowed to grow to sucker wood it may be expected to grow fast and rank. Trees of this kind of wood make large trees in a short time. They do not bear early but look fine and make an excellent advertisement for the real estate agent. As such trees age they may be expected to bear satisfactory crops for a time but the tree soon becomes unwieldly and shows a poor habit



Your tie slides *easily* because of the exclusive patented features found in all

SLIDEWELL COLLARS

Your Tie does not catch on your back collar button because of the *Tie-protecting Shield.* And you can easily adjust your scarf because of the *Graduated Tie-space.*
Hall, Hartwell & Co., Makers, Troy, N. Y.

Top Dress with Nitrate of Soda

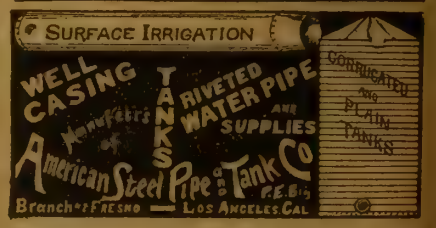
It does not Sour the Soil

Nitrate leaves no mineral acid residue to injure your soil—it keeps the land sweet.

Nitrate of Soda

Top dress 100 lbs. per acre for seeded crops; 200 lbs. cultivated in thoroughly for hoed crops. These light dressings should be evenly spread.

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of growth. The fruit is borne on the end of fishpole-like canes which bend over with the weight of the fruit and then grow more fishpoles on top, which in turn bear fruit at the end and bend down. The fruit is whipped about by the wind and is wind scarred. Moreover, trees from this kind of growth deteriorate relatively early and there is some evidence to show that the fruit they bear is of poorer quality than that from fruit wood. This kind of growth is undesirable and should be vigorously excluded.

Fruit Wood—Trees made up of fruit wood grow slowly and do not make the fine looking trees that are produced from sucker wood but they are precocious and bear early. They bear the best quality of fruit, large amounts of it, and we have no knowledge of how long they may be expected to bear satisfactory crops. Our experience has been too short. Many full bearing trees of this kind of wood are still bearing excellent crops with no signs of deterioration. Moreover, the trees are compact and easy to handle. This kind of growth is desirable and should be retained in the tree.

Intermediate Wood—Trees allowed to grow to intermediate types of wood are in the main of the same general nature as those formed from sucker wood but are somewhat more variable. Some trees of this kind are much better than sucker wood trees and some are apparently worse. Mr. Englehart believes that "white wood" is the worst kind of all. Suffice it to say that all kinds of intermediate wood are undesirable and should be avoided when possible.

When all three kinds are permitted to grow in the same tree there is a certain amount of competition between them, the sucker wood always getting the best of the bargain. Fundamentally, all sucker growth is parasitic and slowly but surely starves the rest of the tree.

Changing Sucker Wood to Fruit Wood

Sucker wood can be induced to fruit in a number of ways. There are three factors which can act to cause this change, of which the most important is light. When suckers reach the light they branch out and fruit. If the tree is kept open enough to allow light to filter in, suckers will branch and fruit. Another factor is horizontal position. As long as a sucker is upright it does not tend to branch but when it is bent over either by the weight of the fruit on the end or by other means it will branch out and fruit. Checking the rapidity of sap flow seems to bear a relation to inducing sucker wood to bear. By repeated severe pruning suckers can be caused to branch and bear fruit. The sap flow is cut down and the vigorous growth tendency checked.

Advantage has been taken of this fact that sucker growth can be curbed and induced to fruit by many lemon growers to use this kind of growth to form the main framework of the tree and then select to the best wood which is produced on these limbs. In this way the grower can exercise some control over the framework formation of his trees whereas if he rigorously prunes out everything but the best fruit wood, framework formation is largely fortuitous. Also by thus being able to form the scaffold branches a somewhat stronger tree can on the average be obtained than by any other system.

Bud Selection—It can readily be seen that since there are different kinds of growth on the same tree there is a lack of possibility of getting different kinds of buds from the same tree. A lack of recognition of this fact has worked untold injury to our lemon industry. Buds from these different kinds of wood behave differently. Buds from the best fruit wood tend to produce trees of that kind and the same is true of buds from sucker and intermediate growth. Until comparatively recently buds have been selected indiscriminately from all kinds of growth, the preponderance being from sucker and intermediate kinds of wood, and our orchards are now conglomerate mixtures of good, fair, poor and worthless trees.

Wood Selection—But bud selection does not go far enough. Even the best strains from fruit wood give rise to sucker and intermediate types of growth and these must be excluded. Trees grown from poor buds require constant pruning to keep out the most undesirable classes of wood. In other words, after bud selection must come wood selection and the latter is by no means the unimportant half. From these remarks one can readily see why one tree may require little or no pruning while the next in the row may need vigorous pruning several times a year. One is from a good bud; the other from a poor bud. The writer has seen young orchards propagated from very fine fruit wood buds where the pruning shear has never been used. Sooner or later, however, some undesirable growth will appear when it must be cut out.

In brief, a rational system for lemon pruning would seem to be the first to insist on having trees propagated from the best type of fruit wood only; second, rigorously exclude all other types of growth except where necessary to build the frame work; and third, keep the tree open enough to induce the bearing of heavy crops on the inside.

Unfortunately, most growers do not have the supervision of their trees from the beginning, but must take them either already grown from the nursery or planted out in the orchard. Working back old trees is quite a different matter from training young trees. But that is another story.

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They have been perfected after fifteen years of practical experience.

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OWNERS find the positive traction of the Fageol Walking Tractor delivers more pull to the implement behind the Tractor.

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Fageol *walking traction* is positive because it is easy and natural, using the ground itself as one cog in its traction chain.

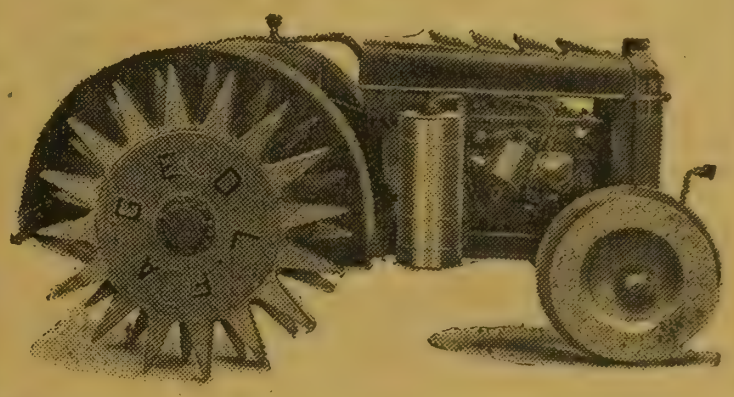
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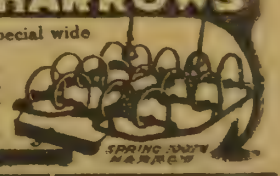
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IT MAKES THEM FAT

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Our harrows are stronger than the common type.
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When writing advertisers, mention The Cultivator.

Let's Have a "Humane Society" for Tractors

By C. L. Butler

THE man who neglects his horses can be disciplined by the law. The man who neglects his tractor will be disciplined by the cost. Neither ignorance of the law nor of the tractor will serve as an excuse.

Before the tractor achieves the success that both the farmer and manufacturer anticipate, it will be known and cared for. The farmers must be made to appreciate the tremendous amount of work done by a tractor—and particularly its motor—every season. He cannot continue to measure the life of a tractor in years. Things happen too quick. The crank shaft revolves too many times—65,000,000 times an average season. Before long he will respect the tractor for its worth, for the amount of work it does both in acres covered and in work done under the hood. As soon as the farmer expects less he will get more from his tractor.

To the man who knows them gasoline motors are simple. There is nothing mysterious about carburetors, magnetos, water pumps, connecting rods, clutches, gears and the like. It takes time, but not excessive time to make repairs. The good mechanic undertakes his work with his mind at ease. He knows that haste makes waste with a gasoline motor, absolutely and always. He knows, too, that a stitch in time saves nine, both in time and money.

It is not work, nor the dislike of it, that bothers the farmer in the care of his tractor. It is uncertainty, doubt. He is not sure what is wrong. Nor will he be until he and the tractor get acquainted. The first tractor a farmer gets will cost him more than his second—it did with automobiles—I guess it did with horses.

You've probably had your brother's boy come from the city to visit you. Wanted to give him a good time so you loaned him a horse for a ride. He was used to speed, so he galloped right along. Some city lads are ornery, but your brother's boy is not, just lots of enthusiasm. He wanted speed and got it. Before he knew it your horse was in a frothy sweat. So the lad stopped at the river to give him a nice long drink. If it weren't for the chickens it would have been a total loss. It sure happened quick—and the lad meant well. It cost $200 to replace that horse.

Now get this! Ignorance about tractors—and horses—costs money. Here is an example. It is about four in the afternoon and two miles to the house. You forgot to put oil in the motor when you came out in the morning. You didn't realize it then. The tractor seemed to be heating more than usual as you pulled up the long back slope. At first you thought it was on low water. The water sure was hot, but there was plenty of it. It was a mighty hot day at that, perhaps that was the reason. So away you go on up to the turn and around the corner on the down slope. About this time you remember that you forgot to fill with oil when you left in the morning. A look shows that the level is low, all right, but the gauge on the dash still shows oil. You figure to yourself, "That tractor agent told me not to run without oil, but I guess she's got enough. I sure don't want to foot it back to the house and I can't quit this time of the afternoon. Oh, well, a couple of rounds won't hurt it. Besides, she seems to be doing better on the down pull." The tractor cooled off enough before you reached the lower turn for you to just about forget it. Around you swing and up the slope. Pretty soon she seems to lug a little. "It doesn't look like a hard pull; the plows seem to be coming along mighty nice, but it sure is needing more throttle. By gosh! What's the matter? Is this cheap heap goin' to lay down on a pull like this? Thunder! the oil gauge isn't running. Well, if the darn machine ain't stalled! Lordy, boy, she sure is hot. Smell 'er, won't you! Don't look like she'll finish out the day. Too hot to do anything now. Guess I'll lay off and bring out the oil in the morning." But it's all over, the damage done. In the morning you find that she won't turn over. Can't crank her on a bet. Naturally not! Oil so low that the up pitch dropped the level below the rods and the oil pump. Hot when you rounded the corner, the motor froze tight as a drum in a few minutes on the up grade. Too little oil and the pistons and cylinders are melted right together. If you are lucky a reboring job and new oversized pistons will save something. Otherwise it's a new motor. A trip back to the house would have taken a good hour, but it would have saved a couple of hundred dollars and lots of time.

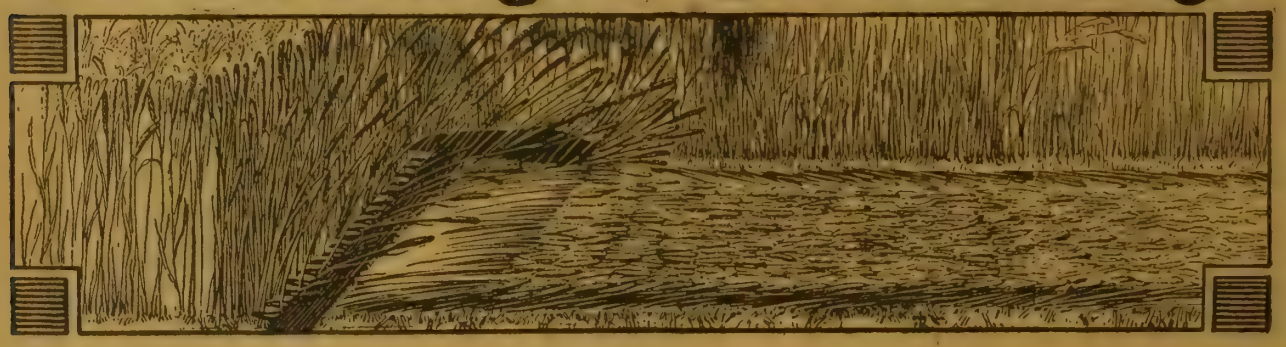
Neglect costs money. Too much water killed the horse; not enough oil ruined the motor. A little in each would have saved both.

You wouldn't beat your horse through a hard pull. Then why beat your tractor? The slow lugging strain of an overload is a terrible beating to a motor. It will stand a lot of work if it is given a chance, but it will quit in a few minutes of abuse. Remember this, that your tractor motor does more work in a season than your automobile does in all its life. Respect it for the wonderful work it does and care for it accordingly.

If a horse goes lame he gets a rest or a veterinarian. If a tractor goes lame—a missing cylinder, say—it gets more work. Often times the operator does not even recognize the difference, except maybe the job seems short of power. Or if he does he figures he can get by till quitting time. He can, but not for nothing; it will cost money to run a sick tractor as it does to run a sick horse. Some day the farmer will be as sensitive to the abuse of a tractor as he is to the abuse of a horse. His senses will warn him before the damage is done. In the meantime it will cost him more to operate his tractor. Education of any kind costs, both effort and money, but it is worth it.

Manufacturers will eventually organize a "Society for the Prevention of Cruelty to Tractors," possibly under another name. But the work to be done is the same, a more concerted effort to get the information to the farmer and see that he uses it. It will sell more tractors and keep them sold.

$4.00 to $10.00 More Per Ton for Your Hay



THERE is frequently a difference of from $4 to $10 per ton between choice hay and hay that grades No. 3. It is to your interest to raise the best grade of hay possible. You can do this by applying the Dain System of air-curing hay. This requires only the use of the Dain System Rake.

When the mower passes over the field the heads of the hay fall back, as shown in the illustration above. You can follow the mower closely with the Dain System Rake—turn the hay while the leaves are still active, delivering it in medium-size windrows on clean, dried-out stubble. Raking against the heads places the bulk of the leaves on the inside where they cannot sun-scorch, and the stems on the outside, insuring thorough evaporation of moisture.

By adjusting the angle of the teeth the density of the windrow is controlled, allowing free circulation of air. *And the Dain System Rake has the widest range of tooth adjustment.*

It is an easy rake to operate. You can put machine in and out of gear, change the angle of the teeth and raise or lower the raking head with levers that are accessible from the seat.

The Dain System Rake has unusual capacity. This is made possible by the high steel arch and an exclusive feature—*the inclined frame,* which is highest at the point where the windrow is largest.

The Dain System Rake is enabling thousands of farmers to make hay that grades high. Get this extra profit out of your hay land by employing the Dain System of air-curing hay.

JOHN DEERE DAIN SYSTEM RAKE

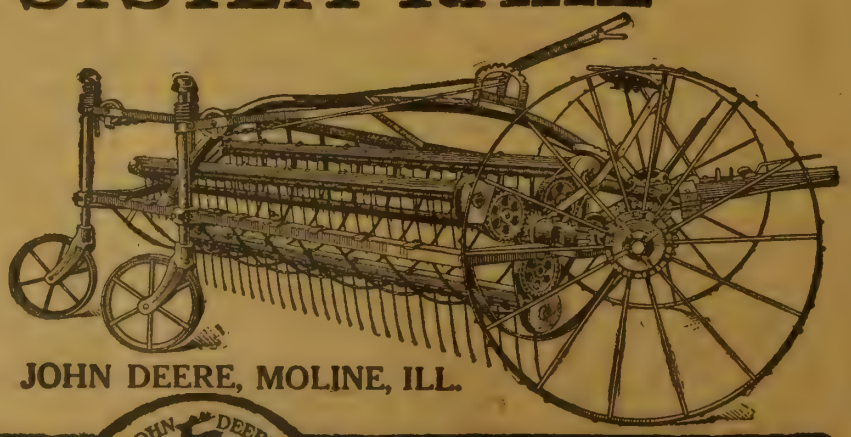
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Mowers	Hay Stackers
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and practically every tool required on the farm. Write today for your copy. Ask for package DR—2 4.



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GET QUALITY AND SERVICE — JOHN DEERE DEALERS GIVE BOTH

WORLD POSITION FOR AMERICAN FARMING

There is no cause for alarm as to the future ability of the United States to hold its due place in the trade of the world and especially as to the ability of American agriculture to maintain its position in the world readjustment that must follow the ending of the war. This is the judgment of the United States department of agriculture.

A detailed survey of the agricultural situation shows the impossibility of forecasting the conditions that will obtain when the 1919 crops are matured, but it is pointed out that the markets of the world are opening up for American products and that a considerable demand from European countries for food stuffs is almost assured for a year or more.

The signing of the armistice found the United States with fairly large stocks of foods but with smaller than usual stocks of feeds. In response to increased needs for food, many farmers plowed up permanent pastures and other grass lands needed for live stock and planted them to grain crops while others broke their rotation systems and planted the same land to grain several years in succession, thus reducing the fertility.

Would Increase Live Stock

Now that farming is to be restored to a peace time basis, many of the lands suitable for meadow or pasture should be reseeded to grass, that regular and satisfactory rotations of crops should be established, and that live stock should find a place on a larger number of farms. These readjustments appear to be necessary in order to meet the still urgent demand for meats and fats, as well as to restore sound farm practice.

A wise live stock program, the department concludes after reviewing all conditions, will involve maintaining the number of horses and mules without material increase, a normal increase in the number of dairy cows and dairy products, a normal increase in the number of beef cattle, a con-

servative policy with respect to increasing the number of swine until the relative shortage and high price of feeds is overcome, an increase in sheep consistent with facilities for feeding and pasturage and the farmer's skill in handling them, and an increase in farm flocks of poultry where a minimum of purchased feed is required.

Many Factors Affect Wheat

The indicated plant program is not quite so definite. The proper policy as to wheat depends upon a complicated set of conditions, but it seems certain that the farmers of the United States will be justified in maintaining their acreage of corn, oats and barley, large productions of which are necessary to maintain normal live stock production.

It appears desirable to increase the production of hay by about 25 per cent. The cotton situation depends largely upon the ability of the European countries to buy in average prewar quantities, but the practice recommended is for the individual farmer to adjust his cotton acreage so as to have sufficient land available to produce enough food and feed for his family and live stock. An average acreage of potatoes is justified. Peanut production, abnormally stimulated by the demand for oil during the war, should be readjusted as a part of the crop economy in the territory to which it is adapted. The department urges those who intend to maintain home gardens to plan to meet the needs of the family rather than to produce crops for market.

BEET SUGAR CROP, 1918

The production of beet sugar in the United States from the beet harvest of 1918 is estimated at 740,100 short tons. This estimate is based upon reports made before the close of the season and is subject to revision. The production in 1917 was 765,207 short tons. The area harvested in 1918 is estimated at 592,100 acres, or 72,697 acres less than in 1917. The area planted was 689,700 acres in 1918, and 806,600 acres in 1917. In 1918 there was 14 per cent of the planted acreage abandoned, and in 1917 25 per cent, which was the highest on record.

The beets worked in factories in 1918 are estimated at 5,822,600 short tons and were purchased at an average price to growers of $10.02 per ton, as compared with $7.39 in 1917.

The principal sugar producing states, with their output for 1918, are: Colorado, 182,700 short tons; Utah, 118,000; Michigan, 117,600; California, 109,300; Ohio, 43,100; Wisconsin, 14,300; and all other states, 111,000 short tons.

The acreage harvested in these states was: Colorado, 126,500; Michigan, 108,200; California, 102,40; Utah, 83,600; Ohio, 33,300; Idaho, 32,600; Wisconsin, 12,600; and all other states, 92,900 acres.

The beets worked in these states were: Colorado, 1,412,200 short tons; Utah, 1,012,900; Michigan, 873,700; California, 843,700; Idaho, 336,600; Ohio, 328,900; Wisconsin, 110,400; and all other states, 904,200 short tons.

KILL THE SQUIRREL

The unanimity with which the whole country went to work planning for the prosecution of the war has inspired us along other lines and today from one end of California to the other the cry is heard "Kill the squirrel." The grain grower, live stock feeder, fruit grower, in fact every producing activity has awakened to the awful loss which has been visited upon us by the ground squirrel. Here is a circular being distributed by the Sperry Flour Company. The Sperry people will pay higher prices for wheat than will the squirrels.

* * *

KILL THE SQUIRRELS

Now is the time to go after the squirrels!

Do the job up thoroughly.

If your wheat fields are infested with squirrels get rid of them without delay. It will cost only a few cents an acre, but you can afford to spend a dollar an acre if necessary.

Last year on the Sperry Experimental Farm two hills of squirrel holes were somehow overlooked, and in consequence an acre of grain surrounding each set of holes was destroyed. The average for the field was 12 sacks of wheat. At, say, $4.50 a sack this amounted to $50 an acre. This is too costly for any farmer to tolerate.

Get either carbon bi-sulphide or "kilmol," which can be purchased through the county horticultural commissioner in the court house, at $5.50 and $6.00 respectively, per five gallon can. One can is enough for at least 300 holes. Soak the waste balls (which can be bought through the same source at $1.50 for 400) with the poison and roll down the hole. Drop a lighted match into the hole and close the hole at once, tamping it tight. Be sure and keep the can away from the explosion.

Important! Get your neighbors to do the same.

Do this work now and do it thoroughly.

AMERICAN EGG LAYING CONTEST

By T. E. Quisenberry, Leavenworth, Kansas

Practically every pen has now started to lay. The White Leghorn made the best averages for December. One pen, No. 6, from Missouri, laid 120 eggs, which was the best December record we have ever had. A Buff Orpington pullet laid 29 eggs during the month. A Silver Wyandotte leads for the two months with 44 eggs. A White Wyandotte pen from Canada stands next to the White Leghorns with 131 eggs to their credit. As a whole, the breeders should be pleased with their December records.

The averages made by the different varieties for the month of December were as follows:

Variety	Leader Eggs	Best pen for Dec. Eggs	Av. Pullet 2 M'ths Eggs	Pul. Layer 2 M'ths Eggs	High Pen 2 M'ths Eggs
Brown Leghorn	22	54	7.0	29	62
White Leghorn	27	120	22.1	43	170
Buff Leghorn	23	74	12.8	36	104
Anconas	14	58	13.8	30	78
Buff Minorcas	25	57	15.4	40	88
White Plymouth Rock	16	48	6.3	17	52
Buff Rocks	21	53	7.6	21	53
B. Rocks	25	73	11.6	42	102
S. C. Reds	21	47	5.8	30	48
R. C. Reds	16	34	9.2	30	63
W. Wyn.	24	84	14.5	38	131
Silver Wyn.	28	51	7.1	44	85
W. Orpingtons	25	73	14.1	38	89
Buff Orpington	29	59	9.5	42	72

DISINFECT SEED POTATOES BEFORE PLANTING

The same disinfectant as applied to wheat last fall to control smut can be used to control the common scab on Irish potatoes. This disease, as well as several other potato diseases, is carried on the seed. All these diseases can be largely controlled, where potatoes are planted on new land each year, by disinfecting the seed before planting. There are several ways of doing this, but the method recommended by the University of Missouri college of agriculture for the average grower is to use formalin. Use it at the same strength as for wheat, one pint of the 40 per cent formalin solution, costing about 50 cents, to 30 gallons of water. Ordinarily the seed are put into a sack and immersed in

You Can Plow Deep In Wet Land with a

Nilson

the Tractor with the Famous Lever Hitch

THE first duty of a tractor is **traction.** It may have the strongest motor in the world but if the wheels slip, the tractor is useless.

There are two ways to obtain traction—by weight and by the lever and fulcrum principle.

It was Archimedes who said, "Give me a fulcrum on which to place my lever and with these hands will I lift the world."

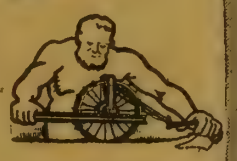
This is the principle of the famous **lever hitch.** Instead of employing a straight line drag from the engine to the plows, the lever hitch carries the pull **up over** the drive wheels and then **down** to the plows. The Nilson Patented Lever Hitch gives the drive wheel grip without excess weight. It increases traction when it is most needed. It saves fuel, it prevents slippage. It does not pack the ground.

The lever hitch is patented.

It is found only in the Nilson—the tractor with the famous Waukesha Motor, Hyatt Roller Bearings, Nilson Perfex Radiator, K-W Ignition with impulse starter and Bennett Air Cleaner.

The Nilson comes in two styles, the Junior and the Senior. The Senior pulls four and five plows, the Junior three and four. The Nilson is the recognized five wheel tractor devoting the entire width of the tractor to surface contact. It has proven its efficiency by more than four years successful work.

You cannot afford to make a mistake in the choice of your tractor this year. You need a light, powerful tractor that will work in any sort of soil or weather. You will find it when you have examined the Nilson.



The lever hitch carries the pull of the plows up over the drive wheel. The harder the pull, the harder the wheel grips the ground.

Write today for your free copy of the Nilson catalog

NILSON TRACTOR COMPANY
2660 Univ. Ave. S. E.
Minneapolis, Minn.



Arrow Points to Lever Hitch



No. 5

Top Dressing Talks

When should ARCADIAN Sulphate of Ammonia be applied to citrus crops?

For Oranges. On lighter types of soil, the application of from 400 to 600 pounds of ARCADIAN Sulphate of Ammonia per acre is advised, where it is the only source of nitrogen used, and on heavier types of soil about half as much. The total amount should be made in several instalments rather than one: first, early in March; the second when the fruit begins to "set"; a third about the middle of June and a fourth some time in September. The last application is to help "size" the fruit as well as aid wood and bud growth for the next season.

For Lemons. As they are in continuous bearing, it is advisable to increase the number of applications to six consisting of from ¾ to 1½ pounds per tree.

For Grapefruit. It is necessary that they size up well. The bulk of the Sulphate should be applied during the latter half of the growing season, the application being generally a third larger than for oranges on a similar soil.

Arcadian Sulphate of Ammonia

ARCADIAN Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past. Especially kiln-dried and ground to make it fine and dry. Ammonia 25¼ per cent. Made in U.S.A.

For sale by Hawaiian Fertilizer Co., Limited, San Francisco
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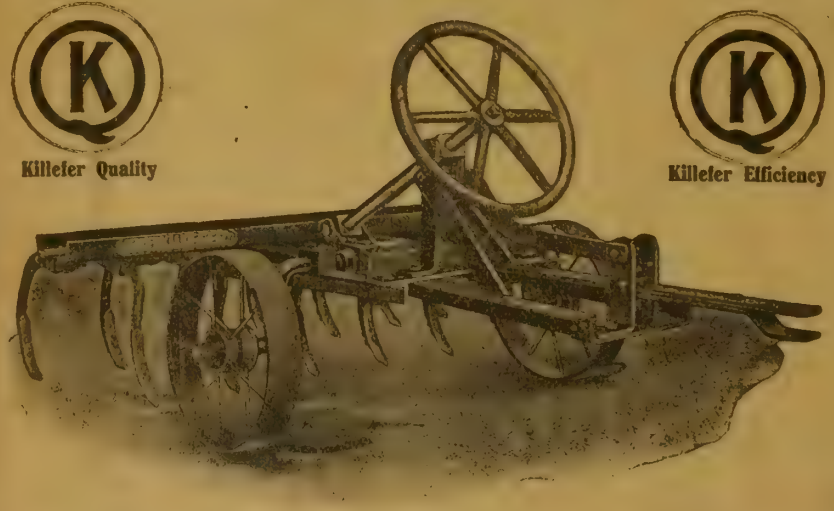
For Information as to Application, write The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.

Heavy Duty Orchard Cultivator No. 3

Killefer Quality

Killefer Efficiency



The Heavy Duty Orchard Cultivator Number 3 is built to meet the demand of the owners of the small size tractors for an extra strong cultivator that can be handled by the tractor driver. It is made on the same lines and of the same high-grade steel as our well known Monarch Cultivator, but without the levers and rear wheel, and with a hand wheel screw lift, making it a perfect one-man, all-steel tool.

Specifications: Frame, ⅜ x 2½ inches angle iron, Standards ⅝ x 2 inches special high-grade steel, Axles 1½ inches, Wheels 22 inches high, 3½ inch tire. Made in 5, 6, 7 and 8 foot sizes. This tool will be at the Tractor Demonstration at Sacramento, May 5 to 10.

The Killefer Manufacturing Co.

2209-21 Santa Fe Ave. Los Angeles, Cal.



More Economical Handling of Grain

Safe against fire, weather, rats, and thieves, grain stored in these two Calco Metal Grain Bins on the Crocker-Hoffman Ranch at Merced is an asset instead of a liability. The 11,000 bushels these two bins hold can be handled quickly and inexpensively from thresher to bin and tank wagons, and a small portable tubular steel elevator. A simple conveyor system, operating in a tunnel, built under the foundations, brings the stored grain out as needed. These two Calco bins form the first of a battery of twelve or fifteen, the conveyor system, etc., having been planned so it may be extended.

this solution for one and a half to two hours. It has been found that the treatment can be reduced to 15 minutes if the solution is heated to 122 degrees Fahrenheit. Besides saving time, the treatment is probably more effective when the solution is warmed. The formalin solution can be used over and over until it is gone. The seed must be treated before cutting and it is better if they can be spread out to dry after being treated.

The sweet potato is also attacked by several diseases carried on the seed tubers. For this reason they should be disinfected before bedding, where the diseases have caused loss in previous years. The material used is corrosive sublimate, one part to 1000 of water, or one ounce to eight gallons of water if a crude form is used. The powder should be dissolved in a little warm water, then made up to the right volume. The seed tubers are soaked in this for ten minutes, just before bedding them in the hotbed.

TRACTOR SHORT COURSE AT THE CITRUS EXPERIMENT STATION

One of the special features of the gas tractor short course to be given by the University of California at the citrus experiment station February 24 to March 1, will be the meetings to be held Monday and Thursday evenings, in the Polytechnic High School. Several educational films illustrating the manufacturing of tractors and their operation will be shown.

Dean Thomas F. Hunt of the college of agriculture, Berkeley, who spent several months in England and France as a member of the agricultural commission sent by the United States department of agriculture to study the agricultural problems of the war stricken zone, will give the lecture at the meeting Monday evening taking as his subject, 'The Problems of Reconstruction and Agricultural Needs of France and England." This will be illustrated by lantern slides picturing the agriculture of these countries and showing some of the devastated areas in France.

Lectures for the meeting Thursday evening will be given by Dr. H. J. Webber, director citrus experiment station; J. B. Davidson, professor of agricultural engineering, University of California, and J. A. Prizer, superintendent of cultivation, citrus experiment station.

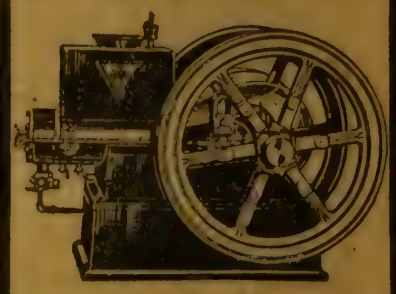
The course as arranged will consist of two one hour lectures each day to be given by Professor J. B. Davidson, who is to be in charge of the course. A certain portion of the student's time will be given to the operation of the various tractors while class room work will cover the following subjects: Bearings—babbitting, scraping and adjusting; soldering, radiator repair, valve grinding, and piston ring fitting; tractor operation and inspection; tractor overhauling; carburetor construction and adjustment; magnetos. Various cross section models, accessories and parts will be used in the classroom work.

The following makes of tractors will be used during the course: Best, Bean, Cleveland, Fordson, Holt, International, Moline, Samson, Sandusky and Yuba.

Board and lodging will have to be procured in town (three miles from the citrus experiment station).

Registration fee of $1.00 constitutes the only charge for the course. Anyone may register, applications accompanied by the registration fee should be sent to the Dean, Citrus Experiment Station, Riverside.

ALPHA



Pumping Engines

A superior line of engines built up to one standard of quality—the highest—from the 1¾ H. P. to 18 H. P. size.

Compare the ALPHA with any other engine. It is much more carefully made — you can see that at once. Alpha Quality means—longer life, better satisfaction, lowest operating cost, no troubles, better results. The easiest starting, most perfectly balanced engine made.

Catalog Upon Request.

De Laval Dairy Supply Co.

San Francisco



Water

WHERE and WHEN you want it the year 'round. For house, barn, field, any place. BORE YOUR OWN WELL with our time-tested

Standard Well-Boring Outfit

Easily operated by hand. Bores wells 8 to 16 in. dia., up to 100 ft. deep. One man bored 48-ft. well in 5 hours. Another bored 5 wells averaging 75 ft. each and wrote "its a humdinger."

BORES 100 ft. WELLS by hand

Thousands used during war by U. S. and English Governments.

ONE DAY'S WORK PAYS FOR OUTFIT

Easy to get 50 cents to $2 per ft. —make $20 to $30 per day boring wells for neighbors. One man bored 47 wells—another 75 and another bored 35. Satisfied users in 46 states. Every claim *guaranteed* and *proved*. Write now, TODAY, for full information.

The Specialty Device Co.
Dep't 47 106 W. 3rd St., Cincinnati, O.

10 Searching Questions About the Maxwell and 10 Frank Answers; Read Them, for They May Decide Your Choice of a Car

Q.—Reduced to one point what is the single greatest thing you can say about the Maxwell?

A.—It is reliable.

Q.—What makes it reliable?

A.—The chassis was designed five years ago to be extremely simple. Then we kept on making and making Maxwells all alike on this chassis year after year until now we have made 300,000 of them. Our policy is to do one thing well and thus obtain perfection.

Q.—Have you changed the original design any?

A.—Not in any single fundamental. We have added an improvement here and there from time to time—but no changes from our original program.

Q.—Have there been any great chassis improvements in the last 5 years?

A.—We believe not. There have been multi-cylinder cars and multi-valve cars; but in a car under $1000 we do not believe them to be practical.

Q.—How much of the Maxwell car do you build?

A.—We believe that we manufacture more of the parts that go into our car than any other manufacturer.

Q.—Why do you do this—can you not buy parts from others cheaper than you can build them?

A.—In some cases yes; but not so good as we can build them. In other cases no, for we operate 8 great plants, have an investment that runs into many millions of dollars, carry a tremendous inventory, have a rapid "turnover" and a large one. Besides, we make parts for cars other than our own including some that cost in excess of $4000.

Q.—Has the Maxwell every modern equipment?

A.—Yes, even including the carrying of the gas tank in the rear.

Q.—Have you improved the appearance of the Maxwell any?

A.—Yes. We have made a vast improvement in the last few months—so much so that many persons thought we produced a new model. Note the illustration. This is drawn from a photograph without the slightest exaggeration.

Q.—How about parts?

A.—There are $5,000,000 in parts carried by 2500 Maxwell dealers all over the United States.

Q.—Will you reduce the present price if I buy a Maxwell now?

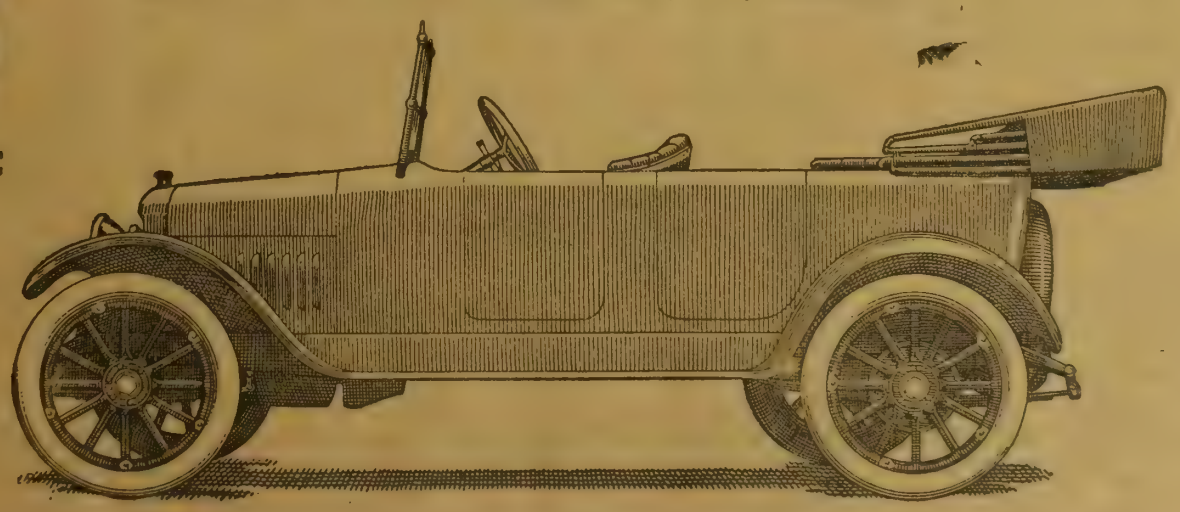
A.—No. The present price is guaranteed until July

Price $895 f. o. b. Detroit.

MAXWELL MOTOR COMPANY, Inc., DETROIT

Maxwell

More miles per gallon
More miles on tires



Holsteins

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families.

Registered Berkshire Pigs

Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.

Careful attention given to mail orders.

Whittier State School
Whittier, California

Breeding Date Book--FREE

We have issued a convenient little book for the keeping of breeding dates of cattle, hoping to aid the breeder and cattle owner in maintaining accurate records. We will gladly mail you a copy free if you request it. A postal will do.

CALIFORNIA BREEDERS SALES & PEDIGREE CO.
C. L. Hughes, Sales Manager
Sacramento Cal.

Segis Pontiac De Kol Dutch
Whose three nearest dams are 1000 pound cows that average over 30 pounds in 7 days, heads my herd. Bull calves for sale. E. E. Freeman, Rt. B, Modesto

HOLMES STOCK FARM
Registered Holsteins of best breeding. Young bulls for sale.
R. L. Holmes Modesto, Cal.

California Cattlemen Complete Organization

In a recent letter mailed to the members of the California Cattlemen's Association, President L. A. Nares and Secretary D. J. Stollery announce that the plan of organization launched at the meeting of cattlemen at the University Farm, Davis, last year has become a fact and that to date the association has a membership of 800 cattlemen who control about 400,000 cattle, or nearly one-fourth of all the stock cattle owned in this state.

The plan of organization as originally conceived by President Nares was as follows:

The state was divived into five zones. In each zone, county or local organizations were formed. Five delegates from each county were appointed to attend the zone convention. At this convention, five zone directors were elected to the central board of the state association. From among the directors of each zone a president was named, and he automatically becomes a vice president of the central board. The 25 zone directors then met and elected the president and other officers.

The plan as outlined met with instant success and so effective has it been that the executive committee of the American National Live Stock Association has asked for the complete plan with a view of urging that all associations affiliated with the American National adopt the same plan.

Apparently the officers of the California Cattlemen's Association are determined to make it a real working organization. An active membership campaign is being waged and an effort will be made to enroll at least 60 per cent of the cattlemen in this state.

The association proposes to concern itself with every problem affecting the cattle industry. As outlined in its articles, it proposes:

"To procure the enactment of legislation beneficial to the cattle industry.

"To prevent the theft of cattle, to aid in prosecution therefor, and to offer rewards for the apprehension of criminals.

"To procure the best possible market for cattle products, and to this end prevent combinations and monopolies.

"To act as a bureau for the collection and distribution of information concerning prices, sales, shipments, supply and demand of cattle, and other matters of interest.

"To enlarge the market for cattle products.

"To promulgate sound and correct principles of breeding, fitting and marketing cattle.

"To make beneficial traffic agreements."

Following is a complete list of officers and directors:

Officers—L. A. Nares, president; M. D. Lack, first vice president; S. C. Dorn, second vice president; Howard V. Jack, third vice president; J. W. Guiberson, fourth vice president; O. B. Fuller, fifth vice president; Merchants National Bank of San Francisco, treasurer; Geo. A. Clough, attorney; David J. Stollery, secretary.

Directors—Zone I: M. D. Lack, Redding, president; J. B. Parker, Callahan, vice president; N. V. Wemple, Milford; J. H. Boyce, Weaverville; P. S. Dorris, Alturas.

Zone II: S. C. Dorn, Oroville, president; Frank Gordon, Suisun, vice president; T. H. Ramsay, Red Bluff; J. D. Granlees, Slough House; Will Russ, Eureka.

Zone III: Howard V. Jack, Cholame, president; E. G. Rodolph, San Francisco, vice president; John Bryan, Hollister; J. McGlinchey, Livermore; C. Z. Hebert, Salinas.

Zone IV: J. W. Guiberson, Corcoran, president; Stephen M. Pate, Le Grand, vice president; A. S. Goode, Bakersfield; Louis Frankenheimer, Stockton; L. A. Nares, Fresno

Zone V: O. B. Fuller, Los Angeles, president; Fred H. Bixby, Long Beach, vice president; James Sloan, Lompoc; Frank Butler, Bishop; Harry Jones, Brawley.

The office of the association is 320 Sharon Building, San Francisco.

Holsteins | Holsteins

What is Your Best Family?

AS YOU look over the herd of registered Holsteins that you have built up through years of breeding thought and effort, isn't there a family in your herd that stands out as the one of all others that you consider your BEST? Haven't you in your herd a cow that is such a great dairy producer and reproducer that you have often said "I wish I had a string like her?"

Great breeding herds and great fortunes in the breeding business have often been built upon a single great cow, and many times upon a great family. The great difficulty has been to purchase these outstanding individuals from the owners in whose hands they have proved their worth.

The Holstein Breeders' Guaranty Sale will be composed of great individual members of proven families. A Committee of Selection composed of four members, Frank L. Morris, Harry V. Bridgford, James W. McAlister, Jr., and C. L. Hughes, visited many of the best Pacific Coast herds and picked for this sale animals that are among the very best the breeders own, in fact in a number of instances the highest record, best bred, and best individual animals in the whole herd have been chosen. It has at times taken a mighty lot of persuasion to secure the entry of members of the breeder's very best and most highly prized family, and he has yielded only to the call of duty in advancing the best interests of the breed through giving other men an opportunity to found herds with the highest class animals obtainable.

As a result of this broad spirited response from leading breeders, we claim positively and without a single qualification that there has been assembled for this sale the greatest group of registered Holsteins ever offered in a one day sale in the world. We have never overstated the entries in a sale, and we are confident that you will agree that we have not overstated in this instance when you see the great animals and their wonderful pedigrees.

THE GUARANTY SALE

Thursday, March 27, 1919
State Fair Grounds, Sacramento, California

will be the time and place of this wonderful offering, which will consist of approximately 65 head of registered Holstein cows, heifers, and bulls. A description of every attractive animal in the sale would mean a recital of the entire catalog, but here are some of the good ones:

SOME WONDERFUL COWS AND HEIFERS BRED TO THE $106,000.00 BULL, CARNATION KING SYLVIA!
THE GREATEST COMBINATION OF KING SEGIS-PONTIAC KORNDYKE BLOOD EVER OFFERED IN A SINGLE CONSIGNMENT IN THE WEST. THE FEMALES ALL BY BETTER THAN 30-POUND SIRES AND MOSTLY OUT OF BETTER THAN 30 POUND DAMS, BRED TO JUDGE SEGIS!
BEAUTIFUL DAUGHTERS AND SONS OF "IT" OUT OF 29 TO 35 POUND DAUGHTERS OF KING SEGIS PONTIAC AND KING OF THE PONTIACS!
DAUGHTERS OF PRINCE GELSCHE WALKER, OUT OF 31 AND 32 POUND DAMS, BRED TO THE 34 POUND BULL, SIR AAGGIE MEAD DE KOL, THE ONLY BULL IN THE WORLD WHOSE SEVEN NEAREST DAMS AVERAGE OVER 1000 POUNDS BUTTER IN ONE YEAR!
THE GREAT 37 POUND COW BOWEDA, THE HIGHEST RECORD COW EVER SOLD ON THE PACIFIC COAST!
OTHER 30 TO 32 POUND COWS, BRED TO SOME OF THE VERY BEST BULLS IN SERVICE TODAY!
MORE THAN 25 DAUGHTERS OF 30 TO 35 POUND DAMS!
MORE THAN 35 DAUGHTERS OF 30 TO 40 POUND SIRES!
GREAT YEARLY RECORD COWS AND DAUGHTERS OF SUCH COWS, BRED TO SIRES FIT TO MATE WITH THEM!
THE HIGHEST RECORD BULL EVER SOLD ON THE PACIFIC COAST!!!! HIS DAM, NOW ON TEST, HAS 41.01 POUNDS BUTTER FROM 831.7 POUNDS MILK IN 7 DAYS TO HER CREDIT!
A SON OF SIR AAGGIE DE KOL ACME OUT OF A 34 POUND JUNIOR 4 YEAR OLD DAUGHTER OF PRINCE GELSCHE WALKER!

Watch for later announcements of individuals in this sale, and drop us a line requesting a catalog if you wish one. It is free.

CONTRIBUTORS TO SALE:

CARNATION STOCK FARM, Seattle, Wash.
ALBERT E. SMITH, Sumas, Wash.
BRIDGFORD COMPANY, Knightsen, Cal.
W. J. HIGDON, Tulare, Cal.
R. F. GUERIN, Visalia, Cal.
FRED W. KIESEL, Sacramento, Cal.
TOYON FARM ASSOCIATION, San Jose, Cal.
HOLLYWOOD FARM, Hollywood, Wash.
A. W. MORRIS & SONS, Woodland, Cal.
McALISTER & SON, Chino, Cal.
ALEX WHALEY, Tulare, Cal.
W. F. MITCHELL, Visalia, Cal.
GOTSHALL & MAGRUDER, Ripon, Cal.
A. J. STALDER, Riverside, Cal.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL TUBERCULIN TESTED AND SOLD SUBJECT TO 60 DAY RETEST BY THE BUYER.

Management
California Breeders Sales and Pedigree Company
J. M. Henderson, Jr., Pres. C. L. Hughes, Sales Manager.
Sacramento, California.

CONTROLLING CATTLE SCAB

Small insect-like parasites, commonly known as mites, are responsible for cattle scab, a contagious skin disease affecting cattle of all ages and conditions. There are several forms of the disease known by such names as "scab," "mange," and "itch." Though the disease itself may not cause death directly it is responsible for serious losses by causing a shrinkage in the weight of animals, failure of young stock to thrive and gain weight normally, and by increasing the death rate of poorly nourished animals of poor vitality, especially range cattle exposed to inclement weather. Cattle scab can be eradicated by dipping or spraying, dipping being the most reliable method, and lime-sulphur, nicotin, and crude petroleum dips can all be used with success.

WOOL CONSUMED

Seven hundred and forty million pounds of wool, grease equivalent, were used by manufacturers in the United States during 1918. Much of this wool went into clothes for soldiers, while the old clothes man called in vain for the shiny and patched garments worn by civilians at home.

Military needs kept the monthly consumption of wool to an average of 65,500,000 pounds, grease equivalent, for the first ten months of 1918, but in November it fell to 47,000,000 and in December to 38,300,000 pounds, as announced by the bureau of markets, United States department of agriculture.

Massachusetts mills used more wool in 1918 than any other four states combined. During May mills used 74,600,000 pounds of wool, the largest monthly consumption reported, while March and April each showed more than 70,000,000 pounds used by manufacturers.

THE VALUE OF PURE BRED RANGE STOCK

"The value of pure bred stock is strikingly brought out by the experiences of two grazing permittees," says Forest Supervisor D. N. Rogers in his Annual Grazing Report to the district forester at San Francisco. "One man, owning pure bred Hereford cattle, sold coming two year old steers averaging 1000 pounds in weight for an average price of $80 per

head. A second man, owning scrub stock, sold two and three year old steers averaging 900 pounds in weight for an average price of $80 per head."

But the feeding of a properly balanced ration during the winter also has its value, particularly when applied to well bred stock, as is further shown by Forest Supervisor Roger's grazing report. The following instance is cited:

W. J. Clinch, a rancher in American Valley, sold a carload of beef, the average weight per steer being 1372 pounds, and the average price per head being $160. This beef dressed out 63 per cent. The cattle were two year old Hereford and Shorthorn crosses. They were fed six pounds of grain each for five months during the winter, in addition to hay. They were kept entirely upon the Clinch ranch. They had been fed hay for seven or eight days, in addition to pasturage, before weighing.

FOUR SOURCES OF DIRTY MILK

Which end of the bottle do you observe in judging the quality of the milk you buy? Look at the bottom of the bottle now and then and make sure the milk is free from visible dirt. The depth of the cream column in a bottle of milk should be considered only after the bottom of the bottle has been examined for sediment. Sediment in the bottom of a milk bottle indicates carelessness in the production, care and handling of the milk.

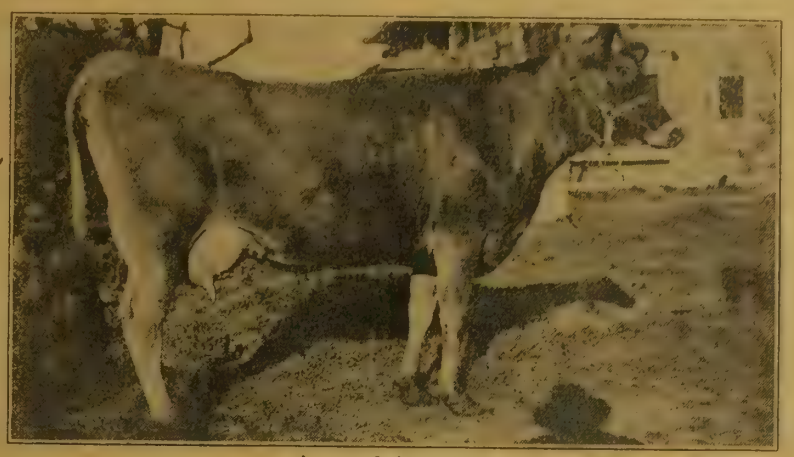
The sources of dirt in milk, as stated by W. B. Combs of the University of Missouri college of agriculture, are: Dirty cows, dirty utensils and bottles, a dirty dairyman, and dirty surroundings.

The dairymen of Mesa, Arizona, recently organized with A. S. Haymoor as chairman and Grant Laymen as secretary.

LORA OF VENADERA—YEAR TEST

Guy H. Miller, Modesto, reports the yearly Register of Merit test of the junior three year old heifer Lora of Venadera, finished February 7. For the year she gave 10,705 pounds of milk which contained 504 pounds of butter fat. She was milked but twice daily and ran with the rest of the herd throughout the year.

Lora of Venadera made a Register of Merit test of 386 pounds of fat in a year as a two year old. She won the five day butter fat contest at the state fair in the heifer class as a two year old and won the California Jersey futurity stake. She is a daughter of our well known herd sire, Altama Interest, and her dam is Lorna of Venadera, who has a Register of Merit test of 588 pounds of fat and was a well known prize winner in the show ring a few years ago.



Lora of Venadera

Register of Merit test 10,705 pounds milk, 504 pounds butter fat in a year. Sire, Altama Interest; dam, Lorna of Venadera. Bred, owned and tested in Guy Miller's Venadera herd.

USE ROUGHNESS TO SUPPLEMENT EXPENSIVE FEED

The judicious use of roughness for live stock on the farm throughout the winter is one means of increasing profits that is sometimes overlooked. Oat straw, and even wheat straw to some extent, corn stover and pasture can be utilized. Animals being fattened for market and animals during the first year of their growth should not be expected to consume large quantities of cheap roughness, but horses, mules, cattle and some classes of sheep that are being carried through the winter can be fed rations carrying appreciable quantities of cheaper roughness, provided they are properly supplemented with nitrogenous feeds of the right sort such as leguminous hays or linseed or cotton seed meal.

If oat straw can be substituted for hay, it is a saving of at least 50 per cent, and experimental work has demonstrated that through the winter, work horses, mules and cattle can use oat straw instead of timothy or mixed hay to good advantage, provided proper supplements are fed.

Economy should not be carried to the point where it endangers the lives of animals, says E. A. Trowbridge of the University of Missouri College of Agriculture, but careful consideration of winter rations should be given on every farm.

PREVENT PARALYSIS IN EWES

Every lambing season reports come to the University of California experiment station of the loss of fat ewes a few days before lambing. Those carrying more than one lamb are most frequently affected. This disease is known as "preparturient paralysis" and manifests itself by listlessness, aimless movements, tremors, distorted vision and paralysis, followed by death in five to eight days. It has been found to follow the feeding of highly nutritious and especially dry feed and the lack of exercise.

Prevention of this condition has been highly successful, while treatment is usually of no avail. Prevention consists in avoiding circumstances that made for excessive deposition of fat. This can be done by limiting dry feed to ewes in the last month of pregnancy and by making them rustle for their food. Grazing in pastures containing green feed for one or two hours a day will have the effect of giving them succulent food and exercise at the time.

"Preparturient Paralysis", a leaflet by J. Traum, describes more in detail the cause, treatment and prevention of the disease and is free to the residents of this state on application to Director, Agricultural Experiment Station, Berkeley.

Holsteins | Holsteins | Holsteins | Holsteins

A REAL DAIRY BULL
From a 900 Pound Dam

Do you know that it takes a real cow to produce 900 pounds butter in a year? And do you know what a real bull from a producing sire and such a dam would be worth to your herd?
We can offer just such a bull and at a price within the reach of any progressive dairyman.
His dam is about to complete a year right around 900 pounds with second calf and in addition to this she has the type that you would like to breed into your herd, a show cow with beautiful level udder and large well placed teats.
For seven days she has a 26 pound record, but you will be more interested in what she did the other 358 days.
His sire has produced five two year olds (first tested) that average 753 pounds in a year.
His dam and sire's dam average 990 pounds butter in one year and over 29 pounds butter in seven days.
In addition to this he will suit you as an individual, light in color and past eleven months old. Price $300.00.

A. W. Morris & Sons Corporation
Woodland, Cal.

The Proof of the Pudding

KING KORNDYKE PONTIAC 20TH as a calf looked like the real bull to head our herd, adding to his great individuality the backing of a pedigree with an unbroken line of great producing dams and type of the highest character. The price of $6500.00 which we paid for him was really a minor consideration. Now that his calves are coming on we know that we made a fortunate choice, for they are certainly beauties. His oldest son in our herd was sold at 40 days of age to become the future head of a newly established Stanislaus County herd.



And the last six calves by King have all been heifers, mostly white in color, beautiful individuals, and every one of them has large well placed teats, just what we expect from the great uddered cows in his ancestry.

Better get in touch with us for one of his young sons for YOUR herd. We already have requests for reservations of unborn calves if they are bulls. Satisfaction of the buyer is our first consideration, and our prices are reasonable.

Our Entire Herd is Tuberculin Tested

Tulare Holstein Farm
W. J. Higdon, Owner TULARE, CAL. H. L. Redd, Herdsman

Santa Anita Rancho
Anoakia Breeding Farm
REGISTERED HOLSTEINS

A herd of fine individuals, strongly bred in the lines of great production as evidenced by both short and long time records, handled in a manner to produce sound, healthy breeding stock.

Merci Lad Korndyke Burke

Son of De Kol Hengerveld Burke who has a long list of A R O daughters with records up to over 35 pounds butter in seven days, and out of Winnie Korndyke Cornucopia De Kol who made 31,034.1 pounds milk in one year and was the first cow in California to make over 1200 pounds butter in one year. A few of his good sons out of excellent dams for sale.



SANTA ANITA RANCHO — *Santa Anita, Cal.*
Anita M. Baldwin, Owner — *W. H. Taylor Supt.*



Prince Hiske Walker

He is by Prince Gelsche Walker and out of Hiske of Riverside, being therefore full brother to Lady Hiske Walker, 34.25 pounds butter in seven days as a junior four year old, former state record in class.
His offspring are uniformly straight, vigorous, and well marked. A few of his young sons for sale.

Packwood Farm
W. F. Mitchell, Owner *Visalia, Cal.*

Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average:
Milk one year....24,089.88 pounds
Butter ..... 1,105.07 pounds
This butter average is equalled by only one other bull of service age in the world.
Buy your next bull from

Eldorado Herd
Alex. Whaley, Owner Tulare, Cal.

Our Senior Herd Sire is KING KORNDYKE HENGERVELD ORMSBY 7th
Five of his sisters sold at public auction for $23,800, an average of $4760.
This blood has made some of the world's greatest producers.
Our junior herd sire is TOYON KING KORNDYKE SOLDENE, son of a 33.23 pound daughter of King Hengerveld Aaggie Fayne.
Young bulls for sale. No females.
REGISTERED BERKSHIRE BOARS, sons of the $1500 boar Star Leader, for sale.
Kounlas Registered Stock Farms, Modesto, Cal.

Live Stock News Notes

Worthy Granddaughter of Tilly Alcartra

Princess Roma Alcarta, owned by the J. S. Gibson Co., Williams, previously reported as having passed the 30 pound mark, has now increased her record to 31.53 pounds butter from 576.1 pounds milk, beginning exactly one month after calving. This heifer also has just completed a 30 day record of 125.55 pounds butter and 2493.1 pounds milk. "Princess Roma" is a daughter of Prince Alcartra Korndyke and granddaughter of Tilly Alcartra. She is a senior four year old and made her records at second calving, being three and a half years old when she freshened the first time, making at that time 22.55 pounds butter in seven days. This heifer had no preparation for the test and barely went dry from the first freshening.

From Durocs to Shropshire Sheep

Dr. L. J. Belknap of San Jose, whose herds of Jersey cattle and Duroc-Jersey hogs are quite well known, finds that it is no longer practical to maintain his herd of hogs and accordingly he will disperse his entire herd on Tuesday, March 18.

The sale will be held at the Garden City Sanitarium, which is within the city limits of San Jose.

About 30 head will be sold and will include three aged sows, one two year old boar, six fall boars and nine fall gilts. Two of the sows, Lucy Orion and Mabel D., are litter mates, being sired by Orion Model and out of Lulu Wonder. They were bred by Elmer Lamb and will be two years old March 4. They are sows of exceptional size.

The herd boar Orion Model Jr., by Orion Model and out of Queen of Stanislaus, is quite a good boar and will doubtless be appreciated. The young stuff, mostly of fall farrow, has been well grown out and for the most part are the offering of the sows and boar mentioned above.

Dr. Belknap is planning to establish a high class flock of Shropshire sheep and has recently commissioned Professor Coffey, the well known sheep expert of the University of Illinois, to select and purchase for him 25 thoroughly first class ewes and a ram of similar class.

Junior Two Year Old on Test

A junior two year old daughter of King Korndyke Pontiac recently made over 21 pounds butter in seven days on official test. She is owned by Fred W. Kiesel, Jane Garden Farm, Sacramento.

Thirty-one Pounds and Still Going

Roma Princess Alcartra, who is by Prince Alcartra Korndyke, son of Tilly Alcartra, has increased her seven day butter record to well over 31 pounds in seven days and is still on test. She is a senior four year old granddaughter of Tilly Alcartra and is owned by the J. S. Gibson Company, Williams.

Aralia De Kol Duchess

Aralia De Kol Duchess, a junior four year old daughter of Aralia De Kol Pontiac Segis, now on test in the A. W. Morris & Sons herd at Woodland, has 27.75 pounds butter to her credit the first seven days on test. She is the first daughter of Aralia De Kol Pontiac Segis to complete yearly records. As a senior two year old she made 17,152.4 pounds milk and 764.88 pounds butter in one year, indicating that this son of Aralia De Kol is transmitting the production of his famous dam.

Highest Record on Pacific Coast

The previously reported record of 37 pounds butter in seven days for Adirondac Wietske Dairy Maid, owned by Bridgford Company, Knightsen, was just a starter, it seems. This great cow now has over 831 pounds milk and 41.03 pounds butter to her credit and is still on test. This is the highest record ever made on the Pacific Coast.

California Record for Butter In One Year

Aralia De Kol Mead 2nd, a junior two year old daughter of Segis Pontiac De Kol Burke and Aralia De Kol Mead, recently completed a yearly record of 18,785.6 pounds milk and 851.01 pounds butter in the A. W. Morris & Sons herd, Woodland. This gives her the California state record for butter in one year in the junior two year old class, and is another splendid performance in the Aralia De Kol family.

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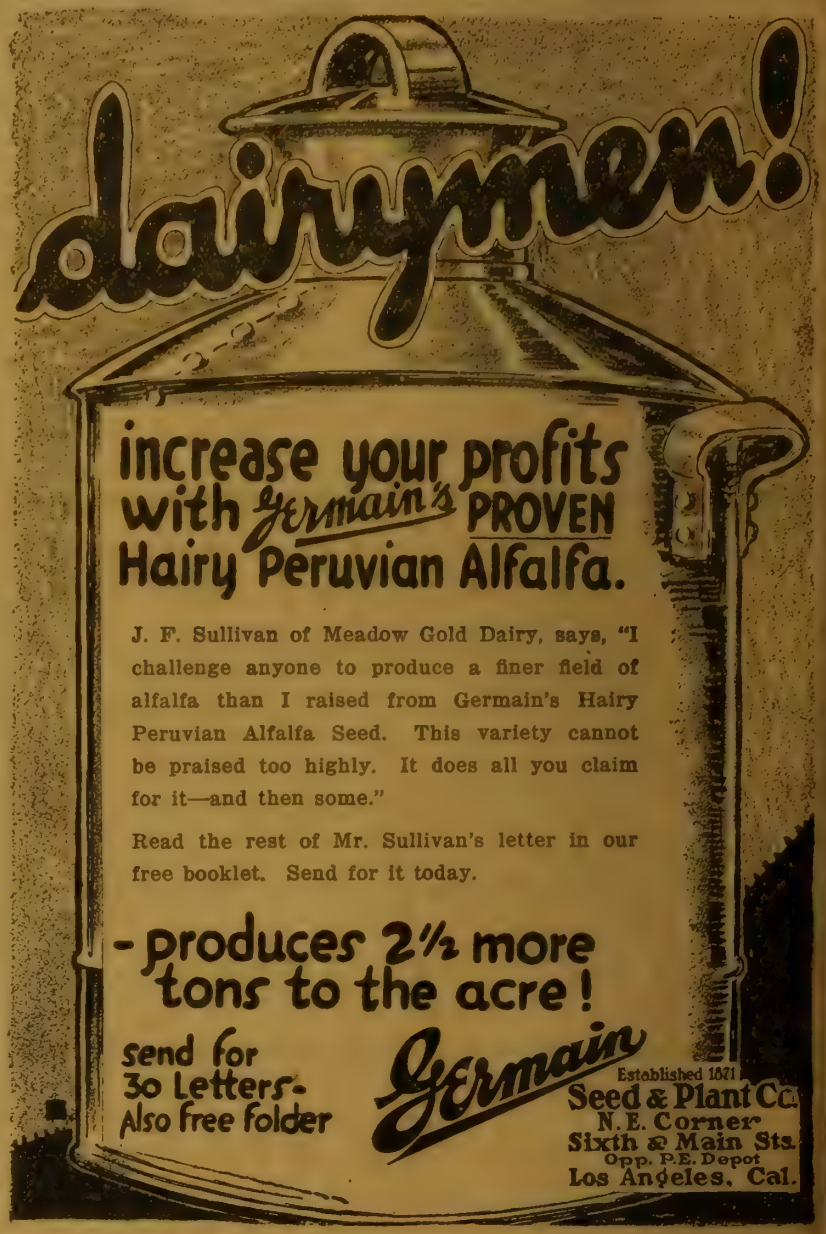
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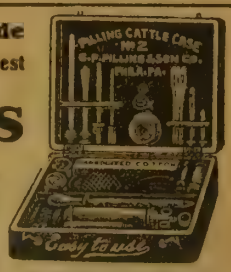
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Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs and Lameness from Spavin, Ringbone and other bony tumors. Cures skin diseases or Parasites, Thrush, Diptheria. Removes Bunches from Horses or Cattle.

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y coats of hair reek with perspiration and filth. ses are more liable to colds and the usual spring nts. A good horse clipping machine costs little lasts a lifetime. The Stewart No. 1 is the ideal rn machine—only $9.75. You can get it by ng $2.00 and paying the balance on arrival. Or for 1919 catalog containing complete line of ices.

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Yearly Record for Tulare County

Wayne of Rock, at Tulare Holstein Farm, owned by W. J. Higdon, Tulare, recently finished a year's test with 17,707.6 pounds milk and 802.63 pounds butter, the highest yearly Holstein record yet completed in Tulare County. Some of the good short time records recently completed in the Higdon herd are: Pauline Soldene De Kol 3d, 30.84 pounds butter from 576.1 pounds milk in seven days; Mona Fobes, a senior four year old daughter of Mutual Fobes Longfield De Kol, 26.61 pounds butter from 523.8 pounds milk in seven days; Troutbrook Pontiac Starin, 25.51 pounds butter from 571 pounds milk in seven days.

Another 40 Pounder

The latest record of 40 pounds butter in seven days reported by Superintendent Malcolm H. Gardner of the Holstein-Friesian Advanced Registry is for the senior three year old heifer Matador Hengerveld Bess, who is credited with 600 pounds milk and 40.25 pounds butter in seven days and still on test. Her sire, Matador Segis Walker, is the senior herd sire at Carnation Stock Farm, Seattle, Washington, and some splendid females bred to him will be sold in the Holstein Breeders' Guaranty Sale at Sacramento on March 27.

Fair Oaks Reports Sales

Fair Oaks Ranch at Willits reports Shorthorn sales as follows: Bull to B. Mitchell, Spyrock; bull to G. Schwend, Sherwood; bull calf to Mr. Brayton, Cloverdale; bull calf to Dowling Brothers, Ukiah; three heifers and two bulls to Wm. Muir, Willits; 14 cows and bull to D. Wimmer, Willits; four heifers to R. P. Cornell, Galt; two bulls to Jones & Price, Lakeport; three heifers to Sydney G. Clark, Napa County. Berkshire sales as follows: Boar to Mr. Tuttle, Garterville; boar to Clifford Bishop, Fort Bragg; boar to Chas. Tuck, Willits; boar to Mr. Ramsey, Spyrock; three sows to Smith & Miller, Ukiah.

Army Horses Average $230

The highest price paid at a recent sale of surplus army horses in Great Britian was $408, 50 horses averaged $230, 20 mules were sold and made up to $117. At another sale, where 95 horses and ten mules were offered, the prices ranged from $276 down, the average being $146.

Jerseys Sold

W. J. Hackett of Ceres reports the sale of two more of his pure bred Jerseys, one to Mr. Herndon, Ceres, and one to Mr. Cornwell, Modesto.

The Redwoods Ayrshire Farm at La Honda, San Mateo County, reports the sale of their Robin Hood Ayrshire triplet heifers to E. B. McFarland, of Steybrae Farm, San Mateo. These calves were sired by Mr. McFarland's great typey bull, Willowmoor Robin Hood 32d. Robin Hood 32d recently died but during his day was known among Ayrshire breeders as a great bull to mark his offspring like himself. The Redwoods Ayrshire Farm at La Honda have increased their herd by the purchase of four registered cows from McFarland's Steybrae herd. "The Redwoods" are creating a herd of Ayrshires for the production of butterfat and do not plan to show any stock. They selected the Ayrshire cattle for their mountain farm on account of their hardiness, large production of rich milk and also for the fact that they produce a quality of meat similar to the Durham in color and finish. These people do not believe in selling every male calf as a bull as they recognize that there are scrubs among pure breds as well as among grade cattle.

Orland Jersey Club Thriving

A. J. Morey, treasurer of the Orland Jersey Cattle Club, reports that the affairs of Jersey breeders in Glenn County are in very prosperous condition. Practically all members are keeping all of the female increase and have only a few bull calves for sale from time to time.

The registered hog business is a valuable adjunct to this Jersey business. Mr. Morey is now establishing a Berkshire herd, having secured two young sows from John Cornwall of Orland.

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Visitors Welcome Correspondence Invited

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Grand Champion Boar **Grand Champion Sow**

Sacramento State Fair



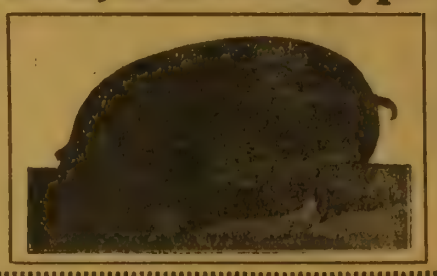
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Forty-three of our litters this year averaged ten to the litter. We sell foundation sows and boars to head your herd from our easy keeping, heavy producing strains. Write to

JAMES MILLS ORCHARDS, Hamilton City, California

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



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As good as the best and better than the rest. A boar or a sow pig sired by my great herd boar Director, and out of one of my choice sows will add prestige to your herd. I am booking orders now for the pigs of March and April farrow. Write now and place your order.

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The Key Herd of Duroc-Jerseys

This herd produced more champions at the 1918 California and Oregon state fairs than any herd on the coast.

For sale now: Boars; gilts, bred or open; bred sows and a few weanling pigs of either sex.

Glenn County for Durocs

H. P. Slocum and Son

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Largest Herd in the World



Our herd is conceded to be one of the choice collections of the breed in the West. The entire herd is descended from the largest individual importation brought to America, and is the result of careful selection for scale, bone and hardiness. We can supply herd bull material or carlots of bulls for the range. At the Liberty Fair our cattle won the largest number of prizes. See our cattle at the San Francisco Show. We can suit California Buyers in quality, kind and price. Correspondence invited.

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Registered Herefords

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Anxiety, Repeater, and Bonnie Brae breeding. Bred and raised on mountain range.



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A general conditioner, a worm expeller and a disease preventive.

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To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

A Brother to Champions in Spring Shorthorn Sale

According to David J. Stollery, secretary of the California Shorthorn Breeders' Association, there is every reason to expect that the sale to be held at the University Farm, Davis, Tuesday, April 8, will touch the high mark for California Shorthorn sales.

Most of the 55 head to be offered were originally selected to sell in the sale that was scheduled to be held in connection with the San Francisco show, and represent some of the best productions of the leading California herds.

The offering will consist of 30 bulls and 25 females, and among the lot will be included cattle that are of sufficient class to enter the best herds.

One of the chief attractions will be the young bull California Model, that is being consigned by the University of California. The young bull, a senior calf last year, is probably one of the most attractively bred bulls ever offered in California, and would be an attraction in any sale.

He is a very flashy roan sired by Sultan Mayflower, the university herd bull, a son of Sultan Stamp, who in turn was one of the greatest sons of the mighty Whitehall Sultan. The dam of California Model is Glenbrook's Marvel, a granddaughter of Whitehall Sultan. Such breeding is rare enough, but when it is known that the dam, produced the celebrated cross-bred steer, California Favorite, grand champion at the 1916 International, and when bred to Sultan Mayflower produced the steer California Marvel, grand champion at the 1917 Pacific International Live Stock Show at Portland, and champion Shorthorn steer at the 1918 International, the value of the breeding back of California Model can be appreciated.

It is axiomatic that a great bull must have a great sire and dam, and if this be true, California Model may confidently be expected to prove a sire of exceptional worth.

Besides the above bull, there will be many other choice young bulls and females, of which we will have more to say later.

Making a Profit From Ditch Banks

Writing in a recent issue of the National Woolgrower E. F. Rinehart, extension animal husbandry expert, says that Idaho ranchers have found that pasturing ditch banks with sheep is a profitable operation, and cites the following instances:

C. S. Phillips of Rupert has an 80-acre farm through which there is a lateral 1364 feet in length, having a width of ten feet. Two years ago this bank produced a heavy growth of blue grass, white clover, sweet clover, some alfalfa, willows and weeds. This bank was fenced off, enclosing 4.33 acres.

This pasture kept a total of 129 head of registered Hampshire ewes and lambs grazed by alternate two-week periods. This grazing is equivalent to 64 ewes and lambs grazed continuously on 4.33 acres, or an average of 14 head to the acre.

A ditch bank of 37 acres owned by C. W. Brannon of Ruper, was enclosed by a temporary fence and pastured by forty-three "bum" lambs for fifteen days. It was found that in consuming one acre of this pasture the 43 lambs gained 264.5 pounds or 6.13 pounds a head. At 14 cents a pound this amounted to return of $37.03 an acre.

No more labor was required in building the temporary fence than would be necessary to cut the weeds and willows. In addition to the profits secured, the lambs cleaned up the ditch banks in excellent shape.

Buttermaking

Buttermaking begins with the production of the milk. Good butter can be made only from good, clean flavored cream. To obtain practically all the cream from the milk and have it in the best condition requires the use of a cream separator.

The thorough cleaning and sterilizing of all dairy utensils is essential to the production of butter of good flavor.

Cream for buttermaking should contain about 30 per cent butter fat. A gallon of such cream will yield about three pounds of butter.

Cream should be kept as cold as possible until time for ripening, when it should be warmed to from 65 to 75 degrees Fahrenheit and held at that temperature until a mild acid flavor is developed.

A thermometer should always be used in order to know that proper temperatures have been obtained.

Cream that is overripe (too sour) makes poor butter.

The churning temperature should be such that (1) the churning will require from 30 to 40 minutes, and (2) the butter granules will be firm without being hard—usually from 52 degrees to 60 degrees Fahrenheit in summer and from 58 degrees to 66 degrees Fahrenheit in winter.

All churning utensils should be cleaned, scalded and cooled before they are used.

The churn should be stopped when the butter granules are the size of grains of wheat.

The butter, in the granular condition, should be washed twice with pure water at about the same temperature as the buttermilk.

Buttermilk must be washed out, not worked out.

Salt should be added at the rate of about three-quarters of an ounce to the pound of butter.

Butter should be carefully worked until the salt is evenly distributed and a solid, smooth body is formed. The best butter has a waxy body, a bright appearance, and, when a slab is broken, a grain like broken steel.

Overworked butter has a sticky, salvy body, a dull, greasy appearance, and a gummy grain. Its keeping properties are not so good as in properly worked butter.

Mottled butter is caused by the uneven distribution of salt.

Butter for market should be in prints, wrapped in parchment paper and inclosed in paraffined cartons.

SOME REASONS FOR HIGH PRICES

Under date of November 22 a New York butter house wrote to a western creamery as follows:

"We enclose herewith account sales for your shipment of butter received yesterday. Market very firm at 66 cents and we look for continued high prices for some time to come owing to the scarcity and light receipts of fancy butter. We congratulate you on securing the highest price ever known."

To this the secretary of the creamery replied as follows:

"We accept your congratulations in the friendly spirit in which they are tendered, but I am not sure whether the dairyman is to be congratulated or pitied. With hay $30 a ton, grain up to $50 a ton, cows from $100 up to most any price, competent dairy hands $75 a month, the balance sheet at the end of the month looks mighty interesting; in fact many are abandoning the business."

So there are two sides to the question but one would naturally infer that with butter selling around 65 cents at wholesale the farmers should be making money out of the business.—New York Produce Review.

Secretary Chas. W. Paine of the Stallion Registration Board writes: "The California Stallion Registration Board has issued, during the month of January, one hundred more licenses than for the same month last year, which shows that the people are beginning to realize the scarcity of horses and the demand there will be for them in the very near future."



Four 18 x 40 Indianas,
Milbrae Dairy, San Francisco.

18 x 30 Indiana—
George Simon, Turlock, California.

Two 20 x 40 Indianas—
Sanitary Dairy, El Centro, California.

From Orland to El Centro
—From Santa Clara to Owens Valley

Like almost every other state of the Union, California has put Indiana Silos to the test—and found them right. They lead in numbers, because they lead in service.

Cheaper feed is the vital issue with California dairymen and stockmen now, and will continue to be for a long time to come. Hay and mill feed are too high priced to yield profits. Nothing will do so much to lower feeding costs as an Indiana Silo.

This "Wizard of the Live Stock World" takes otherwise worthless crops in its great wooden belly, and turns them into rich, succulent, money-saving feed. Corn stalks, weedy alfalfa, hay and grain crops that the rain would spoil—sun flowers—all these are being used by owners of the Indiana Silo in California. Even Yucca and Russian thistles—the pestilents—have been made usable for silage.

INDIANA SILO

From Maine to California, Indiana Silo has proved itself supreme as a producer of cheap feed. In the great live stock centers of California, Indiana Silos lead all others. And in the dairy industry, Indianas are being erected in sets of two to four silos to a ranch. This page shows pictures of Indiana Silos used by leading Dairymen.

Pacific Coast Edition

New 1919 Indiana
Silo Book FREE

Most valuable Silo Book published on the Coast. Tells how the Indiana is built complete by us, from the tall timber to the finished product. Contains articles on Silage Crops, Filling a Silo, What Size Silo to Buy, Dairy Rations with Silage, Silage for Cattle and Sheep, etc. While they last, a copy will be sent FREE to the owners or managers of California ranches. We will also explain our Early Buyer's Discount which is in effect now.

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Two 20 x 40 Indianas and herd of dairy cattle McNeill Dairy, Fresno, California.

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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Warts on Teat

I have a good Jersey cow that has very large warts on one of her teats which are bothersome when milking her. Is there anything that can be used on them to get rid of them or any other way of having them removed? When is the best time to treat them; when she is dry or when she is milking?—Subscriber, Porterville.

Warts are an abnormal growth of the papilla of the outer skin. If the warts have a small base tie a strong cord tight around the base and let them drop off or clip them off and touch the spot with the end of a wire that is red hot. If the warts are flat and have a large base the process is slower. Oil them every day with castor oil. That sometimes takes them away quickly. Nitric acid is good to remove warts but must be handled carefully. Apply a little to the top of the wart about twice a week; each time rubbing off what the acid has killed. The acid should be handled with care as it is very caustic and will burn your flesh or clothing and leave a hole. When the wart is all killed keep the place well softened with fresh butter or mutton tallow and it will heal quickly.

Wart on Ear

My two year old colt has a lump on her ear about the size of a baseball. It looks like a wart and has a slight discharge at all times. The veterinarian said it was a wart and cut it off but it has been growing larger since then. Please advise me what to do for it.—Subscriber, Corte Madera.

The fact that there is a slight discharge indicates that there is a sack somewhere under the wart that constantly secretes the discharge. The veterinarian should trace the canal from which the discharge comes to the very bottom and dissect it all out, then by removing the enlargement it will heal up all right. It may be one of those dental tumors that has a small, irregular shaped tooth located near the ear. Call your vet. back and make him do it right. In a growth of that kind there are usually some very large blood vessels but he can control the hemorrhage.

Correction of Error

By some mistake in copying or in setting up the work for printing, an error was made in the article on "Fails to Breed" at the bottom of page 233 of the Cultivator of February 15.

The tonic suggested should read: Six ounces of powdered gentian, three ounces of powdered nux vomica, three ounces of the sulphate of iron and four ounces of good corn meal.

The error in the article would make the dose of nux vomica too large but still not serious. Those who would make use of the formula please note the change.

Blind Staggers; Pigs Again

If the articles on diseases of pigs, the one under the heading "Pigs Dying" on page 116 of the Cultivator of January 25 and the other under the heading "Scabby Pigs" on page 232 of the Cultivator of February 15, were to be compared one would find a similarity of symptoms and be led to believe the trouble is the same in both instances. Since publishing these articles a subscriber friend writes of his experience with similar trouble with his pigs. He held post mortem and found nothing unusual, but in relating the incident to a neighbor he attributed the trouble to the clogging of the large pores in the legs and said he had cured them by rubbing the legs vigorously with a corn cob or curry comb. He named the disease "Blind Staggers" and gave the direct cause as due to mud and dirt. In that case our advice for scabby pigs would be all right. The corn cob treatment is all right, but the addition of a good bath with plenty of warm water and soap would help also. Cleaning up and whitewashing the pen should also not be neglected.

We wish to thank the subscriber for writing us of his experience and the information he gained from the neighbor. The object of this column is to give advice that is practical and can be followed by stock owners in general. Frequently we would like to advise the use of the most modern remedies but should we do so you could not get the medicine nor administer it if you had it. This may seem strange but is true nevertheless. The up to date remedies are only offered to the profession and are not found in the drug stores because there is so little call for them the druggist can not afford to keep them. We always try to prescribe something that any druggist can supply and almost anybody can administer. This we believe does the most good.

Torn Womb

We have a cow that gave birth to her second calf about a week ago and since that time she has bloody mucus discharges. I have examined the womb and believe it is badly torn. For the last two days have douched the womb with a creolin solution twice daily and also given her a dose of linseed oil. This discharge seems to be decreasing and she appears some easier. Will the torn parts heal without being attended to?—Subscriber, Chalfant.

You are doing about all that can be done for the cow. Probably by the time you read this you will not need the douche any more. Once a day for two or three days is usually enough. You can overdo it. Keep her clean on the outside, for there is where the infection starts if at all. Very little can be done for the torn parts now. At the time she was fresh it might have been stitched but usually those tears heal as well or better without stitching. When giving linseed oil always be sure it is the raw and not the boiled oil. It is always good also to add two ounces of turpentine to the oil as it is a good internal antiseptic and goes through the whole system.

Walla Walla, Washington, reports raising 3000 tons of sugar beets in that vicinity this past season.



How big is a leak?

THERE'S ONE THING SURE ABOUT A LEAK—IT NEVER GETS SMALLER. It leaks more—never less.

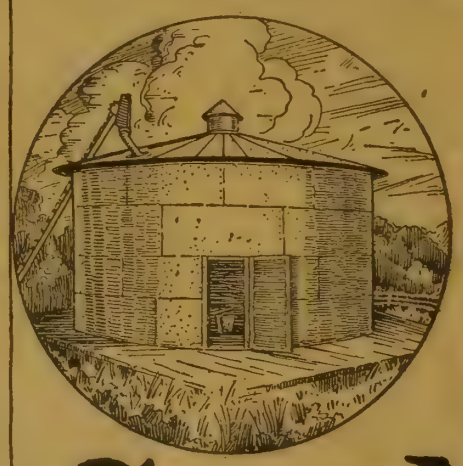
One big milling concern in California has found that it has to resack about 15% of grain shipped to it in sacks—because of bad leaks.

On shipments of 100 tons of sacked grain, at this rate, a leak is 15 tons big.

In your own fields the leaks in sacks costs more than you think. Every rat—a leak maker—costs you $1.50 a year. Rain causes leaks in sacks. Weak sacks—many are *weak*—leak quickly. Bad sewing causes leaks.

Stop Losing Grain with Leaky Sacks

Handle your grain in bulk. Calco Metal Grain Bins do not leak—they save costs of sacks, rat-feed, loss by rain, stop the thief and keep away the fire.



Calco Grain Bins cost just once—when you buy. They pay for themselves quickly and then—cost nothing.

Mills and railroads prefer to handle grain in bulk. They are equipped for it now. It costs less—saves more.

Write for the booklet "Calco Grain Bins." Read about the comparative costs of handling grain in sacks and in bulk. The booklet is free—write for it NOW.

California Corrugated Culvert Company

LOS ANGELES
419 Leroy Street

BERKELEY
408 Parker Street

Calco Metal Grain Bin

TREES

Peach, Apricot, Almond
Plum, Prune, Pear
Apple, Cherry, Olive
Fig, Orange, Lemon
etc., etc.

"More than a million high class fruit trees per year for California Planters."

Est. 1888 **Kirkman Nurseries** Inc. $100,000

FRESNO, CALIF.

BUNTING'S MISSION—HEREFORDS

Two years ago last fall John A. Bunting of Mission San Jose purchased his first Hereford cow, today he has a herd of 26 head. Of course, the present herd does not represent the normal increase from the original cow—most of the herd has been purchased—but it does represent John Bunting's faith in the pure bred cattle business—especially the Hereford—and the quality of the cattle to be found in the Mission herd indicates that he is determined to build one of the first herds of California.

When Bunting decided to enter the Hereford business he recognized two points, first, that owing to his limited capital (he will frankly tell you that he borrowed the money to make his first purchase) he must needs start modestly; and second, that if he reached a high place he would have to breed good cattle, and good cattle are not bred from a poor foundation. Bunting did not make the mistake so often made by beginners who operate on limited capital. So many, in an effort to make their money go as far as possible content themselves by buying quantity instead of quality. No top herd was ever built from an inferior foundation. Occasionally men who "laid in" the cheaper sorts have gone high in their respective breed circles—but they usually find that before they reach their goal it is first necessary to practically begin over again.

So Bunting bought a good cow—as good as he could afford. Later he added one or two more well bred heifers. Then he began to look around for a bull. He didn't need a bull at the time, but he expected to and he wanted a good bull. It happened that in the University herd a bull calf had just been dropped. He was sired by Hopeful Prince 2nd, by Prince Lad 11th (sire of the champion steer, California Favorite), and was out of the good cow, Miss Sophia, a granddaughter of Beau Donald. The breeding was all right—but how about the price? One thousand dollars! Rather stiff for a beginner with only a few cows and operating on borrowed money. Bunting bought the calf—and his friends and neighbors laughed. But at the 1918 California State Fair Bunting had the grand champion Hereford bull. His next purchase was a cow at a price above $500. More fun for the neighbors. This cow, Anxiety Clarice, had a heifer calf at foot, and was rebred. The heifer, Miss Betty, was junior and grand champion at the 1918 state fair, and her owner values her at $2000.

Clarice's next calf was a bull, Anxiety Fairfax, and a price hasn't been placed on him. Clarice now has another calf.

Another cow, Pearl Ranier, by Mr. Perfection by Perfection 2nd, a full brother to the sire of the noted Perfection Fairfax, cost less money than Clarice, but she produced a bull calf, Alec, that Mr. Bunting has just refused an offer of $1000 for.

Much more could be written about this herd that would serve as an inspiration to beginners, but enough has been cited to indicate that when one starts with good foundation stock, and cares for it properly, that the pure bred live stock business can be made very attractive. There are many more opportunities in California for men who will enter the business along sound and proven lines.

Bunting has accomplished more than other men we could name, and what Bunting has done can be done by others.

Bunting calls his herd the Mission Herefords, partly because it is located near Mission San Jose, but largely because the herd has a mission—to be recognized as a source of good cattle.

SALE OF A GREAT PROPERTY

Sale of 160 acres of valuable lands in one of the best producing sections of the San Joaquin Valley offers an opportunity for farmers in this state who may wish to increase their possibilities for profit. The Whitten Ranch, which has been called "The Pride of Tulare County," contains 160 acres of richest soil, 100 acres of which are already in alfalfa, with wells to furnish water for irrigation and fully equipped for the production of hogs for profit. With the selection of producing breeds and the giving of business management to this ranch there is no reason why it should not become a great money maker. It is offered at terms covering a period of 10 years and at public auction next Thursday, February 27. In addition there will be sold a large number of draft horses, pure bred and grade, sheep, cattle, Poland-Chinas and Durocs. Rhoades & Rhoades are the auctioneers.

HOLSTEIN BREEDERS SET NEW MARK

A new high mark has been set by the Holstein breeders of the Pacific Coast in the entries for the Guaranty Sale to be held at State Fair Grounds, Sacramento, on March 27. The highest record cow ever sold on the Pacific Coast is found in Boweda, the great 37 pound cow in the Brigford Company entries. The same company also contributes the highest record bull ever sold in the West, a son of the latest 41 pound cow Adirondac Wietske Dairy Maid.

A. W. Morris & Sons contribute among others some fine daughters of Prince Gelsche Walker, bred to the only bull whose seven nearest dams average over 1000 pounds butter in one year, and they also sell a wonderfully fine son of the 34 pound junior four year old Lady Hiske Walker, sired by Sir Aaggie De Kol Acme.

McAlister & Son sell a truly wonderful group of daughters and sons of It out of 29 to 35 pound daughters of King Segis Pontiac and King of the Pontiacs. Their consignment also includes a splendid 31 pound cow and a remarkable granddaughter of Rag Apple Korndyke 8th.

W. J. Higdon sells some choice ones, including a great heifer bred to the $6500 bull King Korndyke Pontiac 20th.

Alex Whaley, Tulare, says the committee of selection took the best animal that has ever been sold out of the Eldorado herd, and she is certainly a little beauty.

R. F. Guerin contributes two fine heifers, both by a 30 pound son of Sir Veeman Hengerveld, one out of a 30 pound dam, and both bred to his 35 pound bull King Sadie Vale Idyl Segis.

Other California breeders are contributing equally noteworthy individuals, which will be mentioned later, and the beautiful group of cows and heifers contributed by Albert E. Smith, Hollywood Farm, and Carnation Stock Farm, all of the state of Washington, are of such quality that they would command instant appreciation in any sale ring in the world. Many of these are bred to the great Judge Segis and to the world famous $106,000 bull Carnation King Sylvia.

L. M. Fleming, farming for Guy Attaway of Mesa, Arizona, produced this year on a 50 acre field 60 bales of cotton. Ten acres of the field which was poorer than the rest was planted two rows of cotton and then a row skipped leaving a space seven feet wide between each two rows. The 10th of June the space between the two rows was planted to Crowder cow peas inoculated with a special bacteria, 150 pounds of seed being used to the 10 acres. About the 20th of July when the pods were beginning to form the vines were cut into the soil with a single row disk cultivator. The yield on this field was 1½ bales per acre.

Your Little Pigs Well Started are Half Raised

LET ECONOMY STOCK POWDER HELP YOU



This is a boiled-down personal talk between ourselves about raising and sending more hogs to market in less time, in better shape, for more money.

Of course you ought to have good individuals to start on—the best you can buy. You can't be too careful in selecting your herd boars and brood sows if you're looking to breed to a quick-maturing, strong, easy-feeding type. Then, too, you should have everything fitted for the comfort of the animal. Give your brood sows good, warm sleeping quarters, with plenty of room to exercise. Take special pains with their feed. Give them only those foods that will supply the nutriments they need for themselves and for nourishing their young. Keep your hog houses thoroughly disinfected, well ventilated, light, dry and warm, and your hogs free from lice, scurf, mange, etc.

Brood sows, being naturally feverish, should be kept in good condition—their stomachs sweet, liver and kidneys regulated, their fever kept down to prevent constipation. See to it that your brood sows are in good condition before farrowing. Don't give your sows any feed whatever from 24 to 36 hours after the pigs are born. She has enough milk, and all that is necessary is plenty of warm water—nothing else. After that start her lightly on feed.

Give your young pigs plenty of exercise. Keep them warm. See that they get lots of sunlight and be sure to keep them dry the first two or three weeks. Watch your pigs and sort out the ones that are not doing well and put them in a pen by themselves. If they have a rough coat of hair, heavy paunch or belly, watery or gummy eyes, they are probably wormy.

Our Powder will keep your pigs in condition by acting on the liver, kidneys and blood. Keep the stomach sweet. Acts as a general cleaner of the system—expels the worms, aids digestion, purifies the blood, keeps the bowels loose and active, prevents scours, thumps and all other ailments.

Economy Hog & Cattle Powder Co.

Hearst Bldg., San Francisco, Cal.

"Largest Manufacturers of Stock Powders in the World"

Absolutely FREE!

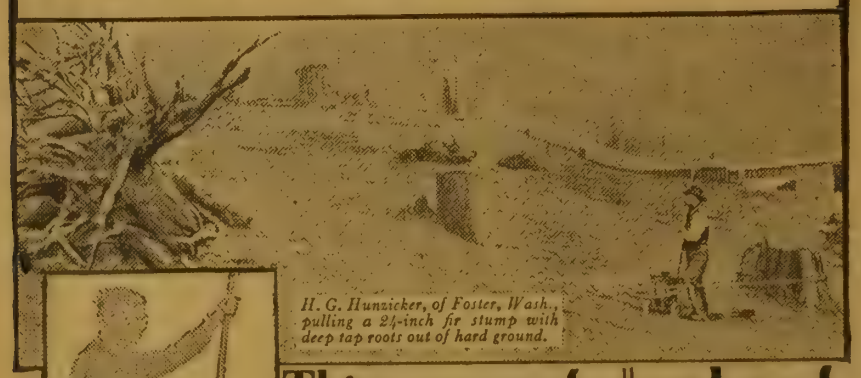
Economy Hog and Cattle Powder Co.
HEARST BUILDING, SAN FRANCISCO, CAL.
Send me your booklet, "Economy-ize Your Farm," also a free sample of Economy Stock Powder to try out on my stock.

Name .....R. F. D. .....

P. O. ..... State .....

I have ..... hogs, ... sheep, ... cattle, ... horses.

Big Money In Stump Land



H. G. Hunzicker, of Foster, Wash., pulling a 24-inch fir stump with deep tap roots out of hard ground.



This man made $35 Land Worth $200 an acre Pulling Big stumps by hand

CLEAR your stump land cheaply—no digging, no expense for teams or powder. Your own right arm on the lever of the "K" Stump Puller can rip out any stump that can be pulled with the best inch steel cable. I guarantee it. I refer you to U. S. Government officials. I give highest banking references.

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K Stump Puller

One man with a "K" can outpull 16 horses. Works by leverage—same principle as a jack. 100 lbs. pull on the lever gives a 48-ton pull on the stump. Made of best steel—guaranteed against breakage. Has two speeds—60 ft. per minute for hauling in cable or for small stumps—slow speed for heavy pulls. Works equally well on hillsides or marshes where horses cannot go.

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Weight, without cable, 171 pounds

No Stump Too Big For The K

Power--Power--Power

Fertilizer is to the tree what gasoline is to the engine. If you want small returns feed little, if you want BIG RETURNS feed liberally.

Ninety per cent of the non-paying groves are the UNFERTILIZED groves. Feed your trees into the dividend paying class by using

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Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

Short Courses in Beekeeping

By Geo. A. Coleman

IN NOVEMBER and December, 1918, the extension department of agriculture, University of California, in cooperation with the United States department of agriculture inaugurated a series of short courses in beekeeping designed especially for commercial honey producers. The plan was to have a course of one week's duration at each of the following places: San Diego, November 25-30; the University Farm, Davis, December 2-7; Visalia, December 9-14, and Riverside, December 16-21. This plan was carried out with the exception of the Riverside course which unfortunately had to be given up on account of the influnza ban which was on during the time for which the meeting was scheduled.

Short courses in beekeeping of a week or more in length have been given before at various colleges in the United States. This series of courses in California, however was planned with the needs of the large commercial honey producers in view rather than for the beginner. While they were undertaken with some misgiving on the part of the staff of instructors and the extension service, as to how they would be received by the beekeepers, the results have far exceeded their expectation both in attendance and the interest taken by those present.

Fortunately at San Diego the influenza ban was lifted just long enough for the week of the course which was given in the Auditorium of the San Diego state normal school. Considering the circumstances the attendance of 135 beekeepers at this course and the fact that they stayed throughout the entire week, even Thanksgiving Day, and on the day of the great aviation demonstration, giving the closest attention to the lectures and demonstrations from 9 a. m. to 5 p. m. and attending a lecture every evening from 7-9, we feel amply repaid for the effort and consider that the courses were an unqualified success.

The attendance and enthusiasm of both the commercial honey producers and beginners at the University Farm at Davis were fully up to that at San Diego. Here the amateurs were more in evidence than the professionals and were a source of some embarrassment to the staff of instructors, as they had not made provision on the program for such a contingency. However, both amateurs and staff rose to the occasion and solved the problem to their mutual satisfaction.

The influenza ban was also on at Visalia but notwithstanding that and bad weather conditions about 60 of the largest honey producers, many of whom operate from 500 to 2000 colonies, braved the dangers and although having to endure the discomforts of the masks and an uncomfortable meeting place, they stuck it out to the end with unbounded enthusiasm.

The entire staff of instructors were bitterly disappointed on receiving word from the farm advisor at Riverside that the county health officer stated that the course could not be given even at the experiment station where it was planned to give it in case conditions prevented meeting in the city of Riverside. However, there was nothing to do but call it off and it was with great regret that the hundreds of beekeepers, some of whom had come from San Luis Obispo and further up the coast, had to be turned away.

The course being planned for beekeepers of considerable experience, it was assumed that they were already familiar with the construction of hives, styles of frames and the various equipment used in the apiary, and the time therefore could be given to a consideration of the activities of bees in the colony which can only be thoroughly understood by a thorough study by scientifically trained men. This part of the course was therefore planned and given by Dr. E. F. Phillips, apiculturist of the United States department of agriculture, whose extended study of bee behavior and experiments carried on in the apiaries of the United States department on such subjects as "the temperature of the hive" and "wintering conditions," "winter protection", etc. enabled him to give to the beekeepers first hand information on these subjects, of great value.

The practical application of the results of their experiments and also much valuable and practical instruction was given by Geo. S. Demuth, first assistant apiculturist in the United States Department, and a practical beekeeper of long experience. His work as a member of the staff supplemented that of Dr. Phillips very nicely and working together they were able to develop the subjects and make the practical application which appealed to all those present as the best instruction they had ever received.

To George A. Coleman, in charge of apiculture at the college of agriculture, University of California, were assigned the subjects "Parthenogenesis in Relation to Practical Beekeeping" and "Undeveloped Territory in California", in addition to having general charge of the courses. Although Mr. Coleman was able to appear only at San Diego and at Visalia on account of contracting a bad case of the influenza much interest was manifested in the first of these subjects and its practical application to the breeding of better queens and the matter of keeping records of the performance of all breeding stocks as a basis of selection and improvement of breeding queens and in the idea of every beekeeper becoming his own queen breeder, to some extent at least, as it is impossible for the present professional queen breeders to supply the demand for queens.

The beekeepers were also greatly interested in the development of beekeeping in the national forests of California which offer a great field for the development of extensive out apiaries, and the use of our 5,000,000 acres of brushwood or "chaparral" as bee range which otherwise is of no value except in the conservation of the water supply.

Jay Smith, of Indiana, who is at present doing extension work under the United States department of agriculture in California, also assisted with the courses and gave several practical talks on queen rearing at which he is an expert, demonstrating particularly a new introduction cage, his own invention, by means of which many valuable queens have been introduced with perfect safety.

M. H. Mendleson of Ventura, one of the pioneer California beekeepers whose apiaries have a world wide reputation for their neatness and the perfect system pursued, was also a member of the staff and gave much practical information and valuable advice to beekeepers on their individual problems.

Frank C. Pellett, assistant editor of the American Bee Journal, gave an evening lecture at each place on "Inspection Laws", a subject on which he is well qualified to speak, having served five years as state inspector of Iowa. His ideas of a program of education to clear up the brood disease problem, rather than having it a police system, were enthusiastically endorsed by all the beekeepers present at every lecture.

E. R. Root, editor of "Gleanings" was also present and gave an interesting illustrated account of the development of beekeeping in the United States and related many anecodotes of the pioneers, among whom were such men as Langstroth, Hedden, A. I. Root and many others.

A certain time each day, usually at the close of a lecture, was set aside for the presentation of questions from any beekeeper present. This generally brought forth a good discussion in which the beekeepers took part and much valuable information was brought to light in this way.

It was planned to have a "get acquainted" dinner at each place. The influenza ban however, prevented the carrying out of this part of the program except at San Diego where a very enjoyable evening was spent around the banquet table at the Hotel San Diego, after which we listened to a most interesting account of educational work in beekeeping by Dr. Demuth.

The success of these short courses has led to the adoption of a similar course by New York which is just being held at Cornell University, Ithaca, New York during the week of Febru-

ary 24 to March 1. We are glad to know that we started something with these courses and to state also that they will be continued next fall, and perhaps extended to include one or two more places in the state and that it is planned to offer a short course particularly for the benefit of beginners and amateurs at the agricultural college at Berkeley, full announcement of which will be made later.

ARIZONA BEE NOTES

I now run for extracted honey only, use a low wheeled wagon with honey house screened in on it, which I move from yard to yard with team, as some of our roads would hardly permit of a heavy truck, although I use a small yard truck for everything else. I use a reversible honey extractor run by gasoline engine which also runs a large fan, same as an electric fan only much larger, which keeps the room always cool.

The uncapping box has a false bottom filled with water heated by two gasoline burners. The cappings drop onto a screen platform where the honey drains through and passes out through a faucet going to the tank through strainer with honey from the extractor. The dry cappings are shoved off from the platform on to the heated false bottoms where it melts and the dark honey is drawn off and kept to feed to weak colonies in winter and spring. A coil pipe under the capping box connects with a small steam tank by a rubber tube and a hollow uncapping knife keeping it constantly hot.

Nearly all of our writers for Eastern bee journals are northern men, hence I have greatly changed my methods, adapting them to outdoor wintering and a different honey flow. While the Northern and Eastern honey flow only excites swarming, here in Southern Arizona a good honey flow stops swarming.

I frequently send away for the best stock of queens and then breed from the best. If the bees were properly looked after last fall and given plenty of honey or thick sugar syrup, all cracks except the entrance stopped up, they should winter in the Southwest.

Watch in front for signs of skunks or other wild animals which scratch at the entrance to make the bees come out and greatly weaken or destroy colonies. See that all grass and brush near-by is cleared away to avoid fire.

If in low altitudes have the bees under sheds running east and west to keep the combs from melting during hot weather. See that they are within a quarter of a mile of water as 100 colonies will need five gallons daily in dry hot weather.

Get your hives and other supplies ready now.—B. A. Hadsell.

Book Review

THE FARMER HIS OWN BUILDER

"The Farmer His Own Builder" is a guide and reference book for construction of dwellings, barns and other buildings, by H. Armstrong Roberts, and published by McKay, 608 South Washington Square, Philadelphia, Pennsylvania, $1.25.

"A good farm is worth good buildings," is the opening statement in this book of practical hints on farm building construction. Unfortunately all of the plans and specifications are made from experiences in countries which have different conditions from those which obtain in California. There are particulars as to ventilation and the arrangement of ventilators and methods of building which are much more substantial than are often required under California climatic conditions. Notwithstanding that there are many hints and suggestions, and the discussions of general principles are such that the book is of value to the Pacific Coast farmer. The book is profusely illustrated, mostly with drawings and occasional halftones or plates of successful and convenient buildings on Eastern farms. There are 16 chapters discussing preparation of plans and specifications and taking of bids; figuring the materials; staking out and building foundations; facts for concrete construction; framing the skeleton; roof — its shape, framework and covering; sanitation; concrete posts, troughs, etc.; work bench and tools in the farm shop; ropes and pulleys, etc. The appendix is make up of a number of very valuable tables.

American Farmers and the League of Nations

By Gifford Pinchot

Farmers think easily in terms of world trade. The largest item in international exchange consists of products from the farm. It has been well said that food is the other side of every international transaction. Wheat, cotton, and wool are the most world wide materials of exchange. Of all men the farmer, therefore, is most concerned with that world commerce in the raw materials of food and clothing which, more than all else, draws the nations together.

It is well to remember that the most continuously active international organization in the world deals directly and only with the products of the farm,—the International Agricultural Institute at Rome, founded by the prophetic vision and unquenchable faith of an American, David Lubin of California.

As yet no one can discuss with authority the interest of American farmers in the League of Nations. The National Board of Farm Organizations, through which the organized farmers of America speak, has not yet made its position known. I have however, presented the views which follow to as typical a body of 150 American farmers as can be found in America. This body stamped them as correct. Furthermore, what the American farmers thought about the war will help to show what they are thinking about the League of Nations and the Peace.

Living nearer to the earth than any other men, the farmers deal more closely with realities. Of all our people they are the most apt to be right in the long run, and least likely to take the shadow for the substance.

The farmers of America, under every sort of handicap, raised the vast crops without which the war could not have been won and gave to our armies a million fighting men. Yet with the direction of the war they were allowed to have nothing to do. They will not consent to be excluded from their rightful share in the direction of the peace, and of the vast international issues which must grow into settlement afterward.

Slow to get into the war, once in our farmers were there to see it through. Few of them were deceived by the talk, so common a few months back, that Germany could never be beaten, and that the time had come to compromise. There was no compromise about them.

The proposal to let the Germans off easy appeals to them little. The damage has been done, the loss endured. It is clear that if the guilty do not pay, the innocent must. And since Germany is to pay the bill the farmers of America will agree that she must be allowed to earn the money, and that the only way to earn it lies in foreign trade. But there must be restrictions strong enough to prevent her from ever being able to win by trade what she lost in war.

Farmers were not carried away by the Russian formula of no annexations and no indemnities. The self-determination of peoples as an easy and certain cure for the world's troubles leaves them equally cold. They do not forget that the fathers of numberless American farmers fought and died to prevent the principle of self-determination from destroying our nation.

The farmers are for peace, for a permanent peace, a peace fitted to the conditions of the world in which we live, and not a peace adjusted to the dreams of dreamers who are not responsible for making their dreams come true. They will welcome a just peace, with reparation to the injured and punishment for the guilty, but they do not want to see generosity take the place of security and justice. They want this war to be the last. When peace is made they want it to



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The **International Motor Truck** is built for carrying capacity loads on country roads. It gives satisfactory everyday service, the kind that farmers must have. When an emergency comes — a tough piece of road, a steep hill, a rush trip, a bad day — the **International** has the reserve power, speed, and endurance to carry it through.

Mr. L. C. Henry of Utica, Minn., purchased an International Motor Truck to haul his live stock and farm produce to market and to bring return loads from town. He says, "We use the truck for nearly every kind of hauling. It saves more time than any other machine in our farm service." Five of Mr. Henry's neighbors bought International Motor Trucks when they learned, from his experience, what a useful economical farm machine he had.

There are four sizes of **International Motor Trucks** — 1,500, 2,000, 3,000 and 4,000 pounds capacity, with bodies suitable for every kind of hauling. We have a dealer, a branch house, or a service station somewhere near you, where the line can be seen, or we will send full information promptly if you will write us.

The Full Line of International Harvester Quality Machines

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Binders — Push Binders
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Reapers — Shockers
Threshers

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Haying Machines
Mowers — Tedders
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Loaders (All Types)
Rakes
Combination Side Rakes and Tedders
Sweep Rakes — Stackers
Combination Sweep Rakes and Stackers
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Bunchers

Belt Machines
Ensilage Cutters
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Corn Shellers — Threshers
Hay Presses
Stone Burr Mills

Belt Machines—Cont.
Cream Separators
Feed Grinders

Power Machines
Kerosene Engines
Gasoline Engines
Kerosene Tractors
Motor Trucks
Motor Cultivators

Corn Machines
Planters — Drills
Cultivators
Motor Cultivators
Binders — Pickers
Ensilage Cutters
Shellers
Huskers and Shredders

Dairy Equipment
Cream Separators (Hand)
Cream Separators (Belted)
Kerosene Engines
Gasoline Engines
Motor Trucks

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Budded Avocados, Fuerte, Sharpless, Lyon, Dickinson, Blakeman, Puebla, Spinks, Taft, Linda, Rey, Queen, Knight, and others. A fine stock of field grown trees, $2.50 for one, $2.00 each by the 100. 25c per tree for packing. Newbery-Sherlock, 2202 East Colorado St., Pasadena, California.

For Sale—250,000 Homegrown fruit trees. Apricots, apples, pears, peaches, walnuts, etc. All stock guaranteed first class in every respect. You will save money by writing for our descriptive catalogue and low prices. Orange County Nursery Co., Box 235, Anaheim, California.

Eureka Walnuts are the best grafted on Paradox roots. They resist blight. You are sure to get the real thing by placing your order with us. We graft Eurekas only. Geyer Bros. Walnut Nursery, 214 S. Alamansor St., Alhambra, California.

Tuscan and Phillip Cling Peaches, No. 1 stock. Bartlett Pears on Japan blight resistant roots and a general line of best varieties California grown trees. Inspection invited. Prices reasonable. Phone Downey Exchange 692, Los Nietos Valley Nursery, Downey, California.

Grafted Walnut Trees — Placentia Perfection and Eureka. A careful selection of grafting wood from the best groves of Southern California has been used on best black root stock. C. W. Story, Rivera, California.

For Sale — 10,000 Grafted Walnut trees and all leading varieties of fruit trees. Trees can be bought from Third & Bush Street Nursery Company, Santa Ana. Phone 938-W. Residence Phone 769-R. R. E. Franke, Prop.

For Sale—About 1000 each of Eureka Lemon and Late Valencia Stock on Sour Root. 2 year buds from first class high producing trees, splendid root system. Charles Brooks, Sierra Madre, California. Tel. Red 14.

For Sale—Budded Mission Olive Trees; ready for planting; buds selected from choicest trees; special price for large lots. D. C. McCallum, Oroville. Phones 251 or 138.

Manzanillo and Mission Olive Trees selected stock. Free from scale. One inch and over. Thirty-five cents each at nursery. E. E. Barnes, Highland, Calif.

Ciro Barbaccia, New Nursery. French and sugar prunes and walnuts. Low prices. 406 Bird Ave., San Jose, California.

For Sale—Fruit and ornamental trees, grapevines, berry plants, etc., at low price. Buy from an ex-soldier. Burke's Nursery, Lodi, California.

Sacks and Burlap for balling trees; before you buy sacks or burlap see me or write. Boyle 1800. J. Ross, 313 N. Boyle Avenue, Los Angeles.

Olive Trees—Mission, Manzanillo. Propagated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, California.

Placentia and Eureka Walnuts on black root. A general line of high grade nursery stock. A. R. Marshall Nurseries, 1212 Ross St., Santa Ana, California.

Trees for Sale—Bartlett and Wilder pears, Imperial and French prunes, also cherries, four by six, fifteen cents. Write M. Sharpe, Vacaville, California.

Apricots and Olives. Good thrifty stock and carefully grown. C. E. MOYER, Hemet, Riverside County, California.

Eureka and Placentia Perfection Walnut buds for sale. E. Holve, Fullerton, California.

2500 Nonpareil Almond, 250 Peerless, 12½c:. Packing extra. C. W. Story, Rivera, California.

TREES, TREES, TREES.
No War Prices.
Cash Nurseries, Sebastopol, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—8000 Mission and Manzanillo olive trees. All kinds citrus trees. York Nurseries, Highland, California.

BUDDED AVOCADOS.
MATHER'S AVOCADO NURSERY, 137 N. Fair Oaks Ave., Pasadena, California.

WANTED

Wanted—Position as Ranch Manager U. S. or Mexico; experienced executive in general farming, cattle, hogs, irrigation and development work; speak Spanish. References. Address R. G. P., care of California Cultivator.

Wanted—By American, married man, position on up to date dairy farm where ability and experience are required. Box 15, c/o Cultivator, Los Angeles.

Wanted Immediately—20 to 30 head grade Holsteins or mixed. Must be good producers and free from disease. Cornelius Van Vuren, Tustin, California.

Wanted—Married Man with Experience to raise Mammoth Bronze Turkeys. Geo. A. Smith & Son, Corcoran, California.

Reliable Man for general farm work. Furnished house, attractive place near San Diego. Box 33, Nestor, California.

Want to Hear From Owner of Farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minnesota.

ENGINES

Yuba Tractor for Sale—Have one 18 horse power and one 20 h. p. both in good running order and plowing every day. Will sell either. Reason for selling, don't need but one. See them pull 5 plows each on rolling ground. Cheap for cash. Hugh Montgomery, San Gorgonio Ranch, Banning, upper highway between Beaumont and Banning.

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale at a Bargain—18-35 Yuba Ball Tread Tractor in first class mechanical shape; plows and double disk harrow included. Apply D. P. Corcoran, Gridley. Phone 33-F. 24.

A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D. Co. California.

For Sale—40 H. P. Fairbanks-Morse gas engine in first class condition—used two seasons. P. O. Box 251, Santa Ana, California.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

For Sale—Bean Tractor in best condition with new improvements. L. F. Raftery, Owensmouth, California.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches. ARNOTT & COMPANY, INC., The Yellow Front. Established 1892 112-118 S. Los Angeles St., Los Angeles.

GOATS

Largest Herd Swiss Toggenbergs on the Coast. 100 grade does bred to my $1000 Buck, Captain No. 256, A. M. G. R. Association, due to kid in February and March, $40.00 each, lots to suit. Crating $2.00 extra. Stamp. Rae P. Williams, Oakland, California.

HOGS

THIS IS TO ANNOUNCE OUR

FIRST ANNUAL FARM SALE

To be held in the town of BUTTE CITY, Glenn County, California, at 1 P. M., SATURDAY, MARCH 1, 1919. We will sell 20 Registered Shorthorns, 30 Registered Berkshires, 20 Registered Shropshires, and 15 Ponies. This sale is primarily to advertise the ranch. We do not expect high prices, but we know that every animal we sell will make a market for more in the future. It will be a buyer's opportunity. All stock of very best breeding. COL. W. H. HORD will conduct the sale. Butte City is 16 miles southeast of Willows; 25 miles southwest of Chico; 19 miles north of Colusa; 80 miles north of Sacramento.

BUTTE CITY RANCH.

W. P. DWYER and W. S. GUILFORD, Owners.

"Billiken" Chester Whites. Practically sold out. One yearling boar, one bred yearling gilt, due to farrow in April, and five fall boar pigs are all I have now for sale. Sows are bred for March and early April farrows. I have recently added some new blood lines in the way of bred sows. My stock is the best obtainable and there is none better in the West. Will book a limited number of orders for weaned pigs, spring farrow, to be shipped at weaning time. C. B. Cunningham, Mills, Sacramento County, California.

O. I. C. BREEDER'S NOTICE
I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

For Cheap Hog Feed plant JERUSALEM ARTICHOKES; cheaper than alfalfa, and a winter feed. Tubers $5.00 per 100 lbs.; 1000 lbs. and over 3½c per lb. CALIFORNIA NURSERY COMPANY, Niles, California.

Bargains in Poland China Sows. All immune. Good mothers and prolific. Registered stuff. Also boars. Write for details. N. C. Hansen, Coachella, California.

At Service—D's Wonder, the large type Poland China boar. Sows called for, fed and delivered. M. Hayward, 4 blocks east of P. O., Hawthorne, California.

FOR SALE: REGISTERED POLAND-CHINA BOARS. J. R. CARHART, FULLERTON, CALIFORNIA.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLITS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

HOGS

Castleview Giant Type Berkshires are the thrifty, typey, quick-growing kind that will make larger profits for you. Prizes and Championship honors are awarded—by the greatest judges in America—only to animals possessing the essential qualities for economical meat production, viz.: heavy bone, good feet, broad strong backs, large hams and easy feeding qualities. Our grand champion herd includes Riverby Princess, grand champion sow of the world; Rookwood Lady 100th, 1917 grand champion of America; Mayfield Laurel 15th, 1917 grand champion of California. Bred sows, bred gilts and fine weaned pigs for sale.
Castleview Ranch, Santa Rosa, Cal.

BERKSHIRES BERKSHIRES

ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

BERKSHIRE BOARS AT 2c
SPECIAL OFFER
To introduce my world and national grand championship blood to farmers and breeders, I will sell a limited number of boar pigs, 6 to 9 months old, at two cents above the market price. They are by Baron Duke 201st, national grand champion, Winona Lee Champion 6th, first prize junior yearling 1917 State Fair, and from 650 pound prize winning sows. We will sell nothing that we would not use ourselves. Sandercock Land Co., 906 K St., Sacramento, California. In charge Natomas Land Sales.

AUCTION SALE OF DUROC JERSEYS.
CLOSING OUT ENTIRE HERD.
Thirty or more head of the cream of the breed. Orion Cherry King and Col strains. 700 pound senior yearling sows, in pig. One 900 pound 2 year boar, O. C. K. Several boars ready for service, perfect in type. Champions in sows. Gilts of the very best breeding, bred and open. All of the mammoth type. The best ever offered at any sale in California. You make your own price. Date of sale, March 18, 1 o'clock, sharp. Place, Garden City Sanitarium, San Jose, California. On car line one mile from station. Terms cash or its equivalent in paper. L. J. Belknap, Auctioneer, Ord L. Leachman.

Registered Duroc-Boar Pigs—We have four boar pigs, four months old, weighing 150 lbs., out of a King's Col sow and sired by King Orion himself. Sow is a sister to Citation, $5,000 boar, and is herself one of the best sows in the country. This blood won more prizes for get of sire than any others west of the Mississippi. These pigs are the classiest boars for sale in California. Write for one or call and take your pick. $150. Hog Dept. Elliott-Brant Rancho, Owensmouth, California.

BERKSHIRES GUERNSEYS
GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
A. B. HUMPHREY,
Escalon, San Joaquin County, California.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

For Sale—Poland China — Quality type. Young stock of boars and gilts for sale at all times. At the head of our herd stands some of the best blood—Superba and I. B. A. Wonders, the World and State Champions. Poland China Ranch, C/o H. B. Peake, Mgr., 358 11th Street, San Bernardino, California.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

For Sale — Berkshire boar Pacific Star Masterpiece 2nd 241131—2½ years old. Nil Goethes Masterpiece 198190, dam Star Belle Betsey 226782. Splendid herd header. J. E. Moltzer, Van Nuys, California. South Sherman Way, corner Rita Street.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best In the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Masterpiece-Superbus strain Berkshires. Choice stock from prolific breeders. Geo. A. Stingle, San Gabriel. Ranch Garvey Ave., two miles SW. of El Monte.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

Duroc Weanlings for the Farm — Big type 220 lbs. at seven months. Easy feeders. W. W. Everett, River Bend Farm, St. Helena, California.

MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Duroc-Jerseys — We breed the champions. Peter, Lamson & Walker, Devore, San Bernardino County, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

POULTRY

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

"Never Saw Chicks Grow Faster," "Your Pullets Laid Through Moult." Why? Bred 20 years to lay 200-290 eggs yearly. White, Brown, Buff Leghorns; Anconas; Reds; Barred, White Rocks; Minorcas; Orpingtons; clearing customers $5.00. Valuable circular with proof, free. Chicks 2-3 booked to May, reasonable; yet most weeks still open. Increasing our hatcheries as demanded (50,000). Many repeat orders monthly, yearly. Breeders, pullets. James Beeson, Pasadena, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially Interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Baby "Chicks" and Eggs for Hatching from pure bred McFarland strain S. C. White Leghorns. Carefully culled and Hoganized for heavy egg production, not simply "CHICKS" but stock as well. Sonoma Valley Hatchery & Poultry Yards, Sonoma, Sonoma County, California. R. D. 2, Box 48. F. J. Hansen, Prop.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

How Is 280 Eggs a Year from each dear ducky? If you want eggs when they are high lay the foundation now. My ducks began laying at 4½ months old. They are still at it. No lice, no disease, nothing but eggs and delicious meat. Have Pekins that weighed 3 lbs. at 1 month old. P. O. Box 221, Santa Ana.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs $2.50 per 15. Chicks March and following months 30c each. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose.

Baby Chix — Barred and White Rocks, Reds, Buff Orpingtons, Black Minorcas, Buff and White Leghorns from Hoganized stock bred to lay. Reasonable prices and pleased customers our aim. Tobener Hatchery, Washington Avenue, San Jose.

For Sale—Incubators made by poultrymen for poultrymen. 60-224 and 540 egg sizes. Prices $15, $32.50 and $52.50. Freight paid in California. Poultrymen's Cooperative Milling Association, 1516 Industrial Street, Los Angeles.

S. C. R. I. Reds Exclusively, Pacific Coast Aristocrat strain. Baby chicks and hatching eggs from high class exhibition Hoganized stock. Order early. Rosedale Poultry Farm, Route A, Box 200D, Ceres, California.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Chix or Eggs—Hoganized W. Leghorns—also limited quantities of Buff Leghorns, Buff Minorcas, B. P. Rocks, L. Brahmas, Reds. S. Martina, R. 2-627, Santa Cruz.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California.

700 White Leghorn Chicks from Hoganized stock with heavy egg records. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Choice White Wyandotte breeding cockerels, $5.00; eggs $3.00 and $5.00 per 15. Baby chix. R. W. Stawetski, Route B, San Jose, California.

For Sale: Leghorn Chicks from high quality heavy laying stock. Prices right. Madera Hatchery, Madera, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery Schellville, California.

White Leghorn Chicks from good laying strain of Hoganized and trapnested stock: Rose Hill Hatchery, Turlock, California.

Bred-to-Lay and Vitality. Rhode Island Reds, 200 egg birds. Eggs $3 to $5 per 15. Eva V. Conklin, 1445 Portola Ave., Los Angeles, California.

For Sale — Thoroughbred Rhode Island Red cockerels, from heavy laying stock. R. F. Ramelli, Vinton, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. We hatch our own eggs and sell chicks and eggs from our own hens only. We have 1500 chicks yet to sell for middle of March, otherwise we are all sold out. Hatching eggs from our high record hens at $5.00 and $10.00 per 15. Write us for prices on second season hens and yearling cock birds for April first delivery. These males are all bred from 200-egg hens or better and by hatching from them in May and June you will get eggs next December. If you really want the best in Leghorns, let us hear from you. ENGLANDS EGG RANCH. The home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns. CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Setting Eggs from the Sunny Slope Poultry Ranch is sufficient to warrant quality of production. We will sell setting eggs only during 1919. If you want birds that will produce quality and quantity, place your orders with us. You will then ever be a satisfied customer. Sunny Slope Poultry Ranch, Longden Ave., Box 789, San Gabriel, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for twenty years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Hatching Eggs—White Leghorns, Light Brown Leghorns, Dark Brown Leghorns, White Rocks, $2.50 per 15; $10.00 per 100. All bred to highest possible standard of beauty and utility. Mahajo Farm, P. O. Box 597, Sacramento, California.

Baby Chicks Every Week. Order early and get the date you want. White and Brown Leghorns, Rhode Island Reds, Barred Rocks, Anconas; also hatching eggs. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

R. I. Red Chix or hatching eggs from first class Hoganized utility stock, prices no higher than ordinary stock. Chix and eggs from prize winning Buff Orpingtons, quality rather than quantity our motto. Munier Poultry Yards and Hatchery, Cupertino, California.

Finest Hatchery in the World. Chicks, White Leghorns, Rhode Island Reds, 10s, 1000s, hatched right in our $60,000 brick and concrete hatchery from our Hoganized heavy layers. Stock, eggs. Pebbleside Poultry Farm, Sunnyvale, California.

WHITE — BROWN — BUFF
— LEGHORNS —
Large or small lots. Exceptional quality in breeding stock. Reasonable prices.
— Circular Free —
Mission Hatchery, Box 27, Campbell, Cal.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

Book Your Orders with the Stevenson Hatchery, 19 Center Street, Watsonville, California, for Day Old Chicks Black Minorca, Barred Plymouth Rocks, White Leghorn or Anconas from first class utility stock.

White Wyandottes: Large vigorous cockerels from heavy laying strain. Satisfaction guaranteed. My price is right. Eggs $3.00 per 15. J. W. Nicholson, Wasco, California.

Super Quality White Leghorn Chicks. Hatches March 6th and every 10 days thereafter. Newton Poultry Farm, Los Gatos.

Wanted—1000 Poultrymen to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Maschweiler, Box 70, Inglewood, California.

White Wyandotte hatching eggs from high testing Hoganized hens and cockerels. Selected winter layers. $2, $3, $5 per setting. S. Reyner, Lathrop.

Eggs for Hatching from heavy laying, prize winning Golden Buff Leghorns. One fine mating of Buff Leghorns for sale. W. L. Bartholomew, Chino, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

Dark Cornish Livingstones, prize winning cocks. Hatching eggs; 3804 Winter Street, Los Angeles.

For Sale—Pit game cocks. Address F. B. Pritchard, Clarksburg, California.

PIPE

"TESTED" and "GUARANTEED" screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.
PACIFIC PIPE CO.,
Main and Howard Sts., Est. 1906, San Francisco.

CAPON SPECIALIST

Every Farmer can make money by caponizing his cockerels. Instruments $4.50. Caponizing cockerels 20c each. Send stamps for reply. Mrs. H. Ament, 428 Brockhoff Building, 6th and Main, Los Angeles.

CATTLE

Registered Guernsey Bull Calves—High class, registered Guernsey bull calves out of Advanced Register cows with five, six and seven hundred pounds of fat records and sired by "May Rose" bulls of the richest strain for sale at reasonable prices. These bulls will be priced right for quick sales, every dairyman should have a Guernsey bull to raise his butterfat test and give his milk the rich yellow Guernsey color. Write for prices or better call and inspect. If you buy a bull by correspondence and he is not satisfactory upon arrival you can send him back. Dairy Dept. Elliott-Brant Rancho, Owensmouth, California.

Guernseys—We will sell stock from our prize winning, high producing herd, at reasonable prices, valued according to individuality and breeding. Our supply is limited but if the buyer wants a number of animals and will write us we will furnish him with particulars. Nevada Guernsey Farm, Yountville, Napa Co., California.

Registered Guernseys for Sale—20 head females. Granddaughters King of May. Some fresh, calves by side. Others fresh soon. Heifer calves. Herd bull. All May Rose breeding. Many show animals, never beaten in show ring. Butter records of best. All must be sold at once, priced to sell. Address: Middledale Farms, Creswell, Oregon.

SHORTHORN CATTLE, SHROPSHIRE SHEEP. Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., California. W. P. Dwyer and W. S. Guilford, Owners.

The Keep on Herd, Registered Jerseys, strong breeding, type and production, money makers. We offer selected animals, both sexes, from Register Merit ancestry with big records. Prices reasonable. Satisfaction guaranteed. Dr. H. W. Hand, Orland, California.

For Sale—About 70 head of No. 1 two year old dairy heifers grade Holsteins, well marked some springers. To be sold all together or divided in equal lots. Priced to sell at $75.00 per head. A. T. Lewis, Box 54, Riverdale, Fresno Co., California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Wilits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—Eight months pure bred registered Ayrshire bull, $150. Redwoods Ayrshire Farm, La Honda.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

MISCELLANEOUS

You are Losing Money if you farm without a soil analysis. Write me today for free proof of this statement. I can show you. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, California. Phones: Office Pico 843, Residence West 702.

BEST OF BUSINESS TRAINING.
Munson School
for
Private Secretaries.
600 Sutter St., San Francisco.
Send for catalog.

Pure and unadulterated leaf tobacco. Comes to you exactly as it leaves the farmer's hands. Hand picked 60 cents pound prepaid parcel post, 10 pounds $5.50. Order today. Duke Bros., Dresden, Tennessee.

Wanted — Free Homes for attractive, healthy, normal boys from seven to eleven years of age with privilege of adoption. Apply Children's Home Society, 2414 Griffith Ave., Los Angeles.

Make $10.00 Every Day selling Rawleigh's products, with rig or auto in country. Few good territories now open. Give age, occupation, references. W. T. Rawleigh Co., Oakland, California.

Walnut Grafting Wood For Sale—Selected Franquette, Mayette, Eureka and Payne, 5 cents foot. Bowman-Kuhn Ranch, San Jose, California.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Safety Razor Blades Re-edged, 30 cents per doz. Howards, Box 93-E, Los Gatos, California.

For Sale—Chicken manure in car loads. Cheapest and best fertilizer. McDonald Sons, Phone 101, Watsonville.

For Sale Ten Thousand Nursery Stakes, ⅝x¾ inches, 3 feet long. Address 508 West Grove Street, Visalia, California.

LIVE STOCK

For Sale or Trade—The Imported French coach stallion "Croissant." He is a beautiful brown color, sound in every way and weighs 1650 pounds. A city ordinance prevents us using this horse, therefore we offer him for $600 cash or trade. Sawtelle Livery, Feed & Fuel Co., Sawtelle, California. Both phones.

For Sale — Registered Black Percheron Stallion, seven years old. Weight about 1700. Terms reasonable. John Secrest, Escalon, California.

FOR RENT

For Rent—Near Redlands, Calif, three acres of irrigated land. Address I. H. Behymer, 9 East Lenox Street, Chevy Chase, Md.

FARM LANDS FOR SALE

For Sale—Eighty acres six miles from Turlock, ½ mile railroad station. Place all checked, ditched, fenced. Fine barn, combination house, silo, outbuilding, corrals. 65 acres grain; balance for cantaloupes. Team, wagon, all farm implements with gasoline engine. Price $24,000. $8000 cash, balance to suit purchaser. No trade.

40 acres 2 miles from Winton, 5 miles Atwater, 8 miles Merced; 15 acres alfalfa, 3 acres almond orchard, balance grain. New 6-room house, barn, tank house, gasoline engine. Price $12,000, $2500 cash, balance to suit.

300 acres unimproved, ½ mile from Hickman, Turlock Irrigation District. As a whole or in 20 or 40 acre lots. Must sell and offer it for $100 per acre, easy terms. Address Mrs. C. B. Rice, Turlock, California.

30 Acres ½ mile from State Highway, ¾ mile from point where local trains stop, and 3½ miles from Arbuckle. This place partially improved; 11 acres six years old almonds, 1 acre six year old fruit and 5 acres one year old Thompson Seedless; 13 acres to be planted to almonds this spring. Fine location. Will make a dandy home. Write us.
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40 Acres irrigated by the fertile waters of the "Orland Project," partly leveled. Half in crop. Living water all summer. Mostly creek bottom Sand loam. 60 rods to highway, 40 rods to railway station, good school, pure water. Joins bearing orange grove. Nothing better for alfalfa, olives, figs, almonds, apricots or peaches. $175 per acre. One-third cash, balance seven years. Will divide to suit. Address: Owner, Hall T. Brown, Box 398, Orland, California.

For Sale — 160 Acres Govt. land near Hinkley Station, school and store. Surrounded on all sides by deeded land. Some just over the line is producing very heavy crops alfalfa and is held at $300 per acre. Water everywhere under this land at moderate depth. Very level; $1500 improvements; altitude 2300 feet. Remarkably healthy. Were no cases of influenza. Catarrh, bronchial and pulmonary affections rapidly disappear. Price $4000. Address Owner, Box 106, Arlington, California.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

For Sale—1 acre near Sacramento; 10c jitney, street car; small building, garage; leveled well; nice location for chickens and pigs; price $1200; $500 cash, balance in payments, $15 per month, interest 6 per cent. Mrs. C. O. Young, R. F. D. No. 3, Box 10, Sacramento, California. No trade.

For Sale—Imperial Valley's best fruit farm, on one of the main canals, mile and half from best town in Valley—grapes, apricots, and alfalfa. Will be sold in 20 and 40 acre tracts. Price and terms reasonable. Address C. A. Myers, R. F. D. No. 2, Box 16, El Centro, California.

For Sale—The famous Bane Almond orchard at Orland. On account of labor conditions, as well as physical condition, I have concluded to sell my almond orchard, either in subdivisions of 10 acres, or as a whole. For particulars address P. D. Bane, Orland, Glenn County, California.

For Sale—40 acre ranch in good condition. 18½ acres bearing prunes, 5 acres almonds, 5 acres alfalfa, balance in other crops. Cement, piping for irrigating. Electric pumping plant; abundance of water. Close to town. Good location. Address, Owner, Box 346, McFarland, California.

Ideal Location for Almonds and Deciduous Fruits. Will sell 40 acres with gravity water at $250 per acre, in Banning, Riverside County. Elevation 2600 feet; 300 miles from malaria. Hugh Montgomery, San Gorgonio Ranch, Banning, California.

100 Acres Adjoining Shafter, partly improved, good well, pumping plant, small house and barn; at $60 per acre is cheaper than any unimproved land in same locality. G. W. Squire, Box 102, Angiola, California, owner.

10 Acres Good Land, fenced, near Galt, California. $800 loan. Would exchange for smaller place, clear or small loan. Also lot on High Street, Melrose. Price $325. Address Route A, Box 245 A, Acampo, California.

160 Acre Foothill Ranch, 30 in cultivation, 70 will cultivate, balance pasture. Implements and stock, all for $3000. Write for particulars. R. A. Winsor, Hornbrook, California.

Wanted to Sell, trade or exchange 80 acres of alfalfa land in Imperial Valley for a dairy having 40 to 100 cows with lease on place to keep them. Address Frank C. Dias, Holtville, California.

For Sale or Exchange at a bargain, 20 acres land in Tulare Co. Will take stock and Ford Truck as part pay. Write H. T. Noble, Georgetown, California.

For Sale or Trade—Equity in 200 acres Imperial Valley. Part in barley. $93 per acre. V. E. Rice, R. R. No. 2, El Centro.

For Sale—$2000 cash, 20 acres good land near railroads and highways. Write or call. J. C. McClaskey, R. B., Oroville, California.

For Sale—60 acres Kings County delta land; good for alfalfa, corn, cotton, grain. H. M. Nelson, Armona, California.

70 Acres Improved Irrigated Dairy in Tulare Co. Owner, Box 211, Berkeley.

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NO MORE FEED SHORTAGE for those who plant Napier grass, largest yielder of highest feeding value of anything ever introduced into cultivation. Supply limited; now booking orders for March, April delivery, $5.00 per 100, $50.00 1000 slips. Mrs. F. E. Galbreath, Pixley, California.

SEEDS AND PLANTS

Positively Thornless Mammoth Blackberry, found native at Mountain Pass Ranch, Jamestown; prolific bearing, ripens early. Berries mammoth in size, practically seedless, sweet, needs little sugar. Bound to supersede all other kinds of blackberries fast as it becomes known, as it has size and quality minus seeds and thorns. Rooted plants ½ dozen $1.50. G. S. Wills, Box 125, Jamestown, California.

I Will Have One or Two Tons of Sorghum seed, especially selected for syrup making qualities for sale as long as it lasts. Send for list of different varieties, with description, prices and instructions for planting to get best results. Can send seed by parcel post. MARION GRABER, Hawthorne, California.

Dwarf Milo Seed for Sale—This seed was grown in the San Jacinto Valley and is the best from 400 sacks that was raised on 10 acres of land which is an average of a little over two and one-half tons per acre. This seed is large plump grain and well matured. Price $6.00 per hundred, f. o. b. San Jacinto. W. L. Helwig.

Your Garden Will Not Be Complete unless you have a few hills of the world's finest muskmelon, "Casad's Special," a heavy yielder, vigorous grower, long season, grows where others won't. Send for seed package, 25c. Roland C. Casad, originator and grower, Covina, California.

Send 10c for pkt. of fine fresh home selected seeds. Heath's early sweet corn, tip top, pineapple, and Burrel's Gem muskmelons, Hubbard squash, Chilean and Angeleno watermelons. Box 98 R. F. D., Covina, California.

Plants Grown on Contract. 20 years' experience; select seed, tomatoes, peppers, cabbage, sweet potatoes, egg plant. Any quantity, shipped to all points. Large quantities at reduced rates. L. C. Johnson, Pomona, California. Phone 2032.

Choice "Early Stone" tomato seed at $2.50 per pound; choice "Italian Pear" tomato seed at 50c per ounce. H. Luther, Cucamonga, California.

Strawberry Plants — Klondyke, Brandywine and other varieties. Best plants, quick service. Wholesale and retail. Price list free. V. R. Allen, Seaford, Delaware.

Fresh Seed—Golden Tankard Giant half Sugar Rose, Mammoth Long Red Stock Beet—70c per pound, postpaid. Western Seed Co., 116 E. 7th Street, Los Angeles, California.

Strawberry Plants—Try our strong rooted everbearers. Americus, Progressive, Superb. Americus, $1.50 per 100; $3.00 per 250. Send for catalog. F. L. Moffet, Ellensburg, Washington.

Peruvian Alfalfa, Amber Cane, Milo Maize, Sudan Thousand-headed Kale, Artichokes, Seeds. Write for circular. Box 501, Fowler, California.

Cabbage Cutter, six knives, slices vegetables rapidly, excellent for potato chips. Prepaid $1.00. Three for $2.00. Lusher Brothers, Elkhart, Indiana.

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Guaranteed to do as much work as new machinery you buy which will be second-hand like ones we sell in a year or so, but not necessarily worn out.
WE SELL FOR LESS. CALL AND SEE.
WINDMILLS.
WINDMILLS—8 ft., $29 to $35; 10 ft., $30 to $45; 12 ft., $58 to $68; 16 ft., $135.
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REDWOOD TANKS — New and used, all sizes, 3 new 1500 gal. $32.50 each; 4000 gal., with round hoops and cover, $42.50; 25,000 gal., $135; 50,000 gal., $250; 100,000 gal., $350.
GALVANIZED TANKS
NEW GALV. TANKS — 1000 gal., $39; 2000, $53. USED galv. tanks, 4500 gal., heavy galv., with cover., $95; $3000, $75; 6000, $125; 7000, $145.
RANCH MACHINERY.
RANCH TOOLS—10 ft. grain drill, $95; mower, $45; Fresno, $16; beet drills, $35; fine 2 gang disc plow, $75; Avery tractor, fine shape, $450; Deere 14 in. riding plow, $35; brand-new P. O. power lift tractor, 4 gang disc plow, $230; 3 gang disc, $85; 4 gang disc plow, $120; 1 horse disc cultivator, with 3 discs each side, $12; double disc harrow with pony truck, $65; potato planter, $75; 12 in. Oliver steel beam plow, $15; single disc harrow, $45; spike harrows, $7 to $18; Planet Jr. new potato digger, $20; slip scraper, $5.50; fine galv. water trough, $7.50; corn cultivator, $28; 2 row bean cultivator, $35; 3 shovel 1 horse weeder, $8.75; Aermotor crab with frame and cable, $12; 4 in. irrigating pipe, 17¾c; 16 in., 25c; 400 ft. 10 in. irrigating pipe, 45c; bone grinders, cheese cutter, wire stretcher, shears, discs for plows, cable; Kustin 1-man stump puller, $39; sundries.
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PUMPS—1-in. centrifugal, 2½ B. & J., $45; 6 hor. Gould, $110; 4 two stage, $150; 7 vert. Krogh, $150; single Pomona plunger pump, $50; large Bulldozer, $98; small size, $49; many others, 50 brass cylinders. DEMMITT CO., Upstairs, 120 N. Main. Yards, 816 Yale. Also buy first-class used material. Los Angeles.

For Sale—5-10 Avery tractor used one season. 3 bottom 8 inch vineyard plow. $550.00 takes them both. Liberty Bonds or cash. F. C. Wood, Hughson, California, on the Santa Fe.

Retiring from Dairy Business—Will sell one eight unit Calf-Way milking machine, only been used six months. Address J. Devlin, Box 291, Napa, California.

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(Additional Liners Page 267)

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Are losing theirs and blaming it on you;
If you can trust yourself when all men doubt you,
But make allowance for their doubting too:
If you can wait and not be tired by waiting,
Or being lied about, don't deal in lies,
Or being hated don't give way to hating,
And yet don't look too good, nor talk too wise;

If you can dream—and not make dreams your master;
If you can think — and not make thoughts your aim,
If you can meet with Triumph and Disaster
And treat those two imposters just the same;
If you can bear to hear the truth you've spoken
Twisted by knaves to make a trap for fools,
Or watch the things you gave your life to, broken,
And stoop and build 'em up with worn-out tools;

If you can make one heap of all your winings
And risk it on one turn of pitch-and-toss,
And lose, and start again at your beginnings
And never breathe a word about your loss:
If you can force your heart and nerve and sinew
To serve your turn long after they are gone,
And so hold on when there is nothing in you
Except the Will which says to them: "Hold on!"

If you can talk with crowds and keep your virtue,
Or walk with Kings—nor lose the common touch,
If neither foes nor loving friends can hurt you,
If all men count with you, but none too much:
If you can fill the unforgiving minute:
With sixty seconds' worth of distance run,
Yours is the earth and everything that's in it,
And—which is more—you'll be a Man, my son!

—Rudyard Kipling.

GEORGE WASHINGTON AS A BOY

OUR first great general, our first president, our first citizen, "First in war, first in peace, first in the hearts of his countrymen," was born 187 years ago today. In 1775 he became commander in chief of the armies of the American colonies, finishing the Revolutonary War victoriously at Yorktown in October, 1781. In 1789 he became the first president of the United States.

He has left to us, as his countrymen, a heritage of untarnished honor, of greatness in heart, in mind and in soul, which is wonderfully portrayed in the noble painting by Stuart, reproduced on this page.

Kipling's poem, "If," was inspired by his study of the life and character of Washington and prefaces his story, "Brother Squaretoes" wherein is presented an unforgettable picture of our first president.

The following account of his boyhood appeared in the Youth's Companion of February 15, 1917:

We so commonly think of Washington in connection with Mount Vernon that we are likely to forget that his birth did not occur at Mount Vernon, and that his earliest years were not passed there. He was born on his father's plantation at Wakefield, on the Potomac River, about 50 miles below Mount Vernon. The plantation had been in the family for many years, but three years after the birth of George the family left it, because it was unhealthful, and moved up the river to the plantation that was later known as Mount Vernon. There the family lived for the next five years, and then for three years—until the death of Augustine Washington, the father of George, in Stafford County, on the east bank of the Rappahannock, opposite Fredericksburg.

George was 11 years old when his father died, and for the next few years he lived a part of the time with his older brothers and a part of the time with his mother. His brother Lawrence inherited the large estate at Mount Vernon. About ten years later, when Lawrence and his daughter had died, the estate fell to George himself. Another brother, Augustine, inherited the plantation at Wakefield, and soon after his father's death George went back there to live for a time in the house where he was born. Not many years later that house burned, and the Wakefield plantation went to decay.

"George" was not a common name in the Washington family; it has been thought probable that George Washington was named for George II, who was on the throne of England when he was born, and who was the father of the king that he fought in the Revolution.

As a boy George was large and strong for his years. In the sports and contests of the day, especially in running, jumping and wrestling, he rarely met his match among the boys of his age. He was rather more shy and serious than most of his companions, and was eager alike for study and for outdoor sports. His father had sent the older brothers to England for their education, and probably George would have gone there too, had his father lived. As it was, he attended, until he was 15, such schools as there were in Virginia at that time—private schools taught by a man, often a clergyman.

George was very fond of horses and found much happiness in the thirty that were in the stables at Wakefield, when he went there to live with his brother, Augustine. On most of his early rides a faithful old negro named Peter was his companion. Another negro named Sampson, who had a wonderful control over horses and other animals, taught him much of the horsemanship of which he was a master all his life.

One morning when he was nearly 12 years old he took one of the best horses in the stables and rode away to a fox hunt without asking permission. He was so much younger than the other members of the hunting party that they laughed at him; but he stayed in the saddle through it all and saw the two foxes killed. About noon his horse went lame, and he had to dismount and lead the animal home. When he reached the stable he found the plantation overseer very angry and about to punish the negro who had allowed the horse to be taken away. He snatched the whip from the overseer's hand and stoutly insisted that if anyone was to be punished it should be he. That incident was only one of the many that made the negroes on the plantation, old and young, devoted to him. He did not approve of the system of slavery, and in later years provided for the freedom of all the slaves on his great estate. One of the last acts of his life was to visit a servant who was sick.

The life of a Virginia plantation gave no end of opportunities for a boy to enjoy himself. He went hunting at daylight for wild ducks and geese. In April and May he caught shad in the Potomac, and he gathered crabs, oysters and clams from the waters of Popes Creek. On moonlight autumn nights he went coon hunting and joined in the corn-roast frolics at the cabins of the field slaves. He rowed and sailed much on the Potomac, which was the main highway for the visiting back and forth among the families of gentry whose big plantations bordered its banks.

It was the unfailing custom to go to church on Sunday. Many families came long distances and brought their luncheons, so that between the services there was a sort of picnic, very pleasant to the young people, in the oak grove near the church. The passing of many years did not weaken the churchgoing habit of that youthful period.

So George lived, a part of the time with one brother at Wakefield, a part with another at Mount Vernon, and a part with his mother on the shores of the Rappahannock. When he was 14 years old he planned to go to sea—or, rather, his brothers planned for him. He had his chest packed

"If a star were quenched on high
For ages, would the light,
Still traveling from the sky,
Shine on our mortal sight,
So when a good man dies
For years beyond our ken
The light he leaves behind him lies
Along the paths of men."

and was actually on board a ship in the Potomac; but his mother prevailed on him to give up the plan. It was a great disappointment to him, for which his beloved horses and dogs hardly consoled him; but then, as all through his life, he faithfully kept his promise to his father that he would always be good to his mother.

It was his liking for surveying, first developed by study of the little handbook, the Youth's Compainion, that led him to become a surveyor by profession. He was only 16 years old when he set out to survey lands owned by his friend, Lord Fairfax, in the western part of Virginia. That work in the wilderness led him into experiences and adventures that had a great influence on his later life as a soldier, and consequently much influence on the whole course of American history.

In his boyhood George Washington showed the qualities that made him one of the greatest men of all time. Many boys of that period, living on large plantations where negroes did all the work, would have chosen a life of idle ease, or would have given their energies mainly to sport, instead of seeking employment as a surveyor; but he did not feel that it was beneath his station to work hard, far from the luxuries and comforts of a good home, and to earn wages like a day laborer. He was a wholesome and manly boy in all his relations—courteous, truthful, modest, brave in the face of dangers and difficulties, thoughtful of others, faithful to every trust in school or work or play, and earnest in his determination to master a quick temper that once in a while blazed forth.

Every American boy should read the life of George Washington — boyhood, manhood and all. It is one of the most interesting stories ever written; every page has things that are helpful and inspiring.

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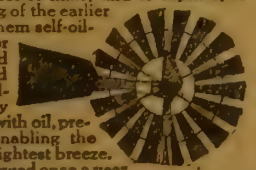
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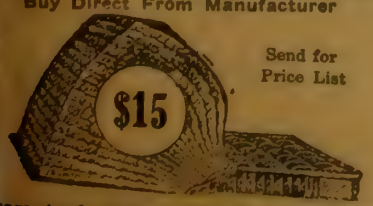
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NAGGING

Nagging is one of the most irritating expressions of spitefulness. A part of its dangerousness is in the fact that one may indulge it somewhat unconsciously, use it without knowing it is "loaded." A spirit soured to a certain degree emits acid criticism as freely as a spoiled fish spreads its odor. The habitual nagger becomes so expert as to make each reply a retort and hot enough to burn; always able to find the open joint in the other's armor of innocence and make the prick smart the worse because unexpected. No house cat is so meek as to endure patiently for very long having the fur rubbed wrong.

One may innocently begin the practice as a play of keen wit which has a little sting in ts point.

When criticism putrifies it becomes nagging and it imparts its flavor to its victim. It takes a super angel to keep sweet under nagging. Any man who nags his wife deserves a dose of German kultur. Any woman who nags her husband ought to be married to the conscience of the ex-kaiser. If you don't know that you are a nagger watch the temper of the one where your conversation lands. If the symptoms turn black add honey to your speech or prepare for divorce proceedings.—Sunmaid Standard.

CONSERVATION

Written for California Cultivator
By Mrs. C. F. Casey

A helpful thing to do is to review one's expenditures and carefully segregate the luxuries from necessities, and an awful lot of things can be placed under the heading of luxury.

If an allowance is estimated for food, clothing, amusements (including reading matter) light, fuel and phone, and a tin box is kept for each separate fund and surplus banked at the end of each month with a credit for each in another box (paste the cover to this bank so it can not be opened unless absolutely necessary) it will be an incentive to see which bank will yield most coins in six months.

As for food, it's a sort of triumph over conditions if one can show a credit balance at end of the month on a small allowance. An inducement to study government bulletins and know how to make a ten cent lamb stew into a delicacy, and make rice au gratin, at a cost of about ten cents for a family of six, seem like a feast for the gods, also to plant a little garden.

As for clothes, how we all admire the soldiers in their uniforms. They always look well dressed for their clothes are of good material and are always clean. Not so many changes are needed if material is good and clothes well cared for, and instead of trying to make a stylish hat out of an old last summer dress, try running all the heels of new stockings with a slender silk thread, stitch a band of tape at top to prevent runs, and put a patch in the seat of Johnny's new pants so they will wear twice as long. Be careful that gas is not left burning when not needed, that lights are not left burning in rooms not in use, that there are no dripping faucets, and there may be a few extra pennies in this bank. One can often arrange to share a magazine subscription with a neighbor, and if you are in doubt about enough being saved to purchase Christmas gifts, try slipping a plant, or buying now a ten cent one from the nursery and keeping it growing for your best friend. It will be appreciated.

Martha Washington's will which was in the possession of J. P. Morgan, Sr., for several years, is now in the custody of Judge James Keith of the Virginia supreme court of appeals, to whom it was sent by the present head of the Morgan family with directions to make such further disposition of the relic as might be pleasing to the state of Virginia. This will terminate the suit begun in the federal supreme court for possession of the instrument. The will was taken from the Fairfax court house in 1862 by a colonel of the Union army, who rescued it from a bundle of papers about to be thrown into a fire. He kept it for 30 years and then gave it to his daughter, who, in 1905, sold it to the father of the present J. P. Morgan.



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A Schmeiser Leveler

of the "Giant" Type

WILL WORK WONDERS ON YOUR FARM



Moving immense amounts of dirt daily, and working on ground too tough for horses and Fresnos to tackle, SCHMEISER POWER LAND LEVELERS are now being used with utmost success by a great many ranchers, large and small—also by contractors—saving their owners time, labor and money.

WE SEND THEM ON THREE DAYS' TRIAL

So extremely simple, a child could operate one, as a simple twist of the wrist raises and lowers the bucket or holds it stationary, as the case may require.

YOU SHOULD
send for our LATEST catalog J-600 which is full of interesting information on LABOR SAVING DEVICES and machines for moving the earth.

Schmeiser Manufacturing Company

22 Mechanic St. Davis, Cal.

Manufacturers of

Sure Pop Almond Hullers and Separators, 3 sizes; McGarvin Fruit and Olive Graders, any size; Schandoney & Harrington Equalizing Hitches, any size; Diamond Special Harrows, Baker Clips, Clevises, and Schmeiser Portable Automatic Hay Derrick. We sell the Martin Ditcher and Grader.

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Los Angeles Market

Los Angeles, Feb., 19, 1918.

BUTTER

Produce Exc. Quotations.
Prices to trade 1½ to 2½c higher.
Cal. Extra Creamery 55
Dairy exchange prices last week on extras:

Feb.	12	13	14	15	17	18
'18 ...	52	54	55	55	55	55

EGGS

Exchange quotations. Price to retailers 2 to 3 cents higher.
Fresh extras 37
Case Count 36
Pullets 35
Dairy exchange prices last week on extras:

Feb.	12	13	14	15	17	18
'18 ...	40	38	39	40	40	37

LIVE STOCK

The receipts of beef cattle have been very moderate. Prices on the better grades of both steers and cows are holding firm at last week's figures. Medium and common grades are fully steady.

Hogs continue to arrive in liberal quantities but no improvement in the outlet for dressed pork is noticeable. There seems to be a very poor demand for all dressed pork products.

Lambs of good quality and handyweight are steady while other grades show an undertone of weakness. Sheep are not easily sold as the market for them, especially ewes, is very dull and draggy.

Prices paid for steers and cows are fully steady. Hogs are weak excepting for best grades. Lambs are steady. Mutton is weak.

Following are the live stock prices Tuesday in Los Angeles, f. o. b. packers' yards. Prices at country points are $1.00 to $1.50 per hundredweight less than those quoted:

Good steers .....13.50@14.50
Medium steers .....11.00@12.50
Common steers .....9.00@10.00
Good cows .....10.50@11.50
Medium cows .....8.50@9.50
Common cows .....6.00@7.50
Hogs No. 1 175-225 lb. .....16.00@16.50
Hogs No. 2 225-400 lb. .....14.50@15.50
Lambs No. 1 65-80 lb. .....16.00@16.50
Wethers No. 1 .....11.00@12.00
Ewes .....8.50@10.50

POTATOES AND ONIONS

These are the actual prices obtained February 19 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.

Supplies moderate. Demand and movement good. Little change in prices. Stockton Burbanks, quality and condition generally good; sacked per 100 pounds, extra fy., 2.60@2.65; fy., 2.50; ch., 2.00@2.25; Idaho Russets, quality and condition fair, 1.90@2.10; resorted 2.25; Oregon, seed stock, White Rose and Red Rose, sacked per 100 pounds, 2.75; Homegrowns, White Rose, mostly 2.75@3.00; few fy., 3.00; sweet: lug box best, 90@1.00; sacked, 3.00@3.25 per cwt.; poorer 2.50.

Onions: Demand and movement slow. Little change in prices. Stockton, sacked per 100 pounds. Browns, best 2.00@2.10; resorted, 2.25; White Globes, 7.00@7.50; Homegrown Green Onions, 1.50 per dozen bunches.

VEGETABLES

These are the actual prices obtained February 18 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz. 1.40
Brussels Sprouts, best, lb. 12

Cabbage, best, 1.00 cr. Demand good, little change in prices. Carloads f. o. b. usual terms. Early Winningstadt, California, crates 24.00@27.00 per ton, crates extra.

Carrots, doz. 50

Cauliflower: Demand good for good stock, little change in prices, quality and condition ordinary, carloads f. o. b. cash track stock in pony crates, 70@80; poorer 65@70 per cr.

Celery, cr.: Homegrowns, best, 7.00; poorer, 3.75@5.00. Demand exceeds supply, movement brisk. Prices slightly higher, quality generally good condition fair but short. Carloads f. o. b. usual terms, Golden Hearts in California crates 5@7 dozen bunches, best No. 1, 85@95 dozen bunches, crates extra.

Lettuce, cabbage cr., best, 1.25@1.50. Demand good, quality and condition good, but mostly small. Carloads f. o. b. cash. Iceberg, California, cr., Imperial Valley, 3½@4 dozen heads mostly 3.00, 5s-6s mostly 2.50@2.75, Los Angeles district.

Parsley, doz. 20
Peas, Tel. lb. .....14@15
Peppers, Chili, lb., best .....22@25
Bell, lb., best .....25@30
Pumpkins, lb., best 1¼
Radishes 20
Rhubarb, Strawberry, bx. .....2.25@2.50
Spinach, doz. 25
Squash—Hubbard, best, lb. 2

Tomatoes, Mexico, condition generally good; best 3.50 lug bx.; locals 1.50@1.75. Quality and condition poor, 1.75@1.85.
Turnips, doz. 30

HONEY

No demand. Practically no movement. No sales reported. Probably 10 to 12 cars still in the state. Beeswax: Few sales, cash to producer on farm 38 lb.

BEANS

Practically no demand or movement. Very few sales, warehouse cash to grower, choice recleaned sacked per 100 lbs. Limas, 7.00@7.50; Small Whites, best 7.00@7.25; Large Whites mostly 7.00; Henderson Bush, 7.00@7.25; Blackeyes and Teparies no sales reported.

GRAIN

Prices on local grain exchange.
Corn Yellow .....2.60@2.6
Wheat .....39.00@40.0
Milo .....2.42½@2.43
Barley .....2.00@2.01
Egyptian corn 2.6
Peterita 2.6
Alfalfa meal 20.5
Middlings 50.0

San Francisco Markets

San Francisco, Feb. 18, 1919.

BUTTER

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:
Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons 1½c to 2½c; 1-pound squares, in cartons 2c to 3c.
Dairy Exchange quotations, lb.:
Extras 55½
Prices extras past week and year ago:

Feb.	11	12	13	14	15	17
'19 ...	51	..	54	55½	55½	55½
'18 ...	52½	..	50½	50½	50½	..

Rcts. wk. ending Feb. 17, 356,900 lbs.

EGGS

Dairy Exchange quotations:
Extras 40½
Extra Pullets 36½
Prices extras past week and year ago:

Feb.	11	12	13	14	15	17
'19 ...	43	..	38½	40	40	40½
'18 ...	42½	..	42½	42½	45	..

Rcts. wk. ending Feb. 17, 14,789 cases.

POULTRY

Receipts light, trade slow.
We quote to producers, lb.:
Hens, 35@40; broilers, 50@55; fryers, 5 @55; old roosters, 24@25; young roosters 37@38.
Ducks, 29@31; geese, 29@31.
Belgian hares, live, 19@20.

POTATOES

Wholesale selling prices at wharf, cwt.:
Deltas, 1.50@2.15; Red Shimas, 2.3
Oregon Burbanks, 2.00@2.10; Gems, 2.0 @2.15; British Queens, 1.75@1.90; sweet per 100 lbs., 3.25@3.50.
Stockton. Demand and movement very slow. Quality and condition generally good, no change in prices, carloads f. o. b. usual terms, Long and Round White sacked per 100 lbs. fy., 1.75@1.90; ch., 1.5 @1.75.

ONIONS

Wholesale selling price on wharf, cwt.
Australian, Brown and Yellow..1.50@2.0

VEGETABLES

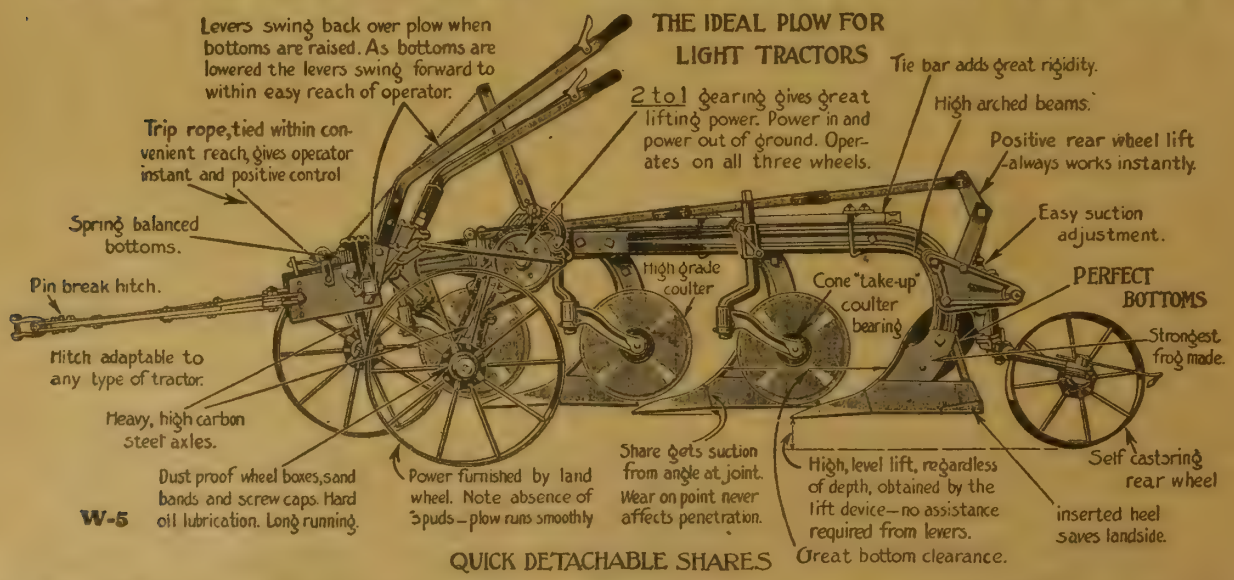
Wholesale selling price:
Artichokes, doz. .....50@1.0
Asparagus, lb. .....40@
Beans, String, lb. .....10@
Beets .....1.50@
Brussels Sprouts, lb. 6
Cabbage, cr., 65@85. Early F

The Tractor Plow with a Matchless Field Record

P&O

The Proven Favorite with Tractor Plowmen

Little Genius
Power Lift Tractor Plow



The P&O Little Genius is built for use with all types of light tractors. It is made in two and three furrow with 12 or 14 inch bottoms, and four furrow with 14 inch bottoms. A sturdy, steady plow that will give 100 per cent efficiency.

Write for catalog, "P&O Tractor Plows."

The P&O Line embraces all kinds of Light Draft Tillage Implements—Plows, Harrows, Corn Planters and Cultivators. Sold exclusively through retail implement dealers.

Parlin & Orendorff Co., Canton, Illinois

Parlin & Orendorff Plow Co., Portland and Spokane
Baker, Hamilton & Pacific Co., San Francisco
Dixon & Griswold, Los Angeles

Dutch, California cr., 15.00@18.00 per ton, cr. extra; wagonloads track side at country loading points. Early Flat Dutch, bulk per 10. lbs., 60@65.
Carrots, sk. .....1.00@1.25
Celery: Supplies heavy. Demand and movement moderate, quality and condition generally good, prices lower, street sales Golden Hearts in California cr., 8@10 doz. bunches, best 6.50@7.00; quality and condition fair, 5.50@6.00, quality and condition poor as low as 3.50 cr.
Cauliflower: Demand and movement slow. Cauliflower quality and condition generally good. Broccoli quality and condition excellent, prices lower, carloads f. o. b. usual terms pony crates, 80@1.00. Wagon loads track side at country loading points 50@60 dozen heads.



Contagious Abortion

Don't sell the aborters. Clean out the infection. Breeding animals are worth more than ever before. Control of Abortion is doubly necessary.

The Abortion infection causes Barrenness, Retention of Afterbirth and Calf Scours in addition to Abortion. Unless checked it is likely to run through your entire herd.

B-K is a powerful non-poisonous antiseptic —scientifically correct for this work. Used as a douche, it dissolves the slimy albuminous matter in the vagina and uterus, kills the germs, stops discharges and controls the infection. B-K is much more effective than lysol, carbolic acid, Lugol's solution, bichloride of mercury and coal tar disinfectants, all of which tend to coagulate or thicken the albumins.

Contagious Abortion is being successfully controlled in many herds by following our simple plan with B-K. Send for "evidence."

FREE BULLETINS: Send for our valuable bulletin No. 52 on "Contagious Abortion," also "145 Farm Uses" and our "Trial Offer." If your dealer does not have B-K send us his name.

GENERAL LABORATORIES
3159 So. Dickinson St., Madison, Wis.

B-K·B-K·B-K·B-K·B-K·B-K·B-K·B-K

Classified Liners

Continued from Page 263

TURKEYS

lant Bronze Turkeys — Gold Nugget strain. Prove their superiority by winning Gold Special Sweepstakes for best urkeys at the following great shows: rizona State Fair, 1916; Texas State air, 1917; California State Fair, 1917-18; Los Angeles Show, 1917-1918; Pacific Coast Land and Industrial Exposion, Oakland, 1918. An unequaled rec-d. Large turkeys can be raised at practically the same cost as small ones. Toms r sale that will increase size and im-ove any flock. I am the originator of e Gold Nugget Strain. J. Will Blackan, 607 East Third St., Los Angeles, alifornia.

ant Bronze Turkey Eggs. Can fill orders for latter April and May delivery. her eggs sold. M. M. Reiman, Planada, alifornia.

r Sale—Young Tom Turkeys, Mammoth Bronze. Also Bronze and Mammoth onze eggs. Robinson Turkey Ranch, n Dimas, California. Covina phone 902.

r Sale: Mammoth Bronze baby turkeys with hints as to rearing. Palo no Turkey Ranch, Box 503, Monterey, lifornia.

r Sale: Bourbon Red Turkeys.—Eggs r hatching $5.00 per setting of 13 eggs. ok youn orders early. Albert E. Bal-r, Martinez, California.

rkey Eggs—For sale, eggs from thoroughbred Mammoth Bronze Turkeys, bblers from the famous "Gold Nugget" ain. Carrie Andrews, San Gorgonia nch, Banning, California.

RABBITS

TOO MANY BUCKS

en choice New Zealand red bucks, 9 nths old, weights average 7 lbs.; fine or, brown feet, fat and vigorous; rth $5.00, will sell at $3.50 each. 1 New land red buck, 20 months old (father above 10), weighs 9 lbs., rich color, assive frame, at $6.00. This buck's ther took the blue ribbon at the P. P. E. One beautiful Belgian buck 10 nths old, weight 8 lbs., price $5.00. One ndard Belgian buck, 18 months old, ght 9 lbs., at $5.00. N. Z. Red Belgian Flemish does with young or bred, all ine condition. Ask for prices on what want. Every doe guaranteed good her. R. Daniels, Walnut Creek, Calnia.

Sale — New Zealand rabbits. None etter, with litters or without, always tock. Los Angeles Route 9, Box 485 mont Heights, West Athens. Burlinne Rabbitry.

v Zealands My Specialty—Stock nine eeks old $1. Four months $2. Six nths $5. With litter $7.50. H. Woodn Van Nuys, California.

ney in Rabbits
ise rabbits for us. Will pay $6.00 per . Send stamp for particulars. H. E. ion Co., Arcadia, California.

Sale — Rabbits, New Zealand and emish Giants, young stock. Paul ger, Watsonville, California.

Cucumbers, hothouses, bx. of 30..3.25@3.50
Egg Plant, lb., Southern .....20@25
Lettuce: Quality and condition wide range. Prices lower. Street sales: Imperial, Iceberg, California cr., 5@7 doz., 3.00; Los Angeles, Iceberg, California cr., best 2.25@2.50; Watsonville, best 1.50@1.75, homegrowns, quality and condition poor, small 1.25@1.50.
Mushrooms, bx. .....15@50
Peppers, Chili, lb., 20; Bell.....25@30
Peas .....10@12½
Pumpkins, sk. .....1.00@1.25
Rhubarb, bx. 2.50@3.50; local, lb..8@12½
Squash—Cream .....75@1.00
Marrowfat .....1.00@1.25
Hubbard, sk. .....1.25@1.75
Spinach, lb. .....3½@5
Tomatoes, Mex., cr. 3.00
Mex., cr. 3.00
Turnips, bag .....1.25@1.50

BEANS

San Francisco and common rate points: Practically no demand or movement. Quality and condition wide range, prices lower, warehouse cash to growers, few early sales. Choice recleaned sacked per 100 pounds free from rain damage, Limas 7.50@8.00; Red Kidneys, 8.50@10.00; Small Whites 6.50@7.75; Large Whites, 5.00@6.25; Bayos, 6.00@6.50; Cranberrys, 5.00@5.50; Red Mexicans, 5.00@5.75; Pinks, 4.50@5.50; Blackeyes, 3.50@4.00; Teparies 2.00@4.00. Imports: Oriental beans December, 16,749 sacks; January none, February to date 34,948 sacks.

HONEY

Supplies liberal. Practically no demand or movement. Buyers holding off. Cash to producer at country loading points, Water White, 18@19; Sage White, 18; Light Amber, 17; Dark Amber, 14@15 lb., Beeswax, 36@38.

SEEDS

Flax .....8@8½
Millet .....5@5½
Rape .....2½@5

HAY

Fancy Wheat Hay (light 5-wire bale) .....24.00@26.00
No. 1 Wheat or Wheat and Oat hay .....22.00@24.00
No. 2 Wheat or Wheat and Oat hay .....16.00@20.00
Choice Tame Oat Hay.....21.00@23.50
Other Tame Oat hay .....16.00@19.00
Wild Oat Hay .....16.00@18.00
Barley Hay .....16.00@18.00
Alfalfa .....16.00@19.00
Stock hay (in order) .....14.00@17.00
No. 1 Barley straw, bale.....50@80
Damaged hay (all kinds), according to condition.

Citrus Fruit Market

Los Angeles, Cal., Feb. 19, 1919.

The orange pickers' strike is practically broken and shipments have materially increased. Some f. o. b. sales are being made by independent growers at around $3.00 for "guaranteed free from frost".

The lemon market is looking up slightly with prices ranging from $3.50 to occasionally up as high as $5.00.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 6162, lemons 2025, total 8187. To same date last season; oranges 3897, lemons 935, total 4832. Central California this season; oranges 2938, lemons 336, total 3274. Last season to same date; oranges 1890, lemons 104, total 1994. Northern California; oranges 244, 2 lemons. Last year same date, 202.

AT THE MARKETS

New York: No sale, Lincoln birthday.
Cincinnati: 1 car. Nav. 3.45-4.00, lem. 3.40-4.00.
Boston: 9 oranges, 1 lem. Nav. 3.70-4.55, lem. 4.65-5.25.
Cleveland: 4 oranges, 2 lem. Nav. 2.00-3.95, lem. 2.30-4.05.
St. Louis: 4 oranges, 1 lem. Nav. 3.05-4.50, lem. 2.65-3.30.

February 13

Wire service entirely paralyzed by blizzards of Middle West.

February 14

Delayed wire sales of the 13th:
New York: Nav. 3.60-4.80, bloods, 2.20, lem. 4.15-4.95.
Boston: 10 oranges, 2 lem. Nav. 3.85-4.95, Navelencias, 4.30-4.50, lem. 4.35-4.65.
Pittsburg: 4 oranges, 1 lem. Nav. 3.00-4.60.

February 18

New York: 26 oranges, 6 lem. Nav. 3.50-5.30, tang. halves, 4.00, bloods. 5.20, lem. 3.05-4.35.
Pittsburg: 2 cars. Nav. 4.05-4.45.
Boston: 6 oranges, 2 lem. Nav. 3.55-4.65, lem. 4.25-4.75.
Philadelphia: 1 orange, 3 lem. Nav. 3.40-4.85, lem. 3.15-4.25.

PARTIAL LIST CALIFORNIA FRUIT AND VEGETABLE SHIPMENTS

From post card reports to the Los Angeles branch of the bureau of markets, report is made of the following shipment of cars of products from California for the week ending February 17.: Apples, 40; artichokes, 4; cabbage, 56; cauliflower, 210; celery, 30; dried apples, 22; dried apricots, 2; dry beans, 33; dried peaches, 24; dry peppers, 1; dried prunes, 26; lettuce, 60; mixed fruit, 1; mixed vegetables, 105; mixed fruit and vegetables, 10; mixed dried fruit, 10; dried olives, 1; onions, 5; potatoes, 86; raisins, 76; spinach, 30; sweet potatoes, 3; tomatoes, 7; Mexican tomatoes, 11; turnips, 2.

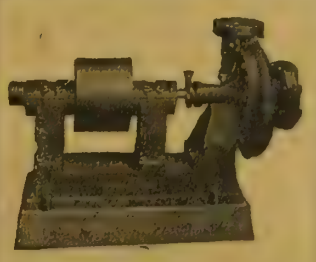
IMPLEMENT ASSOCIATION ANNUAL

The California Tractor and Implement Association holds its annual election of officers and hears reports from retiring officers at its regular meeting which is to be held in the Palace Hotel, Saturday of this week. The condition of the treasury, which shows a balance of something over $3000, indicates that the association is in a strong position and ready for its great spring demonstration which will be held within the next few months. Last year's demonstration was surely a great one.

WEATHER CONDITIONS

San Francisco, Cal., Feb. 15, 1919.

Stations	Rainfall—Wk.	Season.	Norm.	Temp.—Max.	Min.
Eureka	3.35	23.95	28.33	52	38
Red Bluff	2.52	20.59	15.85	62	40
Sacramento	3.42	13.25	12.51	56	40
San Francisco	5.10	19.77	14.71	60	46
San Jose	2.90	14.15	10.54	64	36
Fresno	.58	4.59	5.93	64	40
San Luis Obispo	3.82	12.93	12.45	64	42
Los Angeles	.48	5.67	9.78	64	44
San Diego	.55	5.87	6.34	64	44



American Horizontal Pump. Can also be furnished direct-connected to motor or engine.



American Vertical Pump. All lubricating done from surface. For deep well work.

American Centrifugal Pumps

—have easy flowlines, split casings so that interior of pump is readily accessible, improved hydraulic thrust balance, minimum of wearing parts, and many other advantages. A type and size for every pumping requirement.

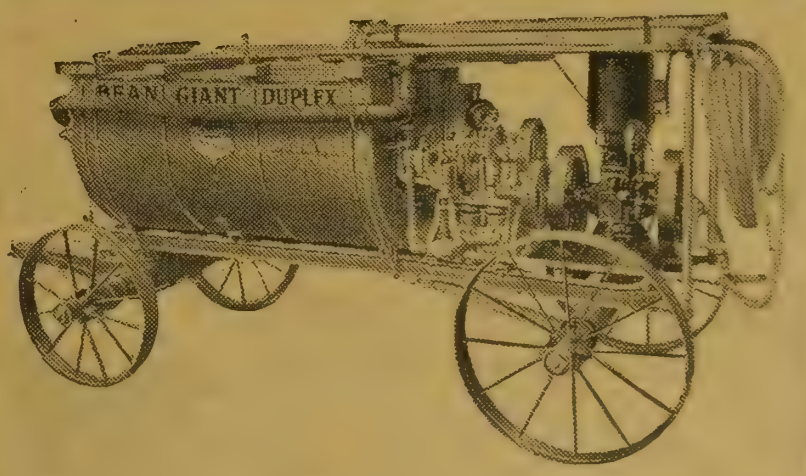
Write For Catalog

It illustrates and describes the entire line of American Centrifugal Pumps and gives valuable information for the irrigator.

California Hydraulic Engineering and Supply Co.

73 Fremont St. **San Francicco**
422 E. Third St. **Los Angeles**

BEAN POWER SPRAYERS



Why is the Bean the choice of growers all over this state, and throughout the fruit-growing world? Ask any Bean owner, he'll tell you the details about these

10 Big Distinctive Advantages

1. Patented Pressure Regulator, safest, most dependable, and best ever devised.
2. Threadless Ball Valves, which cannot rust, corrode or stick tight.
3. Porcelain-lined Cylinders.
4. Underneath Suction.
5. The Bean Pump, which has no stuffing box.
6. Eccentrics, which are used instead of cranks.
7. One-piece Steel Bedplate.
8. Bean Rocking Bolster.
9. Reliable Novo Engine, sturdy, reliable, without trouble.
10. Bean Re-filler, which fills a big tank in five minutes, or less.

THE BEAN SPRAY GUN makes the largest power sprayer a handy one-man outfit.

Bean Spray Pump Co.

222 W. Julian St., San Jose, Calif.

131 N. Los Angeles St., Dept. D-11, Los Angeles, Calif.

Address office nearest you.

BEAN SPRAY PUMP COMPANY,
222 W. Julian St., San Jose, Calif.
131 N. Los Angeles St., Dept. D-11, Los Angeles, Calif.
Gentlemen—Send me your catalog. I am interested in
POWER SPRAYERS
HAND PUMPS
ACCESSORIES
SPRAY GUNS
Name .....
Address .....

MAKE YOUR HENS LAY NOW

YOU want eggs to sell at these war-time prices, and you want to do your full part toward increasing the world's food supply.

Speed up the laying. Get your hens in finest laying trim by feeding Dr. Hess Poultry Pan-a-ce-a. It helps to make poultry healthy—to make hens lay—to make chicks grow.

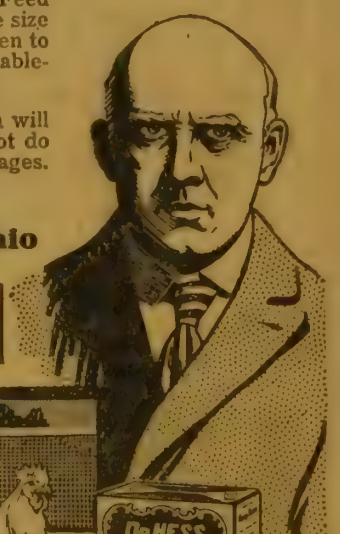
DR. HESS POULTRY PAN-A-CE-A

Mating time is here. Now's the time to put your hens and roosters in the pink of condition. If you want chicks that will live and develop rapidly, if you want early broilers, if you want pullets that will develop into early winter layers, then feed the parent stock Dr. Hess Poultry Pan-a-ce-a.

Remember, its the singing, scratching, industrious hen that lays the healthy, fertile eggs that will hatch into strong, livable chicks. Feed Pan-a-ce-a for results. Buy according to the size of your flock—a penny's worth for every hen to start with. A good rule for feeding is a tablespoonful once a day for every 20 to 25 hens.

The dealer from whom you buy Pan-a-ce-a will return every cent you pay him if it does not do what is claimed. 30c, 60c and $1.25 packages. 25-lb. pail, $3.50; 100-lb. drum, $12.00.

Dr. Hess & Clark, Ashland, Ohio



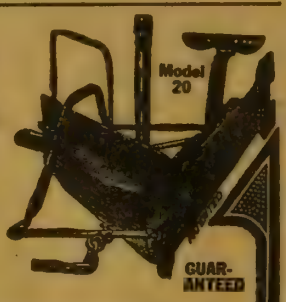
DR. HESS STOCK TONIC
A Worm Expeller. A Conditioner for Spring Work



Dr. Hess Instant Louse Killer Kills Lice

Easy Ditching

THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with



GUARANTEED

THE Martin

DITCHER, Grader and Terracer

Makes new ditches; cleans old ones; grades roads; builds dykes and terraces. Cuts alfalfa, Bermuda grass or sweet clover roots from ditch banks, without plowing. Does more work and better work than 100 men with old methods.



Made In Horse and Tractor Sizes

All steel. Reversible. Adjustable. No wheels, cogs or levers. More MARTINS now in actual use than all other farm ditchers combined. Warehouses and distributing points in nearly all Western States. Write for free descriptive catalog and nearest distributing point, together with list of MARTIN users near you.

Owensboro Ditcher & Grader Co., 1590 Wazee St., Denver, Colo.

Federal Farm Loans

Long Term **Low Rate**

All loans made on an amortization plan whereby the borrower repays the principal gradually with each interest payment.
Over three thousand satisfied borrowers in this district.
It will pay you to investigate.
For information apply to the nearest NATIONAL FARM LOAN ASSOCIATION or write direct to

Federal Land Bank of Berkeley
California

When writing advertisers, mention The Cultivator.

The Rooster and His Harem

Written for California Cultivator By Jean A. Koethen

SOMETIMES it seems to me that I have told all I know about chickens at least 2317 times, and that there cannot possibly be anything left to say. When such times come I am very glad to have some reader of the Cultivator come along and give me a hard jolt, like that in the following letter, reminding me that however many times I may have said this or that, there is always somebody who did not read or did not see or forgot. Besides, there is always the chance that the thing has not been said so many times as I imagine.

The writer of the letter, a Fresno woman, says: "I have 50 good, pure R. I. Red hens and pullets, but no rooster. I sold a splendid one about two months ago because he was related. By buying another one soon and penning him with my dozen best hens, could I expect a good proportion of fertile eggs? How soon after mating him would they be fertile? About what proportion of fertility could I expect? Is there any way of ascertaining fertility before setting? Would it pay me better to buy my hatching eggs? Do poultry breeders guarantee their hatching eggs fertile? Is there any difficulty found in keeping a flock of this many hens at home and about their business without a cock on the place?"

To put the last question first, after the fashion of a romantic girl reading the latest novel, what is the use of a rooster, anyway? Is he useful or ornamental or neither or both? Ornamental, he certainly is, if he is a good, pure bred bird; useful if eggs are to be fertilized, but only then. On many commercial egg farms nowadays one sees no cock at all. The owners of these farms prefer to buy their baby chicks ready hatched rather than feed and house male birds that are useful for only a couple of months in the year and expensive boarders the rest of the time. Hens lay just as many eggs, and are quite as contented without a male companion. If they have one, they must pay his board. The slogan "Swat the rooster" has been heard the length and breadth of the country, and twentieth century poultry keepers sit down and count the cost carefully before they decide that they must keep a male.

The question whether or not it would be less expensive to buy hatching eggs than to buy and keep a rooster depends entirely on the number of chickens that are to be raised in a season. If the breed kept were White Leghorns instead of R. I. Reds, and they were to be kept for eggs only, I should say, buy your chicks. But it is not easy to buy R. I. Red chicks of known heavy laying ancestry, and if they can be bought at all they are expensive. To be sure, one may go to a hatchery and buy Reds but what do you know about them? If they do happen to be the daughters and sons of heavy layers, it is pure accident, for in most cases those who do the hatching know nothing of the pedigree of their chicks. Your pullets may be greatly inclined to broodiness or not. They may be vigorous or weaklings. They may come from a strain that begins to lay early, and they may not. A few breeders do advertise chicks that you can depend upon, but they must be ordered early, and the supply is limited and expensive. If only a dozen pullets are wanted, three settings of eggs at $3 per setting should be sufficient to supply that number, and buying the eggs would be cheaper than buying a rooster of the same quality. If 50 pullets are desired, it would probably be cheaper to buy the rooster.

But here another factor enters. This letter was dated January 28, and it was already February when it reached me. If a rooster had been bought immediately, it would not have been wise to begin saving hatching eggs before the middle of the month. Tests have shown that eggs may be fertile as early as four days after mating, but the probability that all the hens in the pen would be laying fertile eggs within a week after mating is small. The birds have to have a little time to get acquainted, when a strange male is put in the pen, and two weeks is usually allowed before fertility can be depended on. Under these circumstances, it would hardly be possible to get any chicks out before the middle of March, and this is late to begin hatching Reds. Those hatched in March wiuld be early enough to develop into all layers, but April is too late. A few early pullets hatched from eggs purchased from a reliable breeder of bred to lay Reds might easily be more profitable than a far larger number hatched in April and May.

But I wish my friend had told me more about the rooster that was sold because he was related. We are beginning to learn that relationship is not such a bad thing after all, provided it is the right kind of relationship. If the rooster was the brother of the twelve best hens to which he was to be mated, the mating would not have been a good one, though there would be little chance of his being full brother to all the hens. As a matter of fact, such matings, while they are not recommended, and are not suitable for line breeding, often do turn out well. I had such a case in my own flock last year. A fine, vigorous Light Brahma cockerel, for lack of other hens to mate him to, was mated to his sisters, and the offspring were if anything of better exhibition quality than the parents. A mating of this sort should never be repeated, but in an emergency it seems to do no harm.

If, on the other hand, the rooster was the son of one of the hens to which he was mated, and the others were her sisters, you would have the best possible mating, provided the hens were worth breeding from. The mating of son to mother or sire to daughter, intensifies the characteristics of the parent bird in the offspring. If your hen is an extra good layer, mating her son, who is half her blood, back to her, intensifies her characteristics in the offspring. In other words, since her son is half her blood, his daughters, when he is mated back to her, will be three-quarters her blood. This is the best way to start a heavy laying strain, and there is no danger of bad results from inbreeding if the male and female lines are kept separate and the males of one mated to the females of the other. But the start must be made with good birds and the best only used for breeders.

One of the greatest forward steps that have been made in poultry breeding in the last twenty years has been the general acceptance of the principles of line breeding, as they were laid down by that pioneer poultryman Isaac Felch. We have come to see that the only way to build up a strain for either exhibition or laying is to breed within the flock. It may be necessary to bring in new blood now and then, in the shape of a vigorous well bred male bird, but he should be selected with great care, and his pedigree known, otherwise the characteristics we have been aiming at will be lost. Indiscriminate outbreeding may increase vigor but it breaks down and scatters the qualities that are the result of years of breeding. This is the great argument against outcrossing but it is also an argument against indiscriminate mating within the breed. To give a concrete example: The first Buff Orpington hens I owned were unusually free from broodiness. Had I known enough then to breed within the flock, mating a son of the best of these hens, which was almost a non-sitter, to the six hens, I believe I could have bred up a strain of practically non-sitting Orpingtons. Instead of this, I went to a high priced fancier, and paid $25 for a bird that spoiled my strain forever. With the wisdom bought at such a price I am now mating two R. I. Reds that go broody but once in a season to the son of one of them in the hope of building up a strain of Reds that will be content to lay without asking to sit too often.

The question of fertility is a big one and I can only touch the high points here. If a vigorous male mated in spring to a dozen hens there ought to be good fertility, other things being equal, but because we cannot always be sure of these other things eight or ten hens are usually preferred to twelve. A very vigorous male can easily care for twelve hens, but one is never sure of the vigor unt

fertility has been tested. Even with eight hens in a breeding pen there is no certainly that the majority of the eggs will be fertile. Some hens never lay a fertile egg. The breeder who wants to know exactly what are the possibilities of a given pen hatches the eggs of each hen separately. This may be done by putting them under different hens or in different compartments in the incubator. Such a test sometimes brings out surprising facts. One hen in the pen may lay infertile eggs, another fertile eggs that do not hatch, and a third fertile eggs that do hatch. We never know till we have tested the different hens in this way what proportion of fertile eggs we may expect. There is absolutely no way of knowing whether or not eggs are fertile before incubation is begun, but the eggs should always be tested between the seventh and the tenth day, when the infertile eggs show clear before a light. All reliable breeders replace the clear eggs that are tested out if they are returned. Any other guarantee is impossible.

STOP THE CHINESE EGGS

Chinese eggs are coming into California by the shipload since the war ended, says J. H. Barber, general manager of the Poultry Producers of California. To cope with the situation immediate action must be taken by all poultrymen. Manager Barber sends out the following letter to members of the association and all other poultry raisers in the state, setting forth the conditions now confronting them and urging direct action:

It is highly important for all California poultrymen to consider carefully the matter of Chinese eggs. During the war there was an embargo on the importation which prevented Chinese eggs from coming here so that none have been received during the past two years. The embargo has now been lifted and it is understood that Chinese eggs are already on the way here; in fact, the writer has been informed that they are offered for sale at 40 cents a dozen f. o. b. San Francisco, to arrive within the next two or three weeks.

There is little doubt that they can be sold at a much lower price than this and it is quite probable that this competition will be used to break down the price of our California eggs during the coming storage season just as they were used in years past.

At the present time there is no tariff on Chinese eggs and it is probable that all we can ask therefore is that these eggs shall be sold strictly on their merits and just what they are under their own name. We are going to ask that much of the United States treasury department.

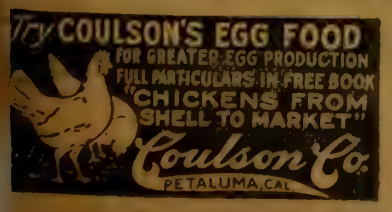
But the California poultryman will never have any effective protection against Chinese eggs, produced by Chinese cheap labor, until we again have a tariff on these eggs. We want every member of the association and every other California poultryman to write at once to his congressman and United States senator, calling their attention to this matter and asking them to work for a tariff on Chinese eggs sufficient to offset the difference between cost of production in China and cost of production here. It is surely not fair to expect American poultrymen to compete with the Chinese standard of living. A tariff of at least ten cents a dozen is necessary to give the needed protection.

Write to your congressman and United States senator at once, urging them to work for this tariff.

A company has been formed to build a cotton gin at Gilbert, Arizona.

Chickens Sick or Not Doing Well?

An Extraordinary Offer: Germozone is a standard remedy everywhere for chicken troubles, roup, colds, cholera, swelled head, bowel complaint, chicken pox, canker, not doing well, non-laying, etc. Now our proposition: If no dealer there handling Germozone and you will agree to use it and pay if satisfied, we will send you a 75c package without a cent in advance. No pay if not satisfied. Can we do more? And we will send free 5 poultry booklets. Write today.
Local dealers handling Germozone will do the same.
GEO. H. LEE CO., Dept. 418 OMAHA, NEB.



ALL-NORTHWEST EGG-LAYING CONTEST

The egg laying contest is a testing place for the poultry breeders of the state, and is also a testing place for those poultry raisers who want to improve their flock production. The contest, just closed, has clearly demonstrated that high egg production can be had from birds irrespective of altitude or other climatic conditions. The birds in the Second All Northwest Contest at the agricultural college at Pullman, Washington, came from places varying widely in all climatic conditions, as well as in available feeds. The high hen in the contest was a Single Comb White Leghorn, Number 251, which was bred, and is now owned by D. Tancred, of Washington. This bird laid 311 eggs during a period of 365 days. It is also a noteworthy fact that these birds made their records while kept in flocks of 36. The usual number of birds in other contests is from five to ten birds. It is more credit to a breeder to have a high record in a large flock than in a small one.

The high pen in the contest was a pen of White Leghorns, owned and bred by Paul B. Towne, of Washington. The five birds averaged 252.2 eggs per bird in the same length of time.

The second high bird was also a White Leghorn, Number 191, owned by J. R. McRea, Oregon. The third high hen was a Rhode Island White, Number 457, owned by H. J. Kingsbury, Idaho. These birds made records of 282 and 280 eggs, respectively. The second high pen of Barred Rocks, owned by the Oregon agricultural college, made a record of 1258 eggs, or an average of 251.6 eggs per bird. Rhode Island White pen Number 40, owned by F. W. Frederick, British Columbia, made a record of 1190 eggs, or 238 eggs per bird. The second high bird trapnested at the contest was a Rhode Island White, Number 588, alternate bird in F. W. Frederick's pen, which laid 291 eggs. Birds that have the breeding back of them can be taken from their own habitation without lessening their egg production, provided, of course, that the housing, feeding, and management of the birds are maintained along proper lines.

HATCH EARLY

Early hatched chicks almost invariable do better than late hatched chicks. They get a better start before hot weather sets in and are therefore less subject to disease and to fatal attacks from lice and other insects. As a result, a greater proportion of early hatched chicks are raised than is the case with late hatched chicks. As the matter of hatching and rearing pullets each year to replace a part of the hens in the flock which must be marketed is one of the most expensive and troublesome problems connected with poultry keeping, it is of the greatest economic importance that as great a portion of the chicks hatched be raised as possible. The greater the number of chicks raised from a given number of chicks hatched, the less is the cost per chick. Frequently the ability to hatch and rear chickens successfully means all the difference between profit and loss in the poultry business. Since early hatching has such an important bearing on the percentage of chicks raised, it is of the greatest importance and should by all means be practiced. The best time of year to hatch varies with the locality and climate. For information as to the most favorable time for hatching consult your county agent.

TO GET MORE EGGS

Do not overcrowd; do not keep the fowls in close, poorly ventilated buildings.

Do not keep immature or weak birds in the houses with the others.

Do not keep the fowls in houses that are infested with lice and mites.

Do not dope the fowls with concoctions that are said to make hens lay.

Egg producers of the Salt River Valley put into cold storage last year about 150 cases of eggs during the period of low prices. The results were so pleasing that about 1200 cases will be stored this season.

Yavapai County, Arizona, is to expend $3000 on a concrete apron or dip across the Santa Maria River.

The Pride of Petaluma



VENTILATING BROODER STOVE

Solves **VENTILATION**, gives about ten times more **WARM FRESH** air to chicks than any other brooder stove.
It's the only brooder stove with two **RADIATORS** hence compound **ECONOMY.**

It keeps chicks from crowding by proper application of heat, the only **SENSIBLE** way.

It's the only brooder stove using **CHEAP OIL TOPS** successfully as fuel.

It's **PETALUMA'S** latest sensation, and only brooder stove. It skins the bunch in **ECONOMY, Volume of VENTILATION** and **PROPER APPLICATION** of **HEAT. GUARANTEE—SIMPLY** send it back any time within 30 days' trial. If you don't think it beats anything you ever saw.
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are the only guarantee against bruised, galled and chafed shoulders. They are better than other kinds, being soft, springy and absorbent. They also make possible the continued use of a horse collar long after its worn condition would otherwise compel its discontinuance.

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Consists of wire staple with felt washer. It gives hook a firmer hold and prevents pulling off, even though fabric is weakened by long usage. Life of pad is thus materially lengthened. This is the greatest improvement since we invented the hook. Ask your dealer for Tapatco Booklet.

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SOLD BY DEALERS EVERYWHERE
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(3)
Pat. in U.S. Dec. 1, 1914
Pat. in Can. Dec. 1, 1915

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Don't wait until squirrels, gophers, prairie dogs and other ground pests wax fat on your land. Go for them NOW with Carbon Bisulphide—the quickest, surest and most economical exterminator!

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The RIGHT START -that's the big thing!



Yes—and come to think of it—the right start is *everything!* For it is in the first few weeks that these baby chicks lay the foundation of their lives—of their future egg production—*of your very profits!*

Baby chicks are little bits of life but, at the same time, each one represents a whole chicken. That's why it is profitable to save every one.

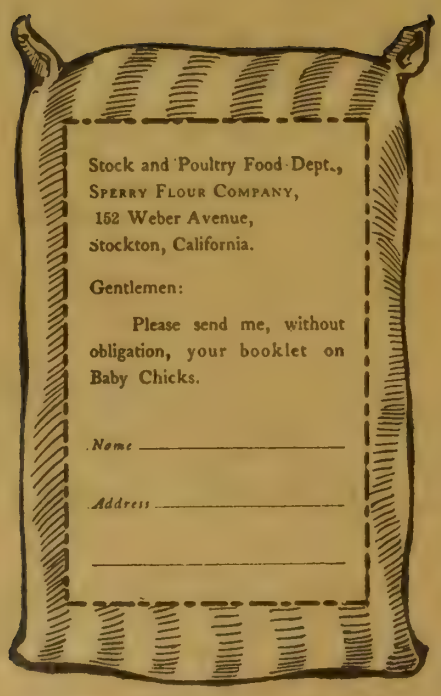
It is here that Sperry Baby Chick Feed comes as a signal help. For it supplies *all* the food values that Nature intended a growing chick to have.

No matter what your methods may be—you can depend on Sperry Baby Chick Feed to produce results. Why? Because it is prepared by experts to meet the demands of fast-growing bodies. It is clean, uniform, properly granulated and proportioned for the delicate organs of the baby chick.

Also—remember this: Sperry Baby Chick Feed is *absolutely gritless.* You don't have to pay a fancy price for shell and grit. (You should, however, add about 5% fine shell and grit, when using.)

Sperry Baby Chick Feed is a perfectly mixed ration based on the *practical findings* of the most successful poultry raisers. That's why chicken raisers are so enthusiastic about it! That's why professional poultrymen are making money by using it! And so can you!

The new edition of our booklet, "Makes Hens Happy", explains just how to feed baby chicks—gives you the advice of practical poultry experts—tells you how to boost your poultry-profits. No one knows so much about the poultry business that he can afford to overlook the big money-saving and money-making suggestions to be found in this booklet. Your copy is waiting for you—and it's *free!* Simply fill in the coupon—and mail TODAY!



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Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII | March 1, 1919 | No. 9



The New Watch on the Rhine



-It's a real handy Grain Bin

"I'M just independent enough," says one Farmer, "to want to hold my grain until I get ready to sell it. For that and other reasons I got my Calco Grain Bin.

"And now I hold my crop—as long as I see fit. Another thing, when the rest of the boys are scratching their long hair over the scarcity of labor during harvest time, I go right ahead. Don't need so many men, with the Calco Bin.

"I picked a good, convenient place in my field and put my Calco Bin there. It is big enough to store my entire crop of grain. I haul right from the harvester to my bin—just like putting my grain in a bank's safe deposit vault.

"My Calco Bin gets ahead of the high cost of harvesting; saves sacks, cheats rats and stays dry inside. Let it rain, I say, my crop is perfectly safe—until I get ready to move it.

"I'll say this:—everything else being in favor of the Calco Grain Bin, it is also a real handy grain bin. And I've already paid for mine out of what it saved for me last year."

and CALCO Products for Hogs are right

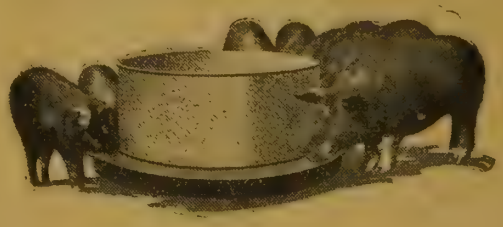
Calco Automatic Grain Feeder

Constant feed to hogs, without waste. Cast-iron bottoms and trough, rust-resisting iron bin. Capacities from 2 to 10 bushels. Send for circular.



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Continual fresh water, without overflowing. Safe, sane and sanitary. Get the price lists for detail description.



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California Cultivator

Vol. LII, No. 9 — Los Angeles: March 1, 1919 — One Dollar Yearly

Citrus Growers Institute at San Bernardino

By C. B. Messenger

THE orchardist who may have a hope that we are gradually working toward a solution of the questions of soil culture and general orchard practice had an awful shock if he attended the institute of citrus growers held in San Bernardino at the time of the National Orange Show.

A wonderfully fine program was given by some of the state's most practical orchardists and expert investigators, likewise by specialists of United States department of agriculture. Especially were questions touching upon chemistry and bacteriology of the soil left in most uncertain and indefinite shape. The specialists sometimes made definite statements, but hastened to qualify and provide for certain contingencies which might arise in case of the individual orchardist. Nor can this be otherwise, for there is no end to the different situations which may arise, for chemical conditions and the minute forms of life are a large factor in understanding soil conditions. We must all consider these varying conditions, and the grower who is seeking for a set rule is finding that, as one speaker said: "There is no set rule for anything." Farming involves a special study of every problem with consideration of all the environment. In no section of the world is this more true than in California.

Some of the most definite information was given by Prof. Shamel. He began by stating that his work was still connected with the problems of bud selection and how to produce trees which will grow greater and finer crops of citrus fruits, but that for this particular occasion he was going to ramble in other fields and discuss soil fertilization. Proving, in a sense, an alibi, he was in position to cut loose and state facts without any responsibility. A part of Mr. Shamel's address on furrow methods of applying manure is given on another page of this issue, but the practical application of methods as followed in some experiments he has observed will be given later, as will valuable material from others of the addresses.

The greatest interest of the convention centered in the soil culture discussions on the first day. The large assembly room was packed to the walls, while the second or last day of the institute, when marketing and fruit waste products were under discussion, did not call forth such general interest. Perhaps the grower feels that the marketing question is nearer solution, or at least is not pressing for immediate answer as is the problem of yellowing of leaves and the securing of soil conditions which will permit of greater production of larger and finer fruit. Even the matter of frost protection, which was most ably handled, called for less interest than did questions regarding the soil. These latter were handled from nearly every angle and in such a way as to give the grower, who uses what's above his collar to the best advantage, much valuable information.

The convention was called to order by Dr. H. J. Webber, head of the citrus experiment station, and W. M. Parker, president of the National Orange Show, gave hearty welcome, so hearty in fact that a resolution presented that the citrus institute should be an annual event in connection with the National Orange Show, was carried without a dissenting vote.

One excellent feature of the program was the fact that it was carried out almost to the letter; everyone scheduled to appear was there and on time.



Statue of Victory and Archway at Entrance

The National Orange Show exhibits are still housed in tents but the entrance is made most attractive by these ornamental structures.



Orange County and Her Princess of Victory

At the top of the globe, on which outlines of various continents are made of oranges, are shown a number of figures, of which Uncle Sam is one, vigorously engaged in kicking the kaiser off the earth.

Some Points

E. E. Thomas: Shorten your furrows; don't try to run water down furrows six or eight hundred feet long; 250 to 300 feet is better on most soils. Irrigate at longer intervals and give deeper and less frequent cultivations. In beginning irrigation don't flush out the furrows, in other words, don't send down a big head to the end, then shorten or lessen the supply, for the flushing is resulting in silting up and greatly lessening the power of penetration.

Dr. W. P. Kelley: Be sure you are not carrying alkali into your soil by the use of waters which carry too great a proportion of these deleterious substances. Some waters used for irrigation on California soils have been found to carry practically a ton of alkali to each acre of land irrigated during one irrigation season. Soils which are naturally porous and well underdrained may tolerate this treatment for some years, but there is ultimate danger to almost any soil in the use of such irrigating water. Other soils which are not underdrained and already contain a quantity of alkali may be totally unfitted for crop production after a very few years. Where such lands have already been injured the only solution is underdrainage. It is not so much the amount of salts in the water but in the amount the soil persists in holding.

Prof. C. A. Jensen: In experimenting in the mulched basin system the basin around the tree is to be preferred over the basin in the centers.

Dr. H. J. Webber: Rarely may we completely settle any question.

Foreman of the Citrus Station's Experimental Mulch Plant: The more I see of this permanent mulch basin business, the less I like it.

Dr. J. F. Breazeale: Farming by rule of thumb will never get you anywhere. Go home with something to think about. Intelligent opinion may be of great value. Fertilization is not a mechanical process, but a thinking process.

Dr. H. J. Webber: Be sure and register. Please write very plainly because there are some people who are desperately poor readers.

D. C. Lefferts: I tried the basin mulch system for three years; I spent practically nothing for soil culture in that time. I have returned to flat cultural methods because under the per-

Continued on Page 277



Magnificent Commercial Packs Were Shown

This is the Riverside exhibit at the National Orange Show. Unfortunately this picture was taken before the ribbons were placed—Perhaps this was fortunate because they were so numerous they would have hidden part of the exhibit. In addition Riverside had a most attractive Garden of the Allies feature exhibit.

Agricultural News Notes of the Pacific Coast

Northern California

The heavy snow fall in the Sierras assures plenty of irrigation.

A farm bureau center has been organized at Browns Center, Yuba County.

Napa County paid out over $1000 in coyote bounties during the last half of 1918.

A new farm bureau center has been organized at Garden Valley, El Dorado County.

The Nevada County farm bureau will hold its annual meeting at Grass Valley, March 8.

The Nevada County farm bureau has endorsed an anti-dog bill now before the legislature.

Harold Mills has been appointed squirrel inspector of the Linda district, Yuba County.

The Placer County Growers Association is building a large addition to its plant at Lincoln.

A cattle dehorning demonstration was held last week at Birchville farm center, Nevada County.

The United States reclamation service is planning an irrigation survey of lands in Yuba County.

The winner of the pig feeding contest conducted by the Shasta County farm bureau is a girl, Gladys Gill, of Ono.

There will be farm bureau meetings in Glenn County at Elk Creek, February 26; Grape Vine, 26; Larkin Center, 28.

President Turner of the California Bean Growers Association is in Washington in the interests of the bean growers.

A Solano County branch has been formed of the California Cattlemen's Association. B. F. Rush was elected president.

There is a large planting of spinach in the Rio Bonito district of Butte County. The plants are maturing satisfactorily.

The rodent control division of the state horticultural commission has completed a rodent survey of Contra Costa County.

Sutter County has a new farm adviser. He is Chas. E. Sullivan, who succeeds J. E. Stiles who has gone on a farm of his own.

A "tobacco boom" has struck Esparto, Yolo County, because of stories spread abroad of the great success of Greek tobacco growers.

Farmers of the Dry Creek section of Placer County have joined with the state horticultural commission in a campaign against ground squirrels.

Every member of the Nevada County farm bureau will place before his farm home a sign bearing the words, "Nevada County Farm Bureau, Member, 1919".

The California Cattlemen's Association objects to the proposed enlargement of Sequoia National park unless grazing is permitted within the new territory.

Eldorado County wants to keep its farm bureau and farm agent and is protesting against the cut in the appropriation for maintenace of farm bureau work.

Prof. J. C. Whitten of the pomology division of the University of California has been giving pruning demonstrations in different sections of Tehama County.

Central California

The clocks will be turned forward again on the last Sunday in March.

Several new alfalfa ranches are being established near Terra Bella, Tulare County.

Sale is reported of a large portion of the Miller & Lux Ranch in Santa Clara County.

Watsonville, Santa Cruz County, is still shipping some 60 carloads of apples every week.

The board of directors of the Terra Bella irrigation district has offered for sale $40,000 in bonds.

Hog day at the Tulare stock corrals resulted in 510 fat hogs being auctioned off at around $15.

The sheriff of Santa Cruz County is warning owners of live stock to stop grazing their cattle on the public highways.

California has more than 5000 apiaries, averaging 100 colonies each. In addition thousands of farms have a few hives.

Another large canning factory is announced for San Jose. The plant will call for the expenditure of more than $2,000,000.

Symons Brothers of East Bakersfield started in the sorghum business last season, making 12,000 gallons of syrup and threshing 900 sacks of seed.

At the two auction sales held by the Stanislaus County farm bureau at Tegner since the beginning of the year, $34,367.93 worth of hogs have been sold.

During the month of January 1889 cows were tested by the cow testing department of the Stanislaus County farm bureau.

During the past few weeks Monterey County pruning demonstrations have been held at Carmel, Greenfield, Prunedale, Aromas.

Orange growers of Tulare County met at Lindsay, Saturday, February 15, to talk over proposed orange standardization laws.

Considerable planting of lettuce were made in the Pajaro Valley this season, giving good crops and promise of a growing industry.

Fresno County has 1346 acres of apricots, 1666 of figs, 350 of olives, 1728 of oranges, and is drying and shipping peaches from over 24,000 acres.

Meetings are being held in Kern County, to interest growers in asking aid from the government in the storage of waters from the Kern River.

Horticultural Commissioner Buhn of Kern County estimates that 3000 acres will be planted to Thompson Seedless grapes in the county this year.

The plantings of cotton in Kern County last year were so successful that a much larger acreage is to be put in the coming season. Better ginning facilities are needed .

The horticultural commissioner of San Benito County finds considerable brown rot attacking apricot orchards. He recommends that all apricot growers search out affected wood and cut it out at once.

Fig growers who met in annual session at Fresno last week decided to organize a cooperative packing and marketing association along the lines of the California Associated Raisin Company. A committee of ten was appointed to outline a constitution.

Southern California

Holtville shipped out 500 cars of live stock during 1918.

The Yucaipa Apple Association has disposed of its entire pack.

The Tulare Cooperative Poultry Association conducted a $17,651 business in January.

The southern end of the state reports about 1,000,000 sacks of Lima beans still on hand.

California Lima Bean Growers Association has decided to admit more beans to the association pool.

One hundred and twenty-five tractor students are attending the tractor training school at Santa Ana.

Elsinore wants a new cannery, and last week was "cannery week", everybody boosting for the new concern.

Bean growers hope that with the opening of markets to California beans the worst of their troubles are over.

The lives of the parent navel orange trees at Riverside have been saved by inarching and bridge grafting.

The California Apricot Growers Association has won its suit against a Ventura County member for non-delivery of fruit.

Citrus growers are discussing Senator Kings bill which plans for frost insurance. "Economically sound" is the verdict of many.

Horticultural Commissioner Waite of Imperial County estimates alfalfa plantings will show an increase of 20 per cent over last year's.

More than 6,000,000 pounds of sugar beet seed were raised in this country last year. Before the war the production of sugar beet seed was almost at zero.

Bean prices continue to drop daily. Few shipments are being made. The United States Grain Corporation has promised to give its attention to straightening out market conditions.

The Carpinteria Walnut Growers Association held its annual meeting last week. The secretary's report shows that the association had handled nearly 1,000,000 pounds of nuts. L. T. Webster was reelected president, and J. W. Young secretary.

A very complete system of car fumigation at the Texas borders it is thought will keep the pink boll worm from the cotton of Arizona and Imperial Valley. In addition where cotton refuse is found imbedded in the cracks of cars freight is transferred to clean cars at the border.

Field Agent Kaufman of the United States bureau of crop estimates states that about 17 per cent of the navel oranges on the trees January 1 were rendered unmarketable by the freeze. The annual meeting of the state farm bureau will be held in Riverside, April 2. One hundred and fifty farm organizations from all over the state are expected to attend the conference.

E. R. Root, apiculturist of Medina, Ohio, and well known authority on bees, has been visiting California. He says: "Los Angeles is the center of the greatest honey industry in the world. Within 100 miles of Los Angeles are most of the great apiaries of the Southwest. This country has the longest honeymaking season I know of, and the finest grade of honey is made here from orange blossoms, sage and alfalfa."

The Coast and General

The state engineer of Arizona has just issued a report of the road work for the past two years. This contains nearly 100 photographs of the different highways of the state.

Construction is expected to begin upon the Willow Creek water storage dam, near Prescott, Arizona, early in the spring. This will develop about 15,000 acres of land.

"Feeding Yucca to Starving Cattle" is the title of a new bulletin just issued by the University of Arizona state agricultural college, and gives an account of feeding this plant to range cattle after being ground up with an ensilage cutter.

Entomologists of the United States department of agriculture last fall made examination of the cranberry bogs of the Northwest because it was feared they might have been infested with gypsy moth. They found the bogs in good condition with no evidence of the moth.

The Wenatchee district of Washington, comprising Chelan, Okanogan, Douglas and Grant Counties, shows a decreased acreage in fruit trees, amounting to 7000 acres. These figures are given from a recently completed orchard census by the district horticultural inspector.

A grange warehouse and store was organized at Monroe, Washington, recently, to be known as the Grange Warehouse Company of that vicinity. The purpose of the corporation is to purchase feed, groceries and other goods for its members at cost price plus five per cent to cover expenses, and to sell products which its members may desire to dispose of.

The congressional medal of honor has been awarded to Captain John H. Pruitt of Alhambra, Arizona, who is credited with having captured two machine guns, killing the crews and later taking 40 prisoners single handed. He is said to be the only Arizona boy so far to receive the congressional medal of honor.

The California state highway commission has endorsed the road from San Diego to Yuma as the preferable highway from Los Angeles to Phoenix. It is to be hoped that some plan will be perfected whereby Arizona and California will cooperate in the matter of building an interstate highway between these two states.

Dr. Richard E. Kunze, a noted scientist who has made his home near Phoenix, Arizona, for the past 20 years, died early in February. His home was called the "Cactus Farm." Dr. Kunze had made a specialty of the various cacti found in the Southwest and had furnished most of the botanical gardens of the world with different varieties of cacti. He was an international authority on the subject and wrote several scientific books and pamphlets.

T. T. Forman, a dairyman west of Phoenix, says that one year ago he purchased 44 tons of hay to feed his 40 head of cows and horses on his 40 acre ranch in addition to the feed produced on the farm. Last year he built a 140 ton silo, filling it from corn grown on the farm, and in addition grew eight acres of cotton and fed fully as much stock without buying feed. Mr. Forman makes his dairy pay him at the rate of $125 per acre for his 40 acre farm.

The Troubles of the Tractor Farmer

By J. B. Neff

FARM tractors have come to stay and are sure to become more popular with each succeeding year because they will be more carefully built and of better material and because the operators will be better educated along mechanical lines. However, there are many points of difference among tractors as well as among the users that will not be settled soon.

The man who is farming a large



J. B. Neff

number of acres, whether in grain crops or in orchard, will be able to determine the particular style of tractor suited to his needs with much less annoyance and cost, relatively, than the man with fewer acres, since the man with two or more tractors can always have some machines at work while the man with only one machine may see his land drying out and causing loss of crop which he is unable to prevent when something that he is unable to have repaired or replaced at once goes wrong on the tractor. The delay in this case is much more noticeable than when horses are used since, when one horse out of a team of three or four is temporarily disabled, the work may proceed at a slower speed and without any serious loss, but when a bolt gets out of a tractor all movement stops.

The farmer having a large acreage finds trouble in getting competent tractor operators, but he also has trouble in finding men who will properly care for a team or who, in the last few years, will drive a team at all. The smaller farmer, that is the one with less than 20 acres, finds a greater cost per acre in working a tractor than a team when he cannot operate his own tractor and is not able to get outside work to keep the tractor busy, but this shortage of operators will gradually disappear. The University of California is doing an excellent work in its tractor schools which are being held in various parts of the state for the education of tractor operators, and it will soon be possible for the uninitiated tractor owner to get expert advice from his next neighbor.

Cultivation is primarily intended to improve the mechanical condition of the soil, thereby allowing the moisture and air to enter and to conserve the moisture that has gone into the soil, by that means increasing the productions of the plants and trees, but there is more or less packing of the soil in all farming operations; either by the feet of the horses, the wheels of the implements or the wheels and tracks of the tractors. The tractors having more weight and power and hauling larger loads are the worst transgressors in that respect, and particularly so when heavy machines are operated on wheels with small bearing surface, whether with open or closed rims. A wrong impression is often left with the casual observer who sees the surface soil apparently well pulverized after a heavy wheel has passed over it, but if a shovel or a hoe is used to clear off the upper two or three inches a much different condition will be found. If a few trips of the tractor are made over the same path the condition will be much like a road, and if the soil was at all wet when the tractor was used it will be very difficult to get water to penetrate the soil a few weeks later.

Many of these conditions may be obviated by the careful farmer who knows the difficulties to be overcome, and successful tractor operation is like all other farm work, because the thinking, careful man succeeds where others fail.

IT TAKES A HEAD TO GET AHEAD

THE sturdy, independent farmer, the one who knows his business and attends to it, yet the one who is always seeking for the newest and best in his own calling, is the one whom the Cultivator prizes most in its effort to secure for its readers the most of inspiration and help in the difficult work of farming against the climate, systems of marketing and other handicaps.

Almost every mail brings to the Cultivator office manuscript offered for sale, touching upon almost every phase of farming — and sometimes no phase of farming—and these manuscripts are returned, even though sometimes possessing considerable literary merit. But when we can get the practical farmer to say something we feel that we are securing real value, and we are glad to say that for more than 30 years a great number of such men have given this practical help to our readers.

One of these men is J. B. Neff, who has given many answers to problems of Cultivator readers on such questions as growing and caring for walnuts, handling irrigation waters, alfalfa growing, etc. Mr. Neff cannot exactly claim that he is a native of California though he has been here for many years, the earlier part of his life being spent in the Sacramento Valley. For more than a score of years he has been a resident of Orange County, for many years conducting farm institutes in Southern California for the University of California, but he made his principal business that of raising walnuts, oranges and alfalfa. His 70 acres was entitled to an irrigation right calling for gravity flow from the waters of the Santa Ana. This has been supplemented by an efficient pumping plant on his own place, which has given a double right and practical independence even in dryest of years.

Mr. Neff has a practical hard-headed way of using his pencil to determine as to the profitableness of any step he is about to take. For instance, we may refer back to the Cultivator of December 21 in which he discusses with Cultivator readers regarding the pruning of old orange trees. In fact, we will quote a portion of that article.

"While very large oranges are usually sold at a discount there is seldom a loss on the large sizes and usually a very nice profit over the amount received for the same number of oranges of smaller size. If we take 100 boxes of size 176 to the box at $4.00 per box we have $400 and then the same number of oranges (17,600 oranges) in a size making 200 to the box we will have only 88 boxes which at the same price are worth but $352. There is a saving in picking, packing and boxes on the small size of about 50 cents a box, or $6.00, but after making this allowance there is a difference of $62 in favor of the large size while the difference in diameter of the two sizes of oranges is but one eighth of an inch. If we take size 176 at $4.00 per box and size 126 at $3.00 per box, with a difference of one-quarter inch in diameter, we have 140 boxes of size 126 worth $420, with a cost of extra boxes and work amounting to $20, or the same net amount as received for 100 boxes of 176 size.

When the price of 176 and 200 sizes is $3.00 per box there is a difference of $36 net in favor of the large size, and at $3.00 per box for 176 size and $2.50 per box for 126 size there is a net return of $20 in favor of the large size for each 17,600 oranges."

In last week's Cultivator we used the photograph taken with the Cultivator camera in which were shown two uprooted walnut trees both in perfect health but still not producing as liberally as they should. Their room was considered more valuable than their presence in the orchard, and we doubt not Mr. Neff figured as conclusively the profit or loss because of the removal of these trees.

Early in the orchard game Mr. Neff made every foot of his orchard count by growing intercrops, but more recently his orchard trees have not only used all this intercrop land, but during the past year have shown desire for more ground and air and sunlight, so, as shown by illustration on this page, some of these trees are compelled to give way to allow more nourishment to their fellows—and consequent larger crops. A look over these orchards shows them to make up one of the most successful producing California orchards.

Recently Mr. Neff has disposed of the greater portion of this ranch—which we believe we are justified in saying is a bit of good fortune for Cultivator readers, for the extra time now at his command will result in his giving us articles on practical farming topics. We have asked him to start with a few suggestions for the tractor user.

Mr. Neff became convinced of the need of more economical culture and felt that it could be secured through the use of farm power instead of employing as many horses as he had found necessary. One of the smaller orchard type of tractors was secured and his troubles began.

Some of these troubles will give the basis for Mr. Neff's practical talks and some of the compensations which his persistence made possible will likewise, we believe, give suggestions to other practical tractor operators which will aid in securing their successful use.

We ask for questions and suggestions from tractor users, for every user of the tractor is operating in a field where there is but little experience of others to guide. There are tractor schools being held in all parts of California, and the opportunity given by these schools and by demonstrations is being availed of, but the lessons which are learned in the university of hard knocks are sometimes more easily grasped and may be fully as informing as those gained from books and under the direction of the



Melilotus and Weeds to Turn Under

Mr. Neff, at right, discussing the matter of putting under the growth of Melilotus and native weeds which have been encouraged to cover the ground. The weeds will be allowed to grow another month, then if needed heavy irrigation will be given; deep plowing will follow.



It Sure Does Work Fine

Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

We recently heard an incident of a restaurant orchestra which was rambling through a medley of old-time songs and before they were aware found themselves playing "The Watch on the Rhine." Confusion reigned for a moment, then silence. But "A New Watch on the Rhine" is permissible. The American boys are already there, and if Clemenceau's ideas are carried out, they, or their like, will remain there. In any case Germany is learning some things these days, and we may teach them further lessons, especially how to mareh to the tune of "The New Watch on the Rhine."

This illustration is adapted from an illustration used by the Reclamation Service.

THE ANGELES

Mayor Woodman of Los Angeles has chosen Angeles as the name of one of Uncle Sam's larger merchant ships. The honor of naming this ship was won by Los Angeles in the fourth Liberty Loan campaign. During that campaign the city sold Liberty bonds to 246,001 people. This was by far the greatest number to subscribe in any city on the Pacific Coast. Los Angeles' quota of $41,666,90 was exceeded, the total being $48,886,350, 116.85 per cent of its quota.

San Francisco's quota of $107,876,-500 was exceeded, $110,836,150 being subscribed, her percentage being 102.74.

ORCHARD COOTIES

It is about the time of the year when letters of inquiry will be coming to this office containing tips of young twigs and a letter, almost impossible to decipher because of the smear of mashed aphis, with request for information as to what these insects are. These aphis, or plant lice, or, as they have recently been termed, "orchard cooties," are the pest of almost every crop which grows. They are very small, black or green or gray globular insects, infesting the tender growth of various plants, especially weeds, and busily engaged in sucking the life juices of the plants. On fruit trees they do much injury to young buds and more to the new growth. On the orange they cause a disfiguration and prevent growth on infested branches. It is probable that a serious infestation will appear this season. It should be met by early and persistent dosing with kerosene emulsion, tobacco extract or other spray.

BEANS BRIGHTER

The bean situation has stirred the country from the Pacific to the Atlantic. Note the eastward trend, for the agitation did start on this side of the continent, and even sleepy old Washington is getting active, as is indicated by private letters which show that there is appreciation of the fact that there has been serious discrimination against American bean farmers. It has been announced that government orders have been placed for 700 cars of California and Michigan beans, the order being divided fifty-fifty. This is hardly fair to California for earlier estimates showed more than 65 per cent of the present holdings in California.

However, something has been started and while prices are not advancing, in fact, in some cases still declining, yet beans are moving.

Now San Fernando Valley is organizing a bean pool. It is proposed to proceed at once with marketing and reduce the great storage in that valley, but more permanent organization is anticipated which will lead to advertising and in a general way advance the interests of bean growers.

FROST RISK

C. C. Teague of Limoneira Orchards has no doubt whatever of the profitableness of frost fighting campaigns which have been conducted on that ranch for many years continuously since 1913. The best of it is Mr. Teague has very definite figures to show the results of this campaign. The trouble is that many another orchardist who has attempted frost fighting has not had exact figures, neither has he followed methods which resulted so favorably as in Mr. Teague's case.

This season's cold and the more successful efforts made by many of the growers, together with the careful investigations which have been conducted by Dr. McBeth on the Leffingwell Ranch and by orchardists from the Pomona and Claremont district, the latter under direction of experts of the weather bureau, will induce more complete preparation before another cold season comes to the citrus districts. New smokeless heaters have been devised which, while costing a large sum, are most efficient—and nothing will answer for orchard production unless it is efficient.

We believe that before midsummer is passed our orchardists will be making a very definite campaign for better protection another year.

LEAGUE OF NATIONS

The United States Senate appears to be somewhat obstreperous as to endorsing the League of Nations idea. The Senate is somewhat peeved over various political moves of the president and it appears it may make the people suffer. Ultimately the wishes of the people will be made known to the Senate. The people know what they want and that is the ending of war. The League of Nations offers to do that thing. The League of Nations may not be wise enough to make entirely good, but so far as the best human judgment of this day goes it's the most forward step ever made.

The Western Congress for Peace held in San Francisco last week made an effort to inform the people of the Coast as to the necessity for instant and emphatic action.

In addressing the delegates at that meeting Ex-President Taft said:

"The question is not political. It is a practical problem that is essential to the peace treaty. President Wilson is a democrat and I am a republican, but our differences with respect to party matters end at the Atlantic Ocean and the Pacific Ocean.

"For four years we have been discussing how the world can make something out of this war. And now a plan has been adopted to be presented to this nation.

"We thought that war was silly and that nations could have neither good sense nor sound business ability nor common prudence if they could permit wars to happen. We thought we had too much sense to get into it—and then we got into it ourselves. I believe we regret now that we did not get into it earlier. I am offering no criticism, for our hindsight is always better than our foresight.

"Now what I want you business men to do is to use your foresight in this emergency instead of your hindsight. You cannot afford to ride with your backs to the engine, seeing only what has gone behind you."

FEDERAL QUARANTINE

The federal horticultural board of the United States department of agriculture is placing restrictions on the dumping in this country of a promiscuous collection of trees, plants and seeds regardless of the country they come from. This step should have been taken long years ago, for many of our horticultural troubles have come from these importations. It is not the fault of California for it has made a persistent fight to have the federal government observe some of the common sense precautions which this state has long observed. Notwithstanding the wisdom of this step is self evident it has caused a vigorous protest from the large importers. The department, however, is standing pat, and in calling attention to the reasons for the action says:

"With respect to this action as to European countries, it may properly be noted that this quarantine merely places the United States in more close alignment with (but still behind) the action long since taken by these countries relative to plant imports from the United States. France, Holland, Germany, and to a less extent Belgium, have long maintained practically complete prohibition of plant imports from the United States.

"With regard to the actual condition of nursery stock and other plants hitherto received from foreign countries, it is appreciated that the countries which have been most concerned in such exports to the United States have established inspection and certification service, which have very greatly reduced the amount of infestation on such exported plants. The conditions in this respect, prior to the passage of the plant quarantine act and the requirement of inspection and certification on the part of foreign countries, and the rigorous holding of these countries up to as high standard as possible, were deplorable. Brown tail moth nests and gipsy moth egg masses and numerous other insect pests in various stages were coming into the United States in quantity, and in one season thousands of such brown tail moth nests were found in nursery stock, particularly from Holland, Belgium and France. The improvement since the establishment of this service, as indicated, has been very great, but it has not by any means eliminated the danger."

DON'T SWEAR IN THE BARN

At the national dairy show last fall a herd of pure bred cows was exhibited by a breeder of the Northwest. As he had brought his cows many hundreds of miles he felt especially concerned regarding their care and attention. One of the measures taken to secure their contenment was the posting of a sign:

"No Swearing Allowed.
These are Contented Cows."

In explanation the manager said: "It is a stringent rule on all our stock farms that harsh language or unkindness toward the cattle is absolutely forbidden. Strange as it may seem, a cow is as responsive to pleasant treatment as a human being is. If you are mean to a cow she is pretty apt to return the meanness. Therefore we preach bovine optimism. We keep our cows contented and we find they give more and better milk."

Good ethics; better sense.

BETTER FARM HOMES

There will soon be returning from the front thousands of boys who are more or less incapacitated but still able to do much manual labor. Patriotic interest in their case on the part of all will make it easy for these boys to secure labor and at probably nearly standard wages.

The federal government through its board for vocational education is making an effort to reach this class of young men to prepare them for something better than mere manual labor. As noted above, these young men now find it easy to secure work, but as time passes and labor becomes more plentiful and the inability of the maimed man to give a full day's labor becomes more apparent, they may be set aside and the husky put on the job. Hence this effort on the part of the federal government.

Every wounded or incapacitated returned soldier should connect himself with the vocational board and get the help which the government stands committed to give.

We recently referred to the fact that six high schools in the state of Arizona are operating under the Smith-Hughes act. Noting the item, Mr. J. B. Lillard of the California state board of vocational education writes:

"In this connection, I am wondering if you would be glad from time to time to insert brief news items regarding the progress of vocational agriculture in high schools of this state. All of the educational forces at work have some ultimate purpose. Agricultural journals, university extension through farm advisors, club leaders and others, and vocational classes in the high schools, are all looking toward better farms, farm homes, and farmers."

Hence, state and nation are united in the making of better conditions for farming and farm homes.

To secure information regarding the federal board write Federal Board for Vocational Education, Washington, D. C.

CITRUS GROWERS INSTITUTE

Continued from Page 273

manent basin system I was unable to get water down in all sections of the orchard. As I plow down the checks, however, I find the soil in far better condition than it has been for several years before the mulching trial.

Dr. W. P. Kelley: Plowsole prevents effective distribution of fertilizers.

Prof. C. B. Lipman: Now we can recognize how ignorant we are as to the science of fertilization; there is no rule based on science other than the rule of trial.

Prof. A. D. Shamel: In Bahia there is no cultivation but weeds are mowed. But, bear in mind, every orange grower in that section is also a dairyman, and applies dairy wastes to his orchard. Orange trees in Bahia are plenty from 60 to 80 years of age.

Yellowing leaves indicate nitrogen starvation. Broadcasting stable manure may result in a loss of at least 50 per cent of its nitrogen.

J. A. Prizer: Don't trench so as to bury your manure too deeply. Some have put valuable manure in deep trenches, which has become waterlogged and refuses to decay. Drainage, air, warmth are necessary to make plant food in coarse manures available.

Dr. Thos. Forsyth Hunt: The problem which dominates French agriculture is depopulation. In 1885 the total births of France were 1,200,000, and in 1914 the annual births had fallen 700,000.

Old people thus constitute a larger proportion of the population than in any other country. In twenty years the generation 45 to 60 will be dead. The generation 20 to 45, which has been fighting for the liberty of the world, has been decimated. The generation 1 to 20 is too small to carry on successfully.

The great problem, therefore, of French agriculture, is to make human labor more productive. It is not strange that their leaders place emphasis upon the need of fertilizers to increase yields, upon the use of labor saving machinery to cultivate and harvest the crops. Both in France and Italy we were told that one boatload of phosphates from Africa would be equal to 15 boatloads of food from America.

With this problem goes what the French call remembrement. It is not uncommon for a farmer to own 25 acres in ten different parcels. In the devastated area, especially, but in all parts of France, this is the burning issue, in order that farm machinery may be used to better advantage. Some believe that remembrement is not desirable unless it is done voluntarily. Others believe it will not succeed unless required by law. In any case, it is a problem of great delicacy.

C. S. Milliken: California is planting more productive orange trees as the result of Mr. Shamel of the department of agriculture's investigations. Only buds from trees of known producing ability should be used.

Dr. I. G. McBeth: Much of the advancement which has been made by this great industry is due to practical methods of our citrus growers.

(Dr. McBeth has, however, with the aid of the laboratories of the Leffingwell ranch which is in charge of Mr. Allison, made investigations which will be invaluable to the citrus industry in the matter of frost fighting. With the aid of a small refrigeration box Dr. McBeth has determined the freezing temperature of Bloods, 29.3; Sweets, 29.66; Navels, 29.66; Valencias, 29.82; Lisbon lemons, 29.57; grapefruit, 29.03.)

C. C. Teague: The industry is to be congratulated in that it has the services of men of trained intellect like Dr. McBeth. In the matter of frost fighting don't wait till the damage is done; fire up quicker.

Willis Jones: The weather bureau has rendered service in assigning Mr. Young to make investigations of result of frost fighting efforts.

Thos. Crawford: The cull has brought practically no money when thrown on the market as a fresh fruit, yet has filled the market and prevented sale of good fruit. We are using 100,000 pounds of this low grade fruit daily in the manufacture of high grade marmalade and by this means we hope to return to the grower more than his cost of production.

Other addresses were made by W. M. Mertz, F. O. Wallschlaeger, G. Harold Powell and Prof. E. M. Chace of the United States Citrus By-products Laboratory of Los Angeles.

The committee responsible for the institute arrangements consisted of chairman, H. J. Webber; L. V. W. Brown, D. C. Lefferts, R. O. Price, J. H. Strait, Dr. J. P. Scott, J. R. Yerxa.

NINTH NATIONAL ORANGE SHOW

RIVERSIDE is all puffed up over her winnings in the Ninth National Orange Show. We saw a chesty individual looking at the vast number of banners which the county had won. It developed that he was County Commissioner Sharp, and we asked him if the county had taken anything. "Taken anything? We have taken everything excepting the tent and we'd have taken that if it were not staked down so tight." However, there were some other counties, communities and individuals who likewise took some of the honors.

The list below gives more explicit information as to the quality of exhibits, and as to the spectacular, the features were perhaps not so spectacular as in some of the former shows, but there were more finished artistic effects. Above all, it was shown that Southern California has produced, notwithstanding "the late unpleasantness", some wonderful fruit quality. The commercial packs of fruit were exhibited in attractive "banks" around the outside of the great tent, leaving the center for feature displays, and also leaving more opportunity for the public to freely circulate.

One particular feature was a table showing 92 distinct varieties of citrus fruits exhibited by G. W. Young of Orange County. These varieties included variegated navels, navel bloods, tangerine navels, Thompson Improved, Navelencias and even the Parson Browns and Louie Gim Gong, but not a single Washington navel.

The tent in which tractors, trucks, autos and varied industries were exhibited was more conjested both as to the exhibits being closly packed in and as to the number of people attracted. Fruit growers seem to wish the latest information which will lead to better or more economical methods. The smokeless orchard heater was in evidence and proved smokeless by running continually two of the heaters, there being no smoke visible, neither odor, and this inside the tent. Several tractors were exhibited, as were many trucks and trailers. There was a great showing of farm machinery but the space was too limited to permit of general implement exhibit.

A. G. Kendall was chairman of the awards committee and announced the awards as made by the judges, Messrs. A. W. Swain, A. W. Hart, and W. H. Johnson.

Sweepstakes and Box Awards

Washington Navel Sweepstakes: Sierra Vista Packing Co., $100; F. S. Hooker, $50; Associated Chambers of Commerce of Orange Co., $25.

Lemon Sweepstakes: Upland Lemon Growers' Exchange, $100; West Highland Citrus Association, $50; Riverside Chamber of Commerce, $25.

Grapefruit: L. V. W. Brown, $75; Imperial County, $25; Upland Heights Orange Ass'n, $10.

Artistic Rack Display, 40 boxes of oranges: Upland Chamber of Commerce, $50; T. E. Anderson, $25; Cucamonga C. F. G. A., $10.

Artistic Rack Display, 40 boxes of lemons: Riverside Chamber of Commerce, $50.

Artistic Rack Display, 40 boxes of grapefruit: Imperial County, $50.

Eight Boxes Washington Navels: Sierra Vista Packing Co., Victoria Avenue Citrus Ass'n, Mike Krieg.

Four Box Lots

Washington Navels: G. A. Hansen Fruit Co., Cucamonga Citrus Ass'n, Victoria Avenue Citrus Ass'n.

Thompson Improved Navels: West Highlands Citrus Ass'n, Sierra Vista Packing Co., L .V. W. Brown.

Ruby Bloods: F. Fabb, Sierra Vista Packing Co., Victoria Avenue Citrus Ass'n.

Seedlings: Riverside Heights Orange Ass'n.

Valencias: L. V. W. Brown, Victoria Avenue Citrus Ass'n, Thomas Valtz.

Sweets: Cucamonga Citrus Fruit Growers' Ass'n.

St. Michaels: Associated Chambers of Commerce, Orange County, F. Fabb.

Malta Bloods: G. W. Bell, I. K. Vernon.

Tangerines: G. A. Jensen Fruit Co., Upland Citrus Ass'n, S. E. Tisnerat.

Plate and Other Awards

Highest Ratio Soluble Solids to Acids: Highland Chamber of Commerce, $10; L. V. W. Brown.

Lemons: Riverside Chamber of Commerce.

Grapefruit (Seedless): L. V. W. Brown, Victoria Avenue Citrus Ass'n, Mt. View Fruit Ass'n.

Commercial Pack of Washington Navels: Upland Citrus Ass'n, $25; T. E. Anderson, $10; Fred Wilson, $5.

Commercial Pack of Lemons: Lemon Growers' Exchange, $25; T. E. Anderson, $10.

In plate exhibits the following were winners taking first, second and third in the order given:

Washington Navels: Miss E. O. P. Stokes, F. S. Hooker, E. A. Zumbro.

Ruby Bloods: Alta Loma, F. Fabb.

Malta Bloods: Alta Loma.

Sweets: Alta Loma, M. H. Randall, Cucamonga Fruit Growers' Ass'n.

Grapefruit: G. T. Henslee, Miss Stokes, Upland Heights Orange Ass'n.

St. Michaels: M. M. Randall, Cucamonga C. F. G. A., F. Fabb.

Seedlings: Randall.

Tangerines: G. A. Hansen, Cucamonga C. F. G. A.

Valencias: E. S. Bishop, Alta Loma.

Greatest Number Variety: Associated Chambers of Commerce, Orange Co.

Artistic Plate Display: T. E. Anderson.

Tray of 12 Washington Navels: Stewart Citrus Ass'n, E. A. Zumbro, Mike Kreig.

Tray of 12 Lemons: Lemon Growers' Exchange.

Cluster of Oranges: Alta Loma.

Cluster of Grapefruit: C. A. Haggerty, D. G. Whiting, J. W. Read.

Feature Display:

Feature without mechanical action by Chamber of Commerce or Citrus Fruit Ass'n: Redlands Chamber of Commerce, trophy, banner and $200; Rialto Chamber of Commerce, banner and $125; Pasadena Board of Trade, banner and $75.

Feature with mechanical motion by Chamber of Commerce or Citrus Fruit Ass'n: Riverside Chamber of Commerce, trophy, banner and $250; Associated Chambers of Commerce of Orange County., banner and $150; Associated Chambers of Commerce of San Gabriel Valley, banner and $75.

Feature by individual, firm or corporation: Pacific Electric Railway, trophy, banner and $100.

Feature by city, county or municipal corporation: San Bernardino city water department, banner and trophy.

Special banner award to the United States forestry service for its educational feature display.

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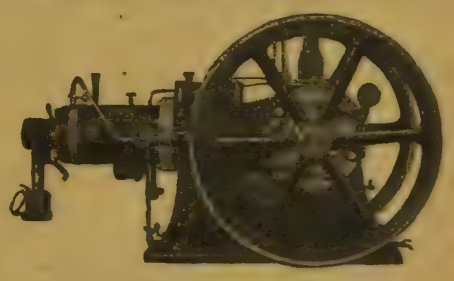
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THE hairspring is the brain of the watch. It is the most delicate tension spring made. For use in the small sized watch, 84,000 springs are made from one pound of steel, raising the value of that pound of steel from $5.00 to $30,000.

The Waltham hairspring steel is drawn through diamond surfaces, and for the smaller watches, to a third of the thickness of a human hair.

The Breguet, or over-coil (named after its inventor, a famous old French watchmaker), is used on every Waltham watch. The most important part of the complete operation in making a hairspring is the forming and tempering of this Breguet over-coil.

At Waltham, instead of being formed or bent by hand as a *separate* operation, the entire *completed* hairspring is *formed at one and the same time*, after which it is hardened and tempered *in form*—the invention of John Logan, American watchmaker, a genius who was a part of Waltham leadership in watchmaking. Indeed, Waltham is the only watchmaker that claims this perfect method of making the Breguet hairspring.

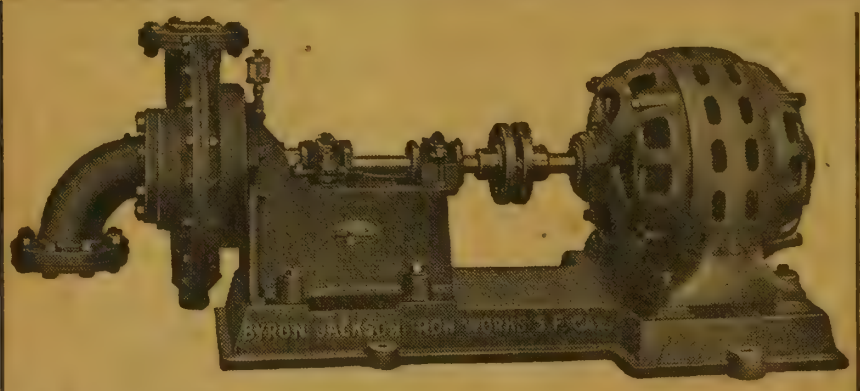
The foreign, imported watch movement has a hairspring that is first formed *in the flat*, then hardened and tempered *in the flat*. Then the outer coil is bent to form the Breguet over-coil, which, if the flat spring were *as hard as the Waltham*, and *properly* tempered like the Waltham hairspring, it could not be bent to *correct* form, and would be liable to break in the attempt.

Waltham superiority is in original method, secret process, unvarying quality of every important part of the watch—a quality that cannot be equaled by the foreign "hand" method of manufacture. That is why Waltham leads the world in standardized watchmaking, and why your watch selection should be a Waltham.



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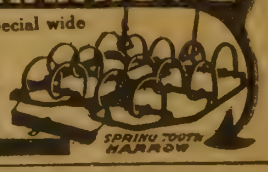
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Frosted Trees in Florida

This method of handling frosted citrus trees in Florida is given by Prof. J. J. Grossenbacher, plant pathologist, in a recent Florida Grower:

The general experience of growers since the freeze of February, 1917, has convinced every one that it pays to give freeze-injured trees special care at least during the first year following such injuries. It is a lamented fact that some growers practically abandoned their groves in 1917 because they thought that since the chances for a crop that year were slight it would not pay to fertilize and cultivate them as usual. Some of those groves will not get back to normal bearing even in 1919, and others will have the first crop of any consequence this coming season. In other words, this neglect will have cost the short sighted growers from two to three crops. Those giving the groves the usual care in fertilization, cultivate them as usual. Some of those groves will not get back to normal bearing even in 1919 and others will have the first crop of any consequence this coming season. In other words, this neglect will have cost the short sighted growers from two to three crops. This giving the groves the usual care in fertilization, cultivation and spraying during the summer of 1917 not only got some fruit in 1917 but a very full crop in 1918. Their groves are also in promising condition for a large 1919 crop.

In view of these facts there is but one conclusion and that is to give freeze-injured trees more than the usual care following such injuries, even though the entire crop is lost and money is not on hand, it pays to borrow the money to carry the grove through the year. It is to be hoped that next time we have a freeze growers who are hard hit will profit by this experience and bring back the groves in the shortest possible time. It does not pay to be misled by the idea prevalent among some people that trees in freeze-injured condition are prevented from making efficient use of extra fertilizer and cultivation. The past season's experience with the insect pests also shows that it is impractical to neglect the spraying during the next growing period following a damaging freeze. As a result of the neglect of spraying combined with the usual amount of young growth produced in 1917 white flies and scales were offered ideal conditions for rapid spread. During the next two or more seasons growers have to pay high interest on this neglect.

Make Tractor Care a Habit

By C. L. Butler

DO AS WELL by your tractor as you do by your horses and you will reduce your cost per acre. Tractors, large and small, can be operated cheaper than horses but not on neglect. It takes time to care for a tractor, but only a fraction of the time spent on horses. Why not be fair and admit it? The fact that the time spent on horses is an old familiar job—"chores" in fact—does not make it shorter. Get the same habit with your tractor and you will be ahead on sleep.

Horses aren't left hitched to the plow all night. Why then the tractor? Don't try to get by with saying that it does the tractor no harm. There is no tractor built that will last as long in the weather as it will under cover. Nor is there an ignition system that won't be injured by exposure to a tule fog, nor a radiator to heavy frost. Bring your tractor home every night or at least give it a canvas cover. Remember that part of this job of getting lower costs on your farm operations is up to the farmer. The manufacturer can't do it all. A little time will save a lot of money.

Stop and figure how much time is spent taking care of horses. Watering, feeding, bedding, currying, cleaning out the barn, harnessing—will take twenty minutes a horse to do it? That's two hours a day for a six horse team. It takes at least as long to get horses from the barn to the field as it does a tractor. Generally the horses have to come back at noon, besides. Spend as much time intelligently on your tractor each day as you do on your horses and it will always be ready and able to work. Before you leave it at night get it ready to start in the morning. Fill the crankcase with oil and your tank with fuel. If it is going to freeze during the night, drain your radiator and screw the drain plug back in. In the morning fill it with warm water so that it will start easily. Always start on gasoline and run on it until your motor gets warm. Heat the manifold, warm the spark plugs and the carburetor if the morning is real cold. All these things can be done in a half an hour once you get the habit. Make it a "chore." In the warm weather a lot of these things are not necessary. Spend another half hour if you need to tightening up nuts and turning down grease cups and you still have gained an hour on the time you would spend on horses. When the season's work is done your tractor, after being thoroughly overhauled and properly housed, can be forgotten till next year's work begins.

Give the devil his due. You will lose little time with your tractor. Suppose you do have a breakdown? Suppose the agent is slow getting you new parts? (And maybe it is his fault and maybe it is the express company's.) Grant all these things. You can still catch up to your work. In a pinch the operator can drive his tractor 16 hours a day, or you can work two shifts and use the machine the entire 24 hours. A tractor does not need rest. Like horses, though, it does need care. And the better the care the less the delay. A careful, well informed tractor man can take any good machine and work it every day in the season. In an 11 hour average day he can easily keep his tractor working in the field ten hours. One hour for care of the tractor—ten hours working it in the field. There is a tendency for the farmer to feel that he is getting a little bit out of the work class when he buys his tractor. Provided he knows his work he can truly work four hours to accomplish the same results, but he still must work.

When a man buys a horse and snags it he blames himself. When he buys a tractor and "snags" it he blames the agent who sold it to him. This is largely a matter of convenience. Regardless of where the fault lies, there stands the tractor agent with his future dependent on the good will of his users. Being both conscientious and keen, he does all in his power to satisfy the owners. Far be it from me to advocate a change of heart for the tractor dealer who is really serving his owners. But the greatest service that can be done the farmer is to teach him to serve himself. The mollycoddle who is born in luxury and raised on a fond parent's apron string seldom accomplishes much. The same goes for the farmer who does not learn to care for his own tractor.

When quitting time comes don't desert your tractor like a Boche leaving a trench.

AVOCADO MEETING POSTPONED

The midwinter meeting of the California Avocado Association, which was postponed because of prevalence of influenza, will now be dropped entirely. The next general meeting will be the regular annual meeting in May. It has also been decided not to publish the annual report for 1918 until after the May meeting.

Protection of Citrus Groves by Heating

By C. C. Teague in Address Before Citrus Institute at San Bernardino

WHEN I was asked to discuss frost protection at this meeting, I was in doubt as to which phase of the question could be most profitably considered. Types of pots, frost fighting campaigns, care of equipment, etc., have been so thoroughly discussed by so many competent men at conventions, and in the press, all of which information is available to him who will seek it, that anything I might say along that line would only be a repetition. Therefore, I have decided to briefly discuss the fundamental questions, "Does frost fighting pay?"

In a recent article in the Cultivator the author discusses the question from an insurance standpoint as follows:

"When the frost fighting is actually on, we have well toward $60 per acre per year overhead.

"Frost loss, unlike fire loss, may not be entire. That is, presumably bearing trees will not be killed by any 'spell' of weather we may have in California. Also, presumably the loss of fruit will not be absolute. But, assuming that the fruit might be all lost, as was the case in most orchards in 1913 and that the bearing capacity of trees for a year or two may be affected, an arbitrary figure of $1000 annual risk may be taken. That figure, probably, is altogether too high, but in that case the annual overhead frost fighting cost is nearly six per cent on the risk. This is prohibitive from an insurance man's standpoint."

It seems to me that the author overlooked one important factor which caused him to draw a wrong conclusion, namely, the factor of risk.

The rates of fire insurance and life insurance are based upon experience and mortality tables. Perhaps an owner might not think a six per cent rate too high if he knew his house was going to be burned down every two or three years. There seems to be a growing sentiment against protecting orchards from frost. Some have concluded that the great amount of labor required to light the pots and to care for the equipment, the loss of sleep watching thermometers is not worth while and are either not putting their equipment out in their orchards or are selling it.

I visited a few weeks ago two full bearing lemon groves that were equipped with a good seven gallon oil pot to the tree, none of which had been lighted during the late unpleasantness. The trees were loaded with lemons, all of which were frozen so badly that none will be shipped. Every grower must decide for himself whether his experience in his particular location warrants him in taking the risk without protection. I occasionally hear a man say, "These frosts only come once in twenty-five or thirty years, and I figure that it is cheaper to take my loss when it comes than to prepare to fight." Have we forgotten that California has experienced four rather years?

1911-1912—Quite serious in many parts of the citrus district including Pomona, Rialto, Riverside and San Bernardino.

1913-1914—Disastrous to nearly all of California. Very few districts escaped without serious damage.

1916-1917—Serious in Central California.

1918-1919—Thirty per cent of the crop damaged. Twelve to fifteen per cent total loss.

Question—"Is the six per cent rate mentioned by the Cultivator too high for the man who has lost a considerable portion of his crop during these cold years?"

I happened to be present recently when one of our large citrus growers was asked the question by another, "Does it really pay to fight frost?" The answer was, "I have yet to meet a man that is real sure that he is doing any good." I was much surprised at this answer, and although he was a man whom I have known well for many years, I took occasion to reintroduce myself to him in order that he might meet at least one man that was sure that it does pay to fight frost, and that it has paid on the rather large extensive citrus grove of which he has charge. I am not surprised that some get the impression that it does not pay to fight frost after visiting groves that are equipped for fighting and finding the fruit partially or wholly frozen. This frost fighting is serious business. It requires thorough equipment, plenty of labor, organization, executive ability, good judgment and eternal vigilance. All of these factors are necessary to success.

Our properties are equipped with electric alarm thermometers with wires running from the coldest points in the grove to the bedroom of the assistant manager and foreman, which give the alarm when the danger point is reached. In addition, night watchmen are employed who keep a constant watch on temperatures.

The topographical conditions of California are so varied that weather predictions cannot be relied upon as a guide to action. Every locality must through some sort of organization be prepared to do its own watching. I learned of a grower recently who has devised a brilliant scheme of watching temperatures. His thermometer hangs against his bedroom window where he can switch on a light and watch it from his bed. This is almost too easy. Conditions in the groves vary so much from night to night that I fear a thermometer hanging on a bedroom window protected by the overhanging of the roof and by the building itself would not be a very accurate index of what is taking place in the grove. There is an old saying that the proof of the pudding is the pulling of the string.

Cost of Frost Fighting for 220 Acres—Per Acre

	1913	1914	1915	1916	1917	1918	Total 6 Yr. Av. Per Acre
Labor (Man and Horse, filling and lighting pots per acre	$45.70	$10.55	$10.65	$21.45	$20.60	$22.15	$21.85
Oil	38.35	12.70	4.20	23.20	26.15	17.75	19.55
Depreciation	19.30	19.10	17.40	15.60	14.30	13.00	16.45
Interest	17.85	17.45	15.50	13.40	13.45	11.25	14.80
Upkeep	11.55	7.95	7.65	1.10	5.65	3.70	6.25
Total	$132.75	$67.75	$55.40	$74.75	$80.15	$67.80	$78.90
No. Times Fires	19	2	7	20	27	21	



The '49er says=
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Just tell us "send me your book," and we will mail you our valuable guide to blasting, "Better Farming with Giant Farm Powders."

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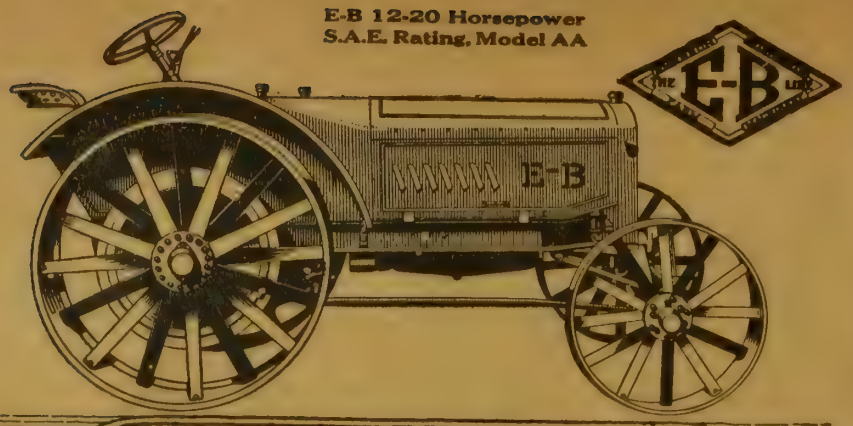
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NO overheating even though you work the E-B 12-20 AA Tractor all day in tough going. That's because it has unusually large water gasket space, a gear-driven fan and a high grade radiator of ample capacity. When other tractors of the same rating become overheated and stop work, this tractor is always ready to go ahead.

½-Ton Lighter Than The Average 12-20

Weighs 1000 pounds less than ordinary tractors of its rated power. Constructed almost entirely of steel. Furthermore, the E-B exclusive transmission on Hyatt Roller Bearings insures smooth, *complete* application of power.

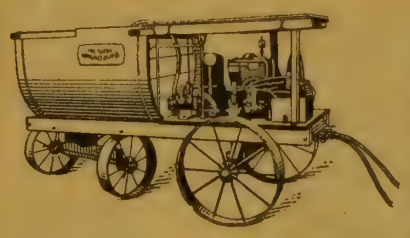
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The rating of 12-20 is given to the E-B AA by the Society of Automotive Engineers—the most conservative rating known. As a matter of fact, this tractor possesses 25 per cent surplus power for emergencies—hard spots, hills, etc.

Any one of the family who can run an automobile, can operate an E-B AA. Its auto-type control and remarkable lightness for its power makes handling easy. All gears, including drive, run in oil and are absolutely protected from *all* dust, dirt and sand. Every part of the motor's driving mechanism is dust-proof enclosed. Ask your E-B dealer for complete facts.

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It has sufficient capacity for two lines of hose. It has plenty of power for high pressure effective spraying. It is little in first cost, engine power, pump capacity and ability to do successful spraying. We believe this is the greatest small power sprayer ever manufactured, and placed on the market with phenomenal success in every fruit section in United States and vouched by thousands who own the Famous Hardie Junior. Equipped with one and one-half horsepower engine, battery ignition, 150-gallon tank with mechanical agitator, capacity of four gallons per minute with a steady working pressure of 200 pounds, and two 25-foot of the best spray hose, fitted with spray rods and nozzles; 4-inch tire truck with pole or shaft.

ALL FOR $300. DELIVERED ANYWHERE IN THIS STATE.

If truck is not needed, deduct $55.00.
These prices are subject to change without notice. The wise buyer will place his order now.
This low price is made possible by big production.
If you are interested in other types and sizes of the HARDIE POWER SPRAYER write us for the big spray catalog, and learn why we can offer more spray pump value than any other spray pump manufactured.

The Hardie Orchard Gun Is Now $12.00

none better, all guns are guaranteed to satisfy the user or their money refunded. The Hardie spray hose is the safest hose to buy.

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FRENCH on Apricot, 6 to 8, and 4 to 6 ft.
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All budded and selected bearing trees.

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Gilroy **California**

The following is a statement of the cost of fighting frost on 220 acres of the Limoneira Ranch, being the portion that has been protected from many serious frosts within the last seven years and upon which an accurate record has been kept. This cost statement includes interest on investment in equipment, depreciation, care of equipment and labor, and shows the number of times that some of the pots were lighted each year. Probably the property may be justly called about an average of the citrus producing sections of California and includes some flat, cold acres which get more or less frost every year, and extend to higher levels which seldom freeze except in years like 1913.

(See table on preceding page.)

In 1913 the company shipped 317 carloads of lemons which sold for $2316.46 f. o. b. cars California or an aggregate of $734,318.07, and had the grove not been protected, there would have been practically no fruit shipped. As an evidence that there would have been little if any fruit shipped, a portion of the grove on higher ground and freer from frost, which was not protected, was frozen back almost to the trunks of the trees, and not a lemon harvested from this are . And five year old trees were frozen to the ground. A temperature of 20 degrees above zero was recorded for eight consecutive hours within 200 yards of the protected area and where even the small lemons and blossoms were saved. The 220 acre protected area, the cost record of which has been herein given, has been and still is one of the most profitable lemon groves in the state of California, and I have no hesitancy in stating that in my judgment without protection the business would not have been worth engaging in since 1912.

We have come to look upon frost fighting as just as much a part of our expense account as fumigating, cultivating and picking fruit. If the people of the Pomona Valley prefer to depend on the tourist crop for their support rather than their citrus crop, this is their own affair. I am quite certain, however, that if they eliminate the oil pot from their citrus groves that the citrus business in that vicinity will not continue to be very profitable. True, there has been considerable improvement in oil pots in the last few years. Types have been developed that give off much less smoke than the old ones, but even these cannot be operated so as to be entirely smokeless during heavy freezes; and owing to the great increased cost of labor and material, their cost is almost prohibitive. The most approved types cost about $7.00 each.

In conclusion I will say that there is no one connected with our organization who doubts that it does pay to fight frost on the Limoneira Ranch, and I would as soon think of discontinuing the practice of fumigation or irrigation as I would frost fighting.

How Shall We Fight Pear Thrips?

Written for California Cultivator By Ralph deOng

THRIPS caused considerable injury in the Santa Clara Valley last year in March. Now the orchardists are planning a survey to determine what results are being accomplished by various orchard practices in checking this loss. The movement was inaugurated at one of the meetings of the deciduous fruit short courses held in Santa Clara County by the University of California.

It has been proposed that the local fruit associations shall make a thorough investigation of as many orchards as possible, where thrips have caused damage. Full notes will be taken as to the amount of injury which this insect causes, what measures are being taken to check it, whether by sprays or some variation in cultural methods, such as irrigation, or growing of cover crops or by fertilization. Notes will also be taken as to variation of soils, susceptibility of different varieties of fruit and other natural conditions which might have some bearing on the subject. In this way it is hoped to correlate these various factors which might have a bearing on the subject and perhaps shed some light on this perplexing question. There are so many views held on this matter, and with apparent reason, that it is only by a careful survey of a large number of orchards that it is going to be possible to determine any facts or draw inferences. The consensus of opinion of the orchardists present at the above mentioned meeting was that the spray programs thus far offered to the public were inadequate, this applying more particularly to the prune than to the pear, for with the latter fruit it is still customary to spray for thrips. Many orchardists do claim, however, that though sprays for the prune are not practical, certain cultural practices such as fall irrigation, the growing of cover crops, fertilization and the plowing of the orchards, have an important bearing on the subject.

Much work has been done in recent years by the government officials, the University of California and the county officers in cooperation with the orchardists in an effort to control this insect. The federal government maintained an entomological station at San Jose for years where a careful study was made of the life history of this insect and of control measures which might be applicable. For local horticultural officers this problem has been a puzzle which has cropped up intermittently for years. Much the same situation is found in the state of New York, small localities in the pear growing regions being constantly subject to severe loss, although not injurious every year.

The distillate-tobacco spray for thrips was generally advocated by the federal entomologists. Extensive experiments were carried on by these men in Santa Clara and Contra Costa Counties both in prune and pear orchards. In addition deep fall plowing was advocated and some effort made to determine the value of fall irrigation and also of fertilization. A heavy lime spray was introduced by E. L. Morris, county horticultural commissioner of Santa Clara County. This spray was finally changed to include crude carbolic acid. The various suggestions as to sprays and cultural practice have been tried out more or less thoroughly by the prune growers but as yet no program has been adopted as entirely satisfactory. But as orchardists are still subject occasionally to rather severe losses, it seems worth while at this time to take some concerted action to determine what measures should be taken to protect our orchards.

Spraying as a remedy for thrips in pear orchards seems much more satisfactory than when the same work is done in prunes. These varying results

may perhaps be due to the manner of blooming or to the total number of flower buds present. A healthy prune tree will bear a larger number of flowers than will a pear tree and hence can stand a larger percentage of loss and still set a crop. But aside from any theories as to why it is so, there seems to have been a larger amount of success attained by the application of either spray to pears than there has been to prunes. In Contra Costa County and in the pear districts of the Sacramento River especially the distillate and tobacco application has become part of the regular spray program of many orchardists. In the state of New York the tendency seems to be to favor the heavy lime application, the preference seemingly being a lime-sulphur spray with the lime increased to 60 or 70 pounds per 100 gallons. This can be applied just prior to the emergence of the main body of insects and still be effective, while the objection commonly made to the other type of spray is that there is such a very short time during which it can be applied to advantage.

If possible the survey should also be extended to include the pear orchard where spraying is now practiced, not only to determine the value of the spray practice now used but also to bring out, if possible, the reason for the apparent greater susceptibility of the pear.

If the use of cover crops, fall irrigation and other cultural measures are the only ones which are still practiced in prune orchards it seems that they are worthy of further investigation. At least we know that they are building up the vigor of the orchards and thus making it more resistant to the attack of the insect. It is also possible that early or late plowing may have something to do with the emergence of the thrips. We may also find that the presence of cover crops will have a bearing on this subject. This might apply especially to a cover crop that is blooming at the time of emergence. This insect being largely a flower feeder, it is possible that the bloom of some cover crops might attract the earlier appearing insects and thus delay their entrance into the cluster bud when they are first unfolding, this stage being the most susceptible of any through which the flower passes.

Any control measures which are attempted in the orchard are of course subject to a number of complicating factors, such as the condition of the tree and character of the soil, moisture conditions and the number of insects present. In order to get the proper valuation of any method, then, it is necessary to compare the same treatment in a number of orchards and then after making allowances for varying conditions, it should be possible to form a fairly accurate opinion as to what measures are the most satisfactory.

A survey of this type, which would be of any value, should be under the direction of one person or an association and should extend over as wide an area as possible. The same parties should visit all the localities where observations are desired rather than trust to the observations of the individual orchardist for only in this way can a comprehensive view of the subject be obtained. No two people judge alike and also there might be confusion in the minds of some orchardists as to the identity of different species of thrips, and finally, a larger number of reports will be made if a few people make it their business to cover as large an area as possible rather than for the individual to make the observations each one for his own ranch. This does not mean that the orchardists themselves should not assist in the survey or perhaps do a large part of the work, for perhaps there will be little if any means provided for meeting the expense of the investigation. But it does mean that the value of any person's judgment is influenced by the scope of his experience and the number of orchards he visits.

It may be that other localities besides that of Santa Clara Valley, which have been suffering from the attack of thrips, may also care to cooperate in the survey. This would be very desirable as it would not only extend the area under observation but would include different soil and climatic conditions. It would also furnish a comparison of tillage, pruning and other cultural operations. It is hoped that some one of the cooperative fruit associations or other bodies may take up the matter and assist in getting the movement under way in each community. The services of the county farm adviser or horticultural commissioner can probably be enlisted in the movement and also some aid be given by the University of California.

The work should include the determination of the relative amount of damage in orchards with or without cover crops, what crops are used, amount of growth, when planted, stage of bloom, whether the cover crop was irrigated in the fall or not, use of commercial fertilizers or manures, number of years such a crop has been grown and the date and stage of growth of the plant when plowed under.

Any information which the orchardist can give as to past experiences in the use of cover crops and their bearing on thrip injury or emergence should also be secured. The character of the soil should be noted, the customary time of plowing, the thrift of the trees and anything as to the general aspect of the orchard which might make the observation of value. Determine also whether any special measures towards the control of thrips have been taken such as spraying or special farming operations, the latter to include fall irrigation and plowing, pruning or fertilizing experiments or any other practice which has a bearing on the thrift of the orchard or the insect itself.

Prof. I. J. Condit of the University of California recently addressed a gathering of fruit growers at Wyandotte, Butte County. Prof. Condit recommended planting of Black Mission figs in that district.

ROULLARD SUGGESTS IMPROVEMENT IN GRAPE STANDARDIZATION

After a season of grape inspection Commissioner Roullard of Fresno County makes the following suggestions for improvement of grape standards and standardization activities:

In order to compel all packers and growers to assume the responsibility that should be theirs, that of fulfilling the standards prescribed, all packages should be marked with a guarantee by the packer that the fruit contained therein conforms to standard and grade.

Marking of containers should be more accurately and definitely prescribed by law.

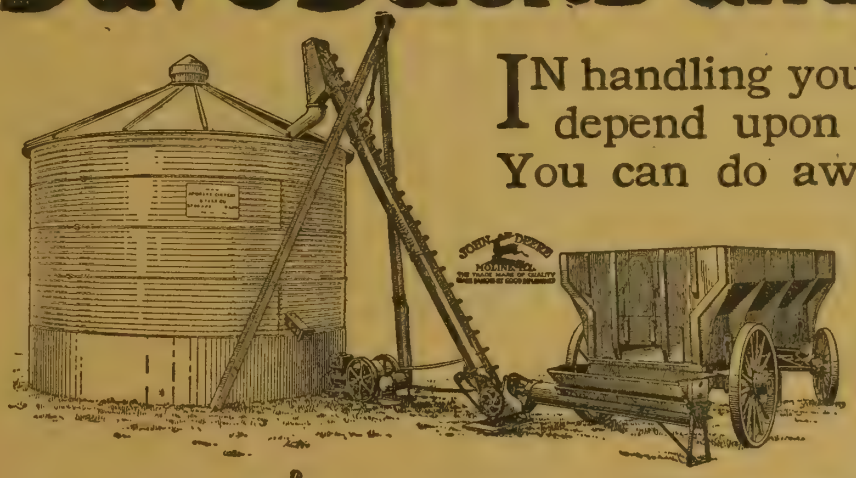
Fruit in all containers used for shipment, whether packed or not packed, should come within the provisions for standard and grade and should be marked accordingly.

It should be definitely decided and impressed upon packers that the act of packing sub-standard fruits constitutes a violation of the law.

Inspectors should be given authority over rejected fruit if present methods are continued, and the hauling or transportation of such fruit, except under the direction of the inspector, should be deemed an offense. Power or authority, where necessary, to destroy condemned fruit should be given to the inspector.

Mr. Roullard also suggests that all packers and growers meet to definitely settle on the standards they desire.

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Application of the Furrow Manure Method in Citrus Fertilization

From Address by A. D. Shamel before Citrus Institute, San Bernardino

WE WANT to make clear in the beginning of this discussion that we do not want to pose as an authority upon any method of citrus fertilization. Furthermore, our studies have not been and are not now devoted to the problems of the plant food requirements of citrus trees, but are directed toward the study of facts of bud variation in citrus varieties and the work of bud selection in the isolation and propagation of superior strains of the most valuable established varieties in order that more uniform crops of higher grade fruit can be commercially produced. This object can not be attained, no matter how inherently superior the trees planted, without favorable cultural conditions. In other words, good trees without proper culture can not produce satisfactory results. Therefore, in connection with our studies of the behavior of parent and progeny trees our attention has been of necessity called to the cultural conditions under which they have been and are being grown.

Origin of Furrow-Manure Method

Our interest in the use of manure as a means for improving fruit production in citrus orchards in California was aroused shortly after we started our individual tree studies in the Washington Navel orange orchards on the Eureka Ranch near Riverside in 1910. One of our performance record plats was intentionally located in a section of this orchard where the trees were evidently suffering from nitrogen starvation. We wanted to study the behavior of such trees and that of comparable trees in good physical condition. In 1911, the owners of this orchard, at our suggestion, applied ten cubic feet of horse manure per tree to one-half of this plat during May. The manure was broadcasted in the usual way and disked in about two weeks after it had been spread. The remaining half of the plat was not manured or fertilized in any way, as was the case with the remainder of the orchard as a whole. Otherwise the treatment of the two sections of this plat were the same. Obviously, the individual tree records could not be included in our performance-record studies, but were secured and utilized in the comparison of the manured and unmanured plats.

The trees in the manured section of the plat showed a marked improvement during the spring and summer of 1912. The most apparent change was a more abundant development of foliage which had a much darker green color than that of the trees in the area which had not been manured. The quantity of fruit produced by the trees in the manured area showed only a slight increase over that of the trees in the unmanured section. However, the oranges in the manured half of the plat possessed a brighter reddish-orange color, and developed a smoother texture of the rind than was the case with the fruits borne by the unfertilized trees. The most striking difference was in the size of the fruits. Those produced by the manured trees were of very much more uniformly desirable commercial sizes, neither extremely large nor small, as compared with those borne by the unmanured trees. Finally, the eating quality of the fruits from the manured trees was thought to be superior to that of the fruits produced by the unmanured trees.

The tree records in this plat were secured in 1912 and 1913 but only the one application of manure was made. The trees on the manured area continued to show superior conditions as compared with those of the unmanured section for several years. The foliage of the trees in the unmanured plat became lighter in color until it appeared a light yellow. The leaves became so sparse that some of the trees seemed to be almost defoliated. The fruits were extremely small, coarse and rough in color, and almost wholly worthless. The manured trees, on the other hand, developed a fairly dense foliage having a deep green color, and produced superior crops to those borne by the unmanured trees.

During the application of the manure in the manured section in 1911, we could hardly work in the plat, or near it, on account of the strong fumes arising from the freshly spread manure. Even our Mexican assistant objected to working all day under these conditions. During the middle of the day the sharp ammonia smell was almost stiffling. We soon became convinced that under these conditions a great loss of plant food was going on. Subsequent experience in other orchards, such as those of the Corona Lemon Company at Corona, where we were keeping tree records and where manure was being distributed broadcast, emphasized this idea. In such orchards, during quiet days, the pungent odor arising from the freshly distributed manure was very oppressive. It was peculiarly so from the fact that we could not help feeling that much of the fertilizing value of the manure was being wasted. It seemed to us as though money was being thrown away and that the trees were being cheated out of their rightful ration of plant food.

Methods Followed in Brazil

In 1913, while studying conditions in the navel orange orchards of Bahia, Brazil, we were deeply impressed by the fact that every orange grower was also a dairyman. The size of the dairies was usually proportional to the area of the orchard plantings. As a rule, one milch cow or more was maintained for every acre of orange trees. The invariable explanation by the orchard owners of this arrangement was that it was necessary to operate dairies in order to secure adequate supplies of manure cheaply and continuously for use in the orchards. An exception to this rule was a grower of about 100 acres of navel orange trees who for many years had held a contract with a municipal abattoir for all of its refuse which was delivered to his orchard daily and was buried near the trees as soon as distributed.

In connection with each dairy we found a manure pit where the manure and all other available organic material was collected. The liquid fertilizer from the dairy barns and the drainage from the manure pits was collected in cisterns located near by or in connection with the pits. It was distributed, diluted with water, either by means of tank wagons directly to the orchards or was pumped over the solid manure immediately before it was distributed. The manure pits usually had cement floors and walls and were enclosed with screen wire in order to control the fly nuisance.

Surprising to us as was this devel-

opment, the most interesting feature proved to be the method of applying the manure. None of the orchards were plowed. The weeds were usually cut off three times each year by means of heavy hand hoes. We found no plows or other mechanical means for cultivating the orchards, all of the work being done by hand. With this understanding of cultural conditions the method of distributing the manure can be more fully appreciated.

Shallow pits, about two feet wide and 16 inches deep, were dug with hoes. These pits were usually located in the middle of the square made by four trees which were usually planted about 20 feet apart. On hillsides or slopes, the pits were dug directly above the trees and near the drip of the branches, one pit for each tree. A wheelbarrow load of rich, well rotted manure was dumped into each pit. We estimated its weight to be about 100 pounds. As soon as each pit was filled with manure the loose soil which had previously been removed was thrown or pulled back over the manure. Frequently, these freshly filled pits stood a foot or more above the surface of the soil. After a few weeks they usually sunk to about the level of the orchard surface soil.

No other fertilizer than manure was used in the Bahian orchards so far as we could ascertain. Some of the trees were known to have been more than 60 years old at the time of our visit. Many of them had been renewed several times by cutting off the old tops and growing new ones from sprouts. We were told that the trees in one old orchard had been cut back below the head three times and new tops grown from the stumps. We confirmed this account by an examination of the tree trunks, many of which showed plainly the points where the tree tops had been cut off.

Aside from the liberal use of manure and the practice of tree renewal no other tree treatments were practiced so far as we could discover. The many scale pests were evidently held in check by parasites. If trees began to decline by reason of diseases, particularly those diseases resembling gummosis and scaly bark, they were cut back to near the bud union and new tops grown from a main sprout. It should be understood that all of the trees were propagated upon sour orange roots, and that these stocks were apparently immune to the diseases mentioned.

Notwithstanding these conditions the navel orange orchards of Bahia compared favorably with those of California. The older trees were in better condition in some instances than those in this state.

We found a few orchards which had been neglected and where no manure had been applied for several years. The trees in such orchards were almost defoliated and the remaining leaves had the light yellow appearance typical of that resulting from nitrogen starvation.

These and other observations led us to conclude that the use of manure in the orchards of Bahia was primarily responsible for the continuous vigor of growth and fruitfulness of the trees. We left Bahia after six weeks of systematic study of the orchard conditions with this idea firmly fixed in our minds. We regard this observation to be as fully proven as anything can be under the circumstances. Every source of information including our detailed studies and the testimony of the orchard owners confirmed our conclusion as to the importance of manure in maintaining healthy navel orange tree conditions. One of the oldest orange growers of Bahia told us that the use of manure in the manner described was an inherited practice from Portugal and other European countries. Another leader of citrus growing in Brazil who had been educated in Europe told us that burying manure, as practiced in the Bahia orange orchards, was commonly done with many crops in France, Italy, Spain and Portugal. We left Bahia with an increased respect for the ability of the growers, as shown by their success in maintaining productive trees for long periods, in one instance for more than 80 years. We felt, and still believe, that the two most important factors in this achievement have been the liberal and regular use of manure and the practice of tree renewal.

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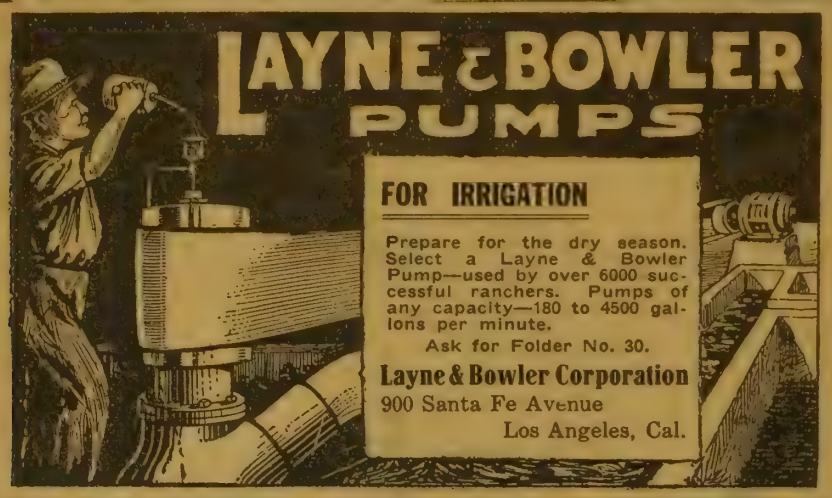
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Agricultural Reconstruction After the War

Address by Dean Thos. F. Hunt of the College of Agriculture, at Riverside

BEFORE entering upon a statement of the method of reconstruction in France and Great Britain it is desirable to state as briefly as possible some of the characteristic agricultural features of the two countries. France has a great variety of climatic conditions. Ethnologically and historically the nation is composed of many human elements which she has succeeded in an unusual manner in welding into a political whole. She has no such communities with such divisions of governmental control as England, Scotland, and Ireland. Her political system lends itself to the promulgation of a unified agricultural policy. Against this must be placed the fact that she has an agricultural population not readily reached through the printed page.

Area and Production

With a land area of 130,000,000 acres, 60,000,000 acres may be denominated arable or cultivated land, 25,000,000 acres are permanently in grass, and an equal area in forest, while 20,000,000 acres are waste land, or otherwise unaccounted for. France has a greater percentage of land in cultivated crops than either the United Kingdom or the United States. The last census (1911) gives the population as 39,600,000, making a density of about half that of the United Kingdom and between six and seven times that of our own country. In peace times it is nearly or quite self supporting from a standpoint of food supply. In 1913 her cereal crops were worth $836,000,000, more than half of this being wheat. Her vineyards occupy one acre out of 25 of the total land area. Her wines were worth more than $300,000,000. In addition she produced from her apples and her pears 575,000,000 gallons of cider and perry. In no other nation of the world are wheat and vines so dominant a feature of the agriculture, nor white bread and wine so important a part of the dietary of its people. If to these features is added the production of wool in its southern more arid and mountainous sections, the sugar beet culture in its northern calcareous sections, and emphasis given to the genius of its people for intensive culture of vegetables, fruits and small animals in its central and most fertile areas, which are also its most populous ones, the high points of French agriculture will be comprehended.

British Agriculture

British agriculture stands, above everything else, for the breeding and raising of domestic animals, which is without a parallel in the world. The British farmer has been molded by and into those characteristics which are necessary to the successful breeder of high grade animals, among which are accuracy of observation and acuteness of judgment. He has been compelled also to think in guineas instead of francs.

Abundance of Grass

The United Kingdom has a great variety of climate, which is generally much cooler and moister, especially during the summer months. British agriculture, however, has reached an unusual adaptation to her natural resources, that is, to the variations in her soil and climate. Out of these facts grows the preeminence of these islands for grass and root crops, and upon them are based her animal industries. As an extreme illustration of the permanency of some of the grass lands, a field was seen at Rothamstead that is known to have been continually in grass since 1620. The British farmers say that it takes 40 years to make a permanent pasture, in support of which they quote the saying, "To make a pasture will break a man; to break a pasture will make a man." This statement has been partially confirmed by the results of the Rothamstead station, which shows that grass land after it has been down four years contains twice as much nitrogen as arable land.

French Spirit

The French are characterized by their artistic sense and their thrifty habits. They have a spirit and dash that has been the admiration, if not the envy, of all nations. Thriftiness is an essential, if not the most important, element in the success of the French peasant, and in saving France from excesses in her cities. The garden is the highest expression of French agriculture. Here beauty and utility meet. The French have a series of words to express what Americans call "home." They are, in ascendancy, un gite, une maison, un home, un jardin.

With the industry and frugality of the French peasant goes a sense of obligation to contracts which makes the risk of credit almost negligible. Even during these war times women left with the whole responsibility of their farms, because their husbands were under arms, have gone ahead and paid off their war obligations without hesitancy or question.

British Repose

The word which best expresses the English character is repose. This repose is sometimes accompanied by a stolidness that amounts almost to inertia. But with it always goes practical common sense. The characteristic British expression, that they will muddle through somehow, means more than a mere lack of foresight. It means that a way will be found to accomplish the desired end when the time comes.

After-the-War Viewpoint

The conditions of agriculture at the close of the war will be very different in the two countries. England had last year the greatest wheat crop since 1878. The acreage of potatoes was the greatest on record by 27 per cent, and that of oats by 23 per cent. France, on the other hand, has decreased her acreage of cereals since the war 27 per cent, and her production 38 per cent. In 1917 her production of cereals was only 53 per cent of the average of the two years preceding the war. Part of this reduction is due to the territory occupied by the Germans, but it is due more largely to other causes, some of which are too intricate to be traced within the limits of this article. England agriculturally considered, had more slack than France, notwithstanding she was much less nearly self contained in her food supplies. Twenty per cent of the population which was engaged in gainful occupations was engaged in agriculture in France, three per cent in Great Britain. More than 5,000,000 males were engaged in agriculture in France before the war, and more than half of them have been under arms. Great Britain's chief fear, perhaps unnecessarily so, is that she will not be able to absorb her army when peace comes. France is making every effort to obtain additional man power at the close of the war. Here in a nutshell, is the difference in point of view of the two countries concerning reconstruction after the war. Great Britain is planning schemes to use more men on the land. France is endeavoring to reorganize her methods in order to get greater results per unit of labor.

Damaged Area

Eleven of the 87 departments of France have been invaded during the war. These departments cover an area of 17,000,000 acres, or 13 per cent of France. Only one of these departments, however, has been completely

occupied at any time. It is roughly estimated that about 5,000,000 acres of farm land have been damaged, of which about one-fourth was in grass. While the commission visited the British, French and American fronts, for the sake of brevity only the northern or British sector will be described.

Northern Section

This area extends from Hazebrouck, Bailleul, Armentieres, and Lille on the north to Amiens, Albert, Peronne, and St. Quentin on the south, and includes the valley of the Somme, in which some of the most destructive fighting has occurred. It is a country of rounded hills, interspersed by flat vales cut by small streams. It is an open country, but little if any more wooded than the Mississippi Valley between Chicago and Omaha, although more of the trees occur naturally. The roadside trees, which are a characteristic feature of the country, are chiefly sycamore and poplar. The open appearance is accentuated by the absence of fences, in striking contrast to the country in eastern England just across the channel, with similar geological formations. The destruction of trees, about which much has been written, is seen here in all its desolation. Roadside trees, 60 to 70 feet high, 12 to 14 and sometimes 30 inches in diameter, absolutely destroyed by the hundreds. Some are blown off, others stand completely defoliated; grim reminders of the deadly destruction that has been wrought in this fair land. To the stranger they are the chief evidence, since the people have gone and the buildings have been destroyed. Only those who knew the country know how many people or what buildings there may have been. But these ghastly trees mutely accuse the Hun of his crime against humanity. In the more northern portion of this section the subsoil is a rather heavy clay. Valleys and streams are fairly numerous. Here are found chiefly farms with homesteads in inclosed fields. Farther south the subsoil is chalk. The valleys are rather larger. Here is to be found the village plan of farming. The reason for village farming in some places, and homesteads in others is due, it is said, to the water supply for domestic use. In the chalk region, which occupies the greater portion of the devastated area between Lille and Amiens, the streams are not numerous, but fairly large. Water can not be readily obtained except near these streams; hence the farmers collect in villages along them. In the areas underlain with clay the country is broken into small streams and rivulets, so that water can be found on every area large enough for a considerable farm. In such regions the homes are scattered about over the country, and the fields are more or less inclosed by fences.

Influence of Women

Except in the recently occupied territory, the main crops were harvested on September 24 and 25. A few women were seen working, pulling beans or digging potatoes, and now and then a quiet old man was plowing, sometimes with one horse, sometimes with two, never more. In one instance one horse was pulling a double plow. Not a single instance was seen of a farm tractor being used during the two days. Aside from these and military activities, on or near the roadways, which at the time was very brisk, the country was completely deserted. The villages did not seem to possess sufficient civilians to till the land. Very few cattle and less sheep, indeed almost no sheep, were seen. In some instances the cattle were herded by girls. There was a considerable acreage of sugar beets, but we were told that less were raised than formerly on account of the trouble of getting labor. In their place, food crops, such as wheat, potatoes and beans, were substituted. Neither Chinese, released soldiers nor German prisoners have been available in this particular section, the chief dependence having been on women. The women working on the farms were not of the land army class, but were farm women such as were in the habit of doing farm work. As has been remarked, the most striking thing about the women of France is their absence of uniform. In 1910 as many women were seen working on the land as in 1918. The French reply to this observation is that this is so because all work in peace times. There is no doubt, however, from the universal evidence submitted, that women have worked harder than ever and that by their exertions France has been saved. Michelet, referring to Joan of Arc, the daughter of a well to do farmer, writes: "Frenchmen, never forget that your country was born of a woman, of her blood and her tears." France is not likely soon to forget these ununiformed saviors of their country, nor are the women of France likely to fail in the future to comprehend their duty to the nation. Since 1871 France added 3,500,000 to her population, Germany 23,000,000.

The Devastation of Europe

In the devastated area which had been captured by the Germans in June and recaptured by the British in August, there were acres and acres covered with shell holes. A typical shell hole is six to eight feet in diameter and two to four feet deep. One of our party counted 14 within 50 feet of where he stood. There are hundreds, perhaps thousands, of acres where the shell holes average 20 to the acre. The desolation of this region is beyond comprehension. It cannot be adequately described. Hundreds of villages and towns have literally disappeared. An officer stops the car and, pointing, says, "Do you see those lumps over there? That is where the village of ——— was." One was, of course, prepared to see that the towns were destroyed, but he expected to find the debris. These towns are built principally of brick. The explosive shells seem to disintegrate them, so that all that is left may be a pile of dirt with brickbats interspersed. When an explosive shell bursts in the air it gives off a whitish or darkish cloud, depending upon whether it is a British or a German "woolly bear." But when the shell strikes a brick building it gives off a reddish cloud, going to show that the bricks were blown to powder. In a country where the farms are scattered about often on back roadways, it is not practicable to destroy completely all signs of habitation, but when the people live in villages and towns along main roadways all that is necessary is to destroy the towns, and the country is as completely vacant as a western prairie before the pioneers arrived. Covered as it is by abundant trenches, dugouts, barbed wire entanglements, shell holes and mine craters, it resembles nothing that man has ever seen before. One of our party expressed it by announcing that he was going to write an article entitled "Farming in Hell." The scene is made much more impressive because the whole area of the Somme is underlain with chalk. Trenching and shelling has brought this brilliant white substratum to the surface. The country is thus ring-streaked and spotted with white against the green background as far as the eye can reach.

Sacred Ground

Stopping before one of a row of great mine craters, 150 feet across, and 80 to 90 feet deep, made by the British in their drive of June, 1916, a British officer remarked quite simply, "This is sacred ground to us. Most of our friends were killed here." An Englishman, 50 years of age, said, "I have only one male relative, a nephew, left. Except for a broken knee cap I should myself have been in the war." This territory has been fought over three times. The destruction is complete. Every once in a while we would stop somewhere and an officer would say:

"This is the town of ———."

"What?" we would say.

"This was the town of ———," he would repeat.

"Where?" we would say.

"Right here."

"But where?"

"You see that bit of brick wall, don't you? That is where the town of ——— was."

Rehabilitation

The rehabilitation of this country will doubtless be a difficult problem. One of the problems to settle will be the direction which the reestablishment is to take. For example, a town of 7000 people which does not have an undestroyed house left, was an industrial place in which a large propor-

Continued on Page 288



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Clark "CUTAWAY" DISK HARROWS

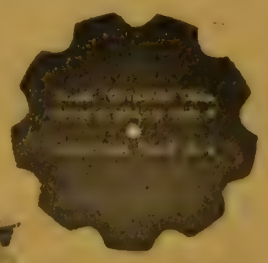
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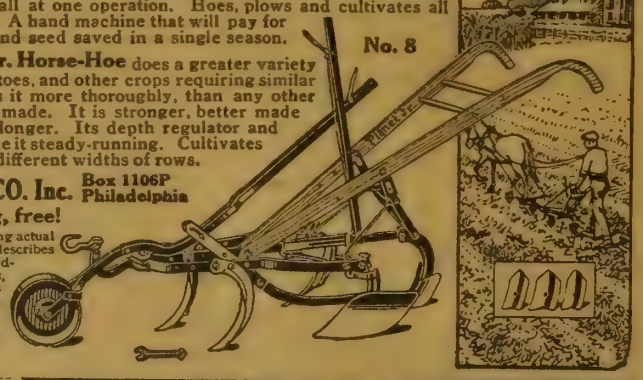
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California Ground Squirrels

THE California ground squirrel is going down to history with a remarkable publication as to his life, his habits, his methods of work and destruction and best methods of controlling him. It is the monthly bulletin of the California State Commission of Horticulture and has been given numbers 11 and 12 of Volume VII. It is a 214 page book with a great number of illustrations and six beautifully colored plates drawn by Louis Agassiz Fuertes, America's leading bird and mammal artist. The book is issued under immediate direction of the rodent control division, of which W. C. Jacobsen is superintendent and S. V. Christiersen assistant.

The leading article, entitled "Natural History of the Ground Squirrels of California", is a contribution from the Museum of Vertebrate Zoology of the University of California. The authors, Dr. Joseph Grinnell, director of the museum, and Mr. Joseph Dixon, economic mammalogist on the staff of this institution, carried on the work of preparation in cooperation with the office of the state commissioner of horticulture.

In this monograph the 18 kinds of ground squirrels known to inhabit the state are subjected to critical inspecton from every view point that would seem to offer assistance in developing methods of controlling these, our chief rodent pests. In addition to the facts which have an immediate economic bearing, much information concerning the life histories of these animals is given which at first glance may not appear to have any direct application in the problem of ground squirrel control. However, the authors have pointed out that it is not often apparent in advance which facts will and which will not prove of critical importance in economic work. It is therefore the purpose of the paper to supply full information so that the facts may be available to all who are concerned with the development and application of methods of control.

The following facts are emphasized as being of special importance from the viewpoint of ranchers and all others who are concerned with the problem of ground squirrel control.

Of the 18 kinds of ground squirrels which occur in the state only four are of special economic importance. These are the California (or Beechey), the Oregon, the Fisher, and the Douglas ground squirrels, here named in estimated order of importance.

The Oregon ground squirrel, which inhabits parts of Siskiyou, Modoc and Lassen Counties, though only half the size of the California ground squirrel, occurs in much greater numbers per acre, and since it is a grass eater rather than a grain eater, it comes into sharp competition with cattle interests. These squirrels hibernate for several months each year and on account of this and their grass eating habits cannot be effectively controlled by the methods which have proven effective with the "digger" squirrels (California, Fisher and Douglas squirrels).

The California ground squirrel is the species most widely distributed and occurring in greatest aggregate numbers, there being an estimated population of one squirrel per acre throughout its range, or a total of 32 million squirrels of this one species in the state.

The Douglas, Fisher and California ground squirrels, all belonging to the "digger squirrel" tribe, average one and a quarter to one and a half pounds in weight and are easily able to consume one-half ounce of dry grain or two ounces of green forage at a meal and hence when present in numbers are able to inflict serious loss.

Ground squirrels have strong food preferences, although their diet varies greatly from place to place. Any successful method of poisoning must necessitate the use of a bait acceptable to the squirrel. In several places squirrels have been found to pass up barley altogether for the burs of bur clover, and this suggests a likely way of improving poisoning methods locally.

There is evidence that a greater or less proportion of the digger squirrel population hibernates each winter. The old breeding squirrels are the ones that hibernate; the young of the year are active all winter. These hibernating squirrels are not reached by poisoned grain, and it is doubtful if gas would be effective under these conditions.

The unknown length and irregular course of the burrow is a frequent cause of failure in gassing ground squirrels.

The California ground squirrel reproduces rapidly. The average number in a litter is 7.2, with four and eleven as extremes. One litter per year is the rule.

These animals are very successful in the battle for existence. They are strong on the "come back," and prosper just as soon as any natural check is removed.

Squirrels, like scale bugs or weeds, must be watched continually and dealt with regularly from year to year.

Natural rather than political boundaries should be hewn to in eradication campaigns. A forest ranger does not follow township, county or property lines in constructing firebreaks. He studies the natural lay of the land and fights fire accordingly.

"Squirrel weeks" should be fixed in accordance with the breeding habits of the squirrels, their food preferences, bait available, and probable weather conditions.

Raising Milo in San Jacinto

By W. L. Helwig

Reading your article in January 18th number of the Cultivator describing the method of raising milo has given me the desire to send you an article telling what the soil of the San Jacinto Valley will do with proper care and lots of work.

While not farming on anywhere near as large a scale as the Imperial ranchers do my yield has been so much larger that it deserves being described.

Early in the spring I commenced plowing with a disk plow, but after plowing one day I was not satisfied with the work done as I did not think it was deep enough, so stopped until I could get new 26 inch disks. After getting the new disks I plowed as deep as it was possible. While the ground was still rough I turned the irrigating water on and settled the ground so it was good and firm with no air pockets underneath. As soon as it was dry enough to harrow, put three horses on a two section harrow,

CAN THE MOLINE-UNIVERSAL TRACTOR CULTIVATE? FARMERS FROM FOURTEEN STATES SAY *YES*

These Questions were asked the following farmers who own Moline-Universal Tractors and Two-Row Cultivators. Read how they answer them.

1. Has it been your experience that the Moline-Universal Tractor and Two-Row Cultivator do a good job of cultivating?
2. Will it handle your young corn as well as lay by?
3. Is it as steady as horses, particularly at the lower speeds?
4. How many acres do you cultivate in a 10-hour day?
5. Do you get as good or better corn (or other crop) cultivating with the Moline-Universal Tractor as with horses?
6. Do you find that the tractor will injure the soil by packing?
7. Will it knock down any more stalks at the ends turning than horses?
8. Do you consider the Moline-Universal Tractor and Cultivator a labor saving and economical method of cultivating?
9. How many acres do you farm?
10. How many acres in row crops on which you used the Moline-Universal Tractor and Two-Row Cultivator?
11. What crops did you cultivate in this manner?
12. How many horses or mules have you been able to do away with because the Moline-Universal can cultivate?
13. How many horses or mules do you still keep.

	1	2	3	4	5	6	7	8	9	10	11	12	13	
C. R. Barr Wyconda, Missouri	Yes	Yes and do a better job	It is	15-22	No difference	No	Not if particular	I do	205	130	Corn	4	2	I don't think we could farm without the Moline.
C. Hendrix Rushville, Indiana	Yes	Yes	Yes	15-20	As good	No	No	Yes	240	75	Corn	2	5	If we had not had the tractor would never been able to farm as much land.
Herbert Bowman Union City, Indiana	Yes	Prefer young corn	More so	20	Better	No	Not as much	Yes	120	35	Corn	2	3	Could dispose of one more horse.
J. E. Carey Wilmington, Ohio	Yes	Can't cultivate young as fast as old	Steadier		No difference	No	No more if as much	It has been first year	300		Corn	4	7	If I hadn't had the tractor I would have kept 4 more horses, which are a bigger expense than the tractor.
E. E. Fletcher Krum, Texas	Yes	Didn't use it on corn	More so	12-14	As good	No	Yes	Same when in use	500	100	Cotton	*	0	Cultivate ½ more per man. All the work done by two Molines. No horses used.
H. Brun Corning, Kansas	Yes	Yes	Yes	20	Just as good	No	Not as much	Yes	200	120	Corn	6	6	I find the tractor will do all you claim for it, and then some if taken good care of.
Nick Eller David City, Nebraska	Yes	Yes	Steadier	12-20	Just as good	No	No	Yes	210	50	Corn	2	4	Saved enough feed to pay for gas and oil.
Ed. Finnegan Bradford, Illinois	Yes	Yes	Yes	15-30	Sometimes better	No	Not as much as 3 horses	Yes	235	125	Corn	5	5	Rented 35 acres extra corn ground, crops paid for tractor.
F. H. Pence Brinkham, Oklahoma	Yes	Better than team	Better	14-18	Better	No	No	I certainly do	200	50	Cotton and Maize Corn	*	0	I would not farm if I had to go back to horses and mules.
Elmer G. Scheff Nevada, Ohio	Does good job	Didn't use it to finish with	Absolutely yes	15-18		Not if ground is fit for horses	Not as much	Yes	120	30	Corn	2	3	A person doesn't have to sit on implement and let the Moline rest.
M. V. Bartlett Muncie, Indiana	Yes	Yes	Yes	15	Yes	No	No	Yes	230	100	Corn	4	4	It has no equal as a preparer of soil for planting.
W. H. Morris Windside, Nebraska	Yes	Yes	More so	16	Yes	No	Less	Yes	160	60	Corn	3	2	I have ditches in my field that I crossed with it, I never could with horses.
Edward Bilshas Framingham Center, Mass.	Yes	Yes	Yes	10 in small fields		No	Depends on width of headland	Yes on fields larger than 6 acres	73	14	Corn	0	3	Tractor saved a whole lot of time.
Alva West Harpster, Ohio	Yes	Yes	Yes	18	Yes	No	Not as much	Yes	253	45	Corn	8	4	I have done the work of 2 men and 6 horses by having a Moline.
G. W. Beard Waterbury, Connecticut	Yes	Yes	Yes		Just as good	No	Not with a good man driving	No	200	18	Corn	0	4	The only tractor for the East and would advise and certainly buy no other.
Glenn Richard Rutledge, Missouri	Splendid	Yes	More so	16	Fully as good	No	Not as much as a team	I do	200	50	Corn	4	3	Farming without the Moline would be too slow for me.
Fred Pabst Oconomowoc, Wisconsin	Yes	Yes	Yes	9- 11	No difference	No	No	Yes	1400	80	Corn	0	18	That the tractor is satisfactory is indicated by the fact that we ordered a second one.
George Slackslager Lewisburg, Ohio	Good	Yes	Yes	20	Yes	No	Not as much	Yes	140	40	Corn	3	2	It saved a hand and three horses.
W. H. Hamilton Decatur, Iowa	Yes	Yes	Yes	15	Better	No	Not as much	In hands of experienced man	250	120	Corn	5	4	With it we were ahead of the crops.
Chris C. Walker Blythe, California	Certainly does	Yes	More	18-24	Same	No	No	I do	80	80	Cotton	*	0	I would not farm in this country without a Moline.
J. C. Wilmer Des Moines, Iowa	Yes	Yes	Steadier	12-17	Better	No	No	Yes	360	220	Corn	4	6	One man can do two men's work.
Harley A. Mishler South Whitley, Indiana	As good as horses	Didn't have it for small corn	Better a dozen times	20	Just as good	No	No	Yes	185	41	Corn	4	4	I cultivated when neighbors with horses had to quit because of the heat.
Marion Ellingwood Fairmont, Indiana	Yes	Yes	Steadier	17-18	Better	No	Not with right man	Yes	166	60	Corn	4	4	We do all our hard work with the Moline and keep our horses fat on half the feed.
Quincy Gwynn Bellefontaine, Ohio	Yes	Yes	Yes	8-15	Believe so	No	No	Yes	200	40	Corn	3	3	Got my crops in and tended them in good time when it was impossible to get help.
Chas. Lanning Brookville, Indiana	Yes	Yes	Yes	10-12	Yes	No	About the same	Yes	100	35	Corn	3	2	Found your tractor to be what you claim.
J. E. Roberts Platte City, Missouri	Yes	Yes	Yes	15-18	Yes	No	Not with experienced operator	Yes	284		Corn	6	8	Kept cultivator running every day in season.
Chas. E. Bretz Harrisville, Indiana	Yes	Like it best for small corn	Yes	18-24	No difference	No	No	Yes	216	75	Corn	4	4	I have done all jobs on the farm.
Howard Erbank Rushville, Indiana	Yes	No cultivator will	Yes	16	No difference	No	No	Labor saving	240	70	Corn	1	5	I claim the Moline is the most practical tractor if not the only practical tractor for Indiana farms.
Levert Geer Woodstock, Ohio	Very good	Yes	More so	16-18	Just as good	No	No	I do	150	60	Corn	3	2	A Moline for mine every time. It is the only real all work tractor.
L. E. Bloomquist Wausa, Nebraska	Better	Just as well	Steadier	18-19	Better	Not as much	Not as much	Yes	320	160	Corn	6	4	Plowed 80 acres in 6½ days. There was a 3-plow tractor right by my side and I plowed faster and deeper.
Walter Duke Rushville, Indiana	Yes	Yes	Yes	12-20	Better	No	No	Yes	246	75	Corn	5	4	Moline means more, quicker and better work with less help and expense than any other farm power.
M. B. Myers Harpster, Ohio	Yes	Yes	Yes		Better	No	Less	Yes	335	51	Corn	2	5	Tractor is indispensable, has great capacity for work.
Jas. R. Wilson Buckeye, Arizona	Fine job		Steadier	20	Better	Not at all	A little more	Absolutely	140	100	Cotton and Maize Corn	4	2	The new Moline is far and away the best light tractor ever put out.
Hare Bros Wilmington, Ohio	Yes	Yes	Steadier	10-15	No difference	No	Not as many	Yes	180	95	Corn	3	5	We feel we would have to quit farming if it wasn't for the Moline.
J. R. Wicks Guthrie, Oklahoma	Yes		More so	12-14	Can do better work	No	Did at first not now	Yes	320	160	Corn, Cotton, Potatoes, young Peach trees	3	3	Besides cultivating I plowed 110 acres, cut 50 acres of oats, drilled 35 acres of wheat and 20 acres of cane.
Average									247	74.2	30% in row crops	4.1	4.17	* The number of horses replaced was not given. One horse was allowed for each 30 acres.

An average of 50% of all the horses on the above farms was displaced because the Moline-Universal Tractor cultivates—the number of horses was reduced to one for each 59.2 acres. According to United States Department of Agriculture one horse is required for each 20 to 30 acres, and the ordinary tractor does not reduce the number of horses. Remarkable as this showing is, still better results can be obtained. Ten of the farmers above farm 112 acres per horse because the Moline-Universal cultivates and does all farm work. Three farmers displaced horses entirely. Is this possible with any other tractor?

These are not exceptional farmers; many others are getting results equally satisfactory with the Moline-Universal Tractor. And you can do the same.

Remember the Moline-Universal Tractor *does all farm work* as well as cultivating. With it you can plow 9 acres a day, double disc 27 acres, harvest 30 or 40 acres. It has plenty of power for all ordinary belt work. And one man operates both tractor and implement from the seat of the implement.

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rode the harrow and set the teeth rather straight, and as my soil is a heavy loam it had a tendency to help form a mulch. The ground then was let lie until it would do to work with a disk, when it was double disked and harrowed as soon as possible, which left the field in good shape. As soon as the ground had warmed up I planted with a common two row corn planter, two and one-half pounds of milo to the acre, but as it again turned cool the seed nearly all rotted and did not sprout. About an acre of the planting which was on sandy soil sprouted and made a good stand and yielded about 30 sacks, which was 3780 pounds per acre.

After I was sure that there would not be a stand on the balance I again double disked the field and followed with a harrow. This destroyed what corn had started as well as the weeds. I again planted on the level the first of June using the common two row planter set so that the rows were three feet apart and using four pounds of good clean seed to the acre. As the ground was not irrigated between the two plantings I had to irrigate the corn when it was about knee high and again when it began to swell and make head. Did not irrigate again until the field was all headed out. As this last irrigation was a thorough one it gave the head a chance to open out, and to anyone not acquainted with the milo will say that each grain has a separate flower which must be fertilized, so each little stem that carries a flower rises up like a hair on a dog's back when it is scared. This gives the pollen that is flying in the air a chance to get to each flower. After the grain was formed I kept plenty of water on the corn so as to keep it growing and never allowed it to slow down or show the least signs of wilting.

I have found by experience that dwarf milo will grow fine without irrigation and do well for a time, will make good size stalks and will open out into the bloom but will stop there if there is not sufficient moisture stored in the ground by improved methods of farming.

Now will come the most interesting part of this article, and I will also say that it was the same to me and I was more than surprised when it was gathered and thrashed. I was figuring on getting two tons of thrashed corn per acre, but this was one time that hard work surprised in the right way, and the result is that my field has averaged me 40 of the common grain bags per acre, which means a little better than two and one-half tons per acre.

Here in a few words is my experience and will be my method the coming year: Good seed to start with, plowing deep early, thoroughly settling the plowed ground, making a good seed bed mulch, watering a week or two after the ground warms up before planting, making rows three feet apart and planting three pounds of good seed per acre. Ground should be kept moist but not too wet until head begins to swell as it will have a tendency to make it shoot up tall and slim which is bound to give a small head. After grain is formed give plenty of water as it needs it to give size and weight to the grain.

A big fight on ground squirrels has been started by the big Chowchilla ranch in Madera County.

A London firm recently bought in Portland $500,000 worth of hops.

Three thousand head of stock are to be sold at Camp Lewis.

AGRICULTURAL RECONSTRUCTION

Continued from Page 285

tion of the people worked for one firm. Many of the people and many of the industries in these towns have become during the four years established elsewhere. These towns were all developed long before there were any railroads, telephones, or modern methods of manufacturing. While from the human standpoint the reestablisment of agriculture in the devastated area will furnish numerous serious problems, the mechanical difficulty of resuming cultivation is less than the pioneer found in beginning it in eastern United States. Aside from the removal of the unexploded shells, which may or may not prove to be greatly dangerous, the mechanical difficulties, in order to cultivate the land again, are not serious. It were much easier and less expensive to fill the trenches and the shell holes than it was to make them. In some of the early occupied areas this has already been accomplished, and farming is proceeding in a normal manner. The rest that has been given the land will probably somewhat increase its productivity. Doubtless some of the area formerly cultivated should be forested. Some parts could well be given over to the raising of cattle and sheep on a rather large scale, while other parts are well adapted to growing wheat, oats and sugar beets. The rememberment of land, now much discussed by French publicists, is doubtless much to be desired in this section, although it is a problem of great delicacy. There are two opinions about it in France; one is that it should be made compulsory, the other that it is only desirable as a voluntary matter.

Some Factors of Reconstruction

At the outbreak of the war France had approximately 40 million inhabitants; seven million have been in uniform. It is asserted that about 2,000,000 have been killed and that 500,000 will be permanently crippled. It is estimated that there were 250,000 farmers in the damaged areas, of which 20,000 own and operate less than 25 acres. A large proportion of these so-called farms consisted of more than one parcel. It is believed that 100,000 farmers may come back. Some have been killed; others will not wish to come back. This ground has been the battle ground of Europe for at least ten centuries. Some of the inhabitants are getting tired of it.

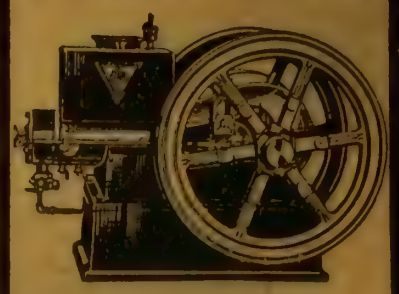
Depopulation

In some ways, therefore, the devastated area is one of the small parts of the problem. A large land owner puts it this way, "The actual situation in France is dominated by the fact of depopulation. The number of births fell from approximately 1,200,000 in 1885 to about 700,000 in 1914. On account of the decrease in children the number of old people in France is much greater in proportion to population than in other countries. In twenty years the generation now 45 to 70 years will have practically disappeared. The generation 20 to 45 years, which has supported this war and sacrificed itself for the liberty of the world, has been decimated. The generation from one to 20 years will be too small to accomplish all the tasks after the war." While vital statistics were not examined, it is emphatically asserted that the number of births has decreased since the outbreak of the war.

Reparation

The French government which has had some centuries of experience in military matters, has carefully inventoried the damage done in both cities and country, whether done by the Allies or the enemy. The French government expects as a matter of course to reimburse these people for all material damage done to them. The French government recognizes fully that it is responsible for all acts of war. Every trench that is dug on any man's land, every crop that is destroyed, every gate that is stolen, every house or factory that is occupied, no matter whether by enemy or friend, the French government intends to make reimbursement for. The Americans, for example, must pay for every trench they dig, for the rent of every house they occupy, for every field they use, for every destruction which they cause, whether in defensive or offensive operation. To the French any other point of view is unthinkable.

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Valuation of Damage

There is one point which has not yet been settled—shall the basis of reparation be the value of the destroyed building or machinery in 1914, or the cost of replacement in 1918 or 1919, as the case may be? Since, of course, it is expected to assess these expenses against the German government, it is easy to see why the settlement is postponed. The plan that is discussed, however, is that if the refugee returns, he is to be paid on the actual basis of replacement, but if he does not return he is to be paid upon the basis of the value in 1914, or not at all. However, it is generally agreed that he will be paid not less than the value of the property at the time of destruction in any case.

Cost of Reconstruction

In 1914 the government placed $60,000,000 at the disposal of the prefects or governors, to be used in taking care of needy people in town or country. In 1917 the country voted $60,000,000 for agricultural reconstruction. According to this act the farmer may be compensated for damage done on the basis of 1914 values, provided the damage does not exceed $80 per acre. Each farmer may make a statement of losses incurred, and if approved will be paid within the limit above stated. The compensation may be in actual money or materials. In practice there have been furnished $45 per acre in materials and $35 in money. Up to date $12,000,000 to $15,000,000 in money have been allotted. It has not yet been determined whether the final average value of the damaged area will be $80 per acre, but this is a tentative estimate on the basis of 1914 prices. Assuming the area of farm lands in the damaged area at 5,000,000 acres, on this basis the cost of agricultural reconstruction would be $400,000,000, which is a very small sum compared to the war expenditures during the past four years.

The Horse Bean

By E. R. deOng

THE growing of Horse beans (Broad bean or Fava bean) as a comercial crop in California has been confined to very limited areas; parts of San Mateo, San Luis Obispo, and Santa Clara Counties and small plantings in the Sacramento Valley. The supply from these regions, however, has been so restricted by the attack of weevil and aphids that it is not now sufficient to meet the demand. There are many places in the central coast regions of California, as well as in the interior, where this bean might perhaps be grown profitably at present, at least for a few years. In new localities the weevil would not be so abundant as in the places where the crop has been grown continuously for years. By experimental planting it may be that regions will be found in this state where, by using clean seed and regulating the planting date, this bean may be grown continuously without the necessity of artificial control measures and yet be free from extensive weevil injury.

The range of planting dates, as is commonly practiced, for the regions of cool summers extends from January to March, although it has been planted as late as May in order to avoid weevil injury. Late plantings are however more subject to aphid injury during the summer months and also to damage from rain at harvest time. In the interior valleys this bean may be grown as a winter crop, being very resistant to frost, the planting being done in October or November. This program offers the possibility of a double crop system, the land being irrigated after the Horse bean is harvested and some of the small varieties of beans then being planted.

The weevil which attacks the broad bean being a different species from that feeding either on the small varieties of beans or peas there would probably be little danger to the crop until the broad bean weevil was introduced. By careful fumigation of all seed beans that are imported, and of any locally grown beans that show the least sign of infestation, the spread of the insect would be restricted and even if the weevil did become established the prompt removal of the crop immediately after harvest to warehouses several miles distant, cleaning the field of waste beans by stock and the fumigation of all beans remaining in the district, will do much toward holding the weevil in check. In this way the percentage of weevil infestation might be kept down to a point where the beans could be sold without restriction.

Marketable beans sold this year at five and a quarter to six cents a pound and as the usual yield on good soil is from 15 to 30 sacks to the acre, the crop is quite profitable. Much of the output is shipped to the eastern states, although small amounts are consumed locally, both dry and as a green vegetable. In parts of Southern California the Horse bean is grown as a cover crop, its resistance to frost and heavy tonnage making it very desirable. The crop is usually grown in drills with the rows about the same width as for the small varieties. It is satisfactory as an intercrop for young orchards or grown as a field crop.

This year's crop in the older Broad bean districts, was so weevily that a large proportion of it when offered for sale as human food was seized by officers of the federal food and drug commission. The ruling of this board was that the presence of weevil makes it unfit for human food, so that any lots offered for sale which exceed 15 percent infestation are subject to seizure. The shipper whose beans have been seized has the alternative of hand picking the lot or selling it for stock feed. The percentage of weevil infestation may be reduced below the 15 per cent infestation allowed by hand sorting the beans, picking out the weevily ones. This costs from one to two dollars a sack. As stock feed weevily beans brought the same price this year as barley so that the attacked bean is far from being a waste crop. They are usually ground when fed to cattle or hogs. This bean is also a good poultry food, it being ground fine and mixed in the mash or cooked or fed wohle.

LADYBIRDS CONTROL FLUTED SCALE IN THE MISSISSIPPI DELTA

The early experience of California in the control of scale insects by beneficial ladybirds has been brought into play with good results in the Mississippi delta region to the end that the fluted scale which threatened that region has been effectively repressed.

Cooperating with the city of New Orleans and the state of Louisiana, the bureau of entomology, United States department of agriculture, completed during the year the control of the fluted scale in New Orleans and neighboring places. This was accomplished by the propagation and liberation of thousands of the natural enemy of this scale insect, the Australian ladybird. More than 300 colonies of the ladybirds were liberated over an area of 40 square miles. The distribution also was extended to the known outlying infestations of the fluted scale in Louisiana, Mississippi, and Texas.

LEAVING HIM AT SEA

"Could you do something for a poor old sailor?" asked the seedy-looking wanderer at the gate.

"Poor old sailor?" echoed the lady at work at the tub.

"Yes'm, I follered the wotter for 16 years."

"Well," said the woman, after a critical look, "you certainly don't look as if you ever caught up with it."

Then she resumed her labors. —Ideas.

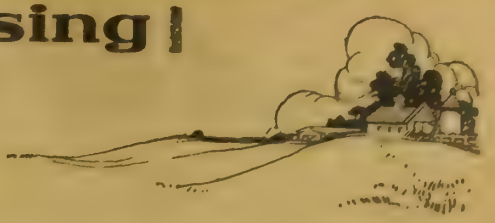
ROASTING HIM

As William Faversham was having his luncheon in a Birmingham hotel he was much annoyed by another visitor, who, during the whole of the meal, stood with his back to the fire warming himself and watching Faversham eat. At length, unable to endure it any longer, Mr. Faversham rang the bell and said:

"Waiter, kindly turn that gentleman around. I think he is done on that side."—Everybody's.

The California Citrus Protective League has elected E. F. Lyon of Redlands president.

Top Dressing Talks No. 6



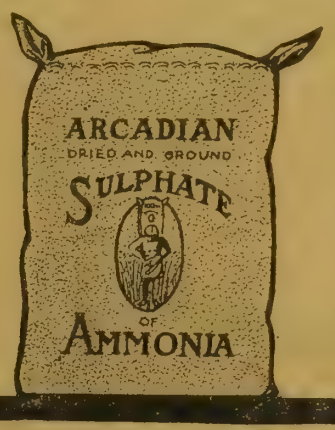
What amount of ARCADIAN Sulphate of Ammonia should you apply? That is very largely determined by conditions of soil, crop and climate. Generally speaking, 100 to 200 pounds per acre will prove profitable on field, truck and orchard crops. For well grown citrus trees as much as 600 pounds per acre may be used with profit, providing the phosphoric acid and potash content are sufficient.

The best advice is to try a moderate application first, watch your results carefully and be guided by them. In this way you will learn whether your maximum profit is at 100, 200 or 300 pounds per acre, or even more.

Don't forget that good farming requires an occasional application of lime.

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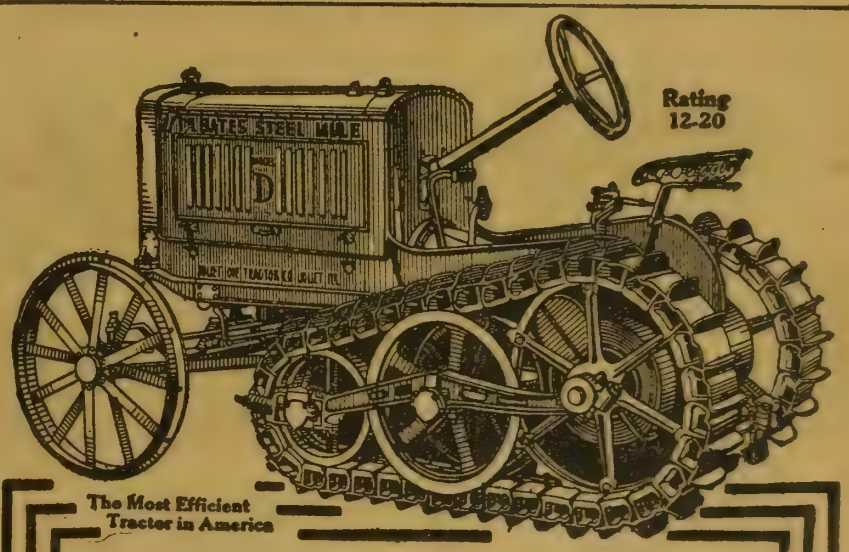


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This Month in the Vegetable Garden

Southern California

Written for California Cultivator By D. F. Reichard

WE ARE entering now on the busiest planting month of the year. The weather conditions have been very satisfactory. The rains have not been heavy but they have been well distributed and those who have taken advantage of them and worked their ground as has been suggested from time to time can not help but have their soil in fine shape for the reception of seeds and plants. During this month it is safe in most places to venture plantings of the more tender crops.

The hardy vegetables like carrots, beet and cabbage, that were planted late last fall, are just maturing, so to have a continuous supply one must get new beds of these started. Use the quick maturing varieties if what you have growing is not sufficient to last for another three months, the time required to mature main crop varieties. We would recommend for quick results French Forcing carrots, Extra Early Egyptian beets, Six Weeks or Milan turnips, Scarlet turnip, White Tip radish, Amsterdam Giant spinach and Wonderful lettuce. Planting onion sets will give quicker results than from seed. For the main crop use Chantenay carrots, Eclipse beet, Purple Top White Globe turnip, kohl rabi, parsnips, salsify and onion seeds. All of these being root crops require deeply worked soils for best results. For parsnips, salsify and long carrots the English gardener works his ground to a depth of not less than two feet, and the results are those long, smooth, fine flavored roots that we see pictured in European catalogs.

Having your ground in good shape before planting is the foundation of a successful garden. Plant all your stuff in rows so that the garden can be easily irrigated and cultivated. Always be sure to have the seed in damp ground when planted even though they are covered considerable more than four times their diameter, which is the proper depth to plant where the seed bed conditions are perfect. By getting the seed into well prepared damp soil the ground will not have to be wet before the seed is up, whereas if the ground has to be wet to make the seed come up there is considerable damage from making a crust over the surface that the seed are not able to break through.

Of the more tender or summer growing vegetables any of them may be planted with safety during the latter part of March in all but very cold sections. During the first part of the month considerable risk is undertaken when plantings of tender stuff are made anywhere but in naturally warm sections. Where conditions permit make plantings of Canadian Wonder and Ventura Wonder wax beans; Heath's Early or Golden Bantam sweet corn; White Rose potatoes, and squashes and melons. Set out plants of tomatoes, peppers and egg plants. Plant peas the early part of the month. We do not recommend them later because the weather gets too warm before they mature and peas do not do well in warm weather. Put in the main crop of onions this month for dry onions for winter, using Australian Brown, Yellow Danvers or Southport White Globe.

Get your pump into working order because this is the critical time to use it, just when the insects are hatching and before fungi develop. Lime-sulphur solution is the best combination spray to use at this time although for apple and pear trees Paris green or arsenate of lead should be added to this spray or to Bordeaux mixture, and spray when the trees are coming into bloom and again just as they finish. Rinse the pump well each time it is used.

Northern California

Written for California Cultivator By A. R. Gould

THE month of March is about the busiest month of all as with it comes the opportunity which spring offers and we are able to make successional sowings and transplant many of the subjects we sowed the previous months. New plots should be prepared and sowed or planted out, always reserving space for the months to come. Usually California grown vegetable seeds—which by the way are known the world over—are noted for their high percentage of vitality and as a result it is not necessary to sow thickly as it not only means waste but retards the early growth of the seedlings as it means a crowded condition. A word of warning to our readers in buying seeds: Never buy cheap seed or "job lots" put up by some firm who were afraid to print their name on the packet, as the reliable seedsman is proud of his seed and is also interested in results. Furthermore, most of them spend lots of valuable time and money in testing their seed throughout the season, which is also a duty they owe to their customers, as it is essential for the success of all concerned. Those who sow poor seed are wasting time and good land and for this there is no excuse.

Regarding a chemical fertilizer and one which brings results, we recommend sulphate of ammonia. It is excellent to use in the vegetable garden. Apply this broadcast and work it in with the cultivator as soon as possible this montth. The quantity to use will depend largely upon your soil conditions. If your crops were very poor last year and you are convinced that your soil is poor use at the rate of 100 to 150 pounds per acre. We have used this with success under various conditions and the writer has seen quick action.

Tomatoes

It is not too early to prepare quarters for sowing seeds of this crop and a rough frame or hot bed should be constructed and the top protected with cheese cloth. The soil should be somewhat sandy and after sowing the seed should be watered in. Early Detroit, Chalk's Early Jewel or John Baer are all splendid early varieties, while for a later canning variety, San Jose Canner is the best. The plot should be well trenched and in order for planting out some time next month. Avoid using the same plot you used last year in case a few diseased fruits infected the soil during the winter, which a fugous disease is likely to do.

Peas

Continue to make a monthly sowing

of Little Marvel, Stratagem or Abundance and see that these do not suffer for lack of water. In the warmer sections and on the hillsides in Alameda County the early peas will now be making considerable headway and it will be necessary to keep the cultivator busy between the rows.

Cabbage

Seeds of Early Drumhead, Copenhagen Market or Large Flat Dutch may all be sown this month on a border or bed of well prepared soil, after which they must be transplanted to well manured and deeply trenched soil. A small packet of seed will supply quite enough plants for the average small home garden.

Leeks

These if sown as advised last month may be transplanted to other boxes three inches apart, towards the end of the month.

Carrots

Sow on well prepared soil French Forcing or Long Orange in drills 18 inches apart, thinly.

Onions

Transplanting of early and main crop varieties may be made this month on richly prepared soil. Where root and wood ashes are obtainable this should be applied broadcast and worked in thoroughly.

Celery

Seed should be sown in boxes of sandy soil. Golden Self-Blanching and Giant Paschal are good varieties. Trenches for planting out in due course should also be prepared during the next two months. Celery is deep rooting, hence these trenches should be deeply manured.

Lettuce

Strong seedlings should be selected for transplanting towards the end of the month from last month's sowings.

Potatoes

This is the month when we can safely plant in our section. Little is gained by very early planting and it will also be advisable to secure your seed tubers from your seedsman (certified as free from disease) and these can then be placed in a shallow box near the window to encourage sprouting. Select small tubers for planting or cut the large tubers into sections having two or three eyes. Avoid planting in stiff heavy soils as it requires a rich sandy loam in which to thrive. Plant the tubers in rows about five or six inches apart, after two weeks' sprouting has taken place in the boxes. The soil should have been previously deeply trenched with farmyard manure. Early varieties we advise planting are Early Rose, British Queen or Irish Cobbler, and for the main crop Oregon Burbank and Great Divide. About eight pounds will be required to plant a row 100 feet in length. It is very advisable to dip the tubers in a solution of formalin before planting to prevent any development of disease.

Radish

Make a sowing of Early Scarlet turnip and Half-long on rich soil. Sowings may be made every two weeks.

Flavoring Agents

Mint, thyme, etc., may be transplanted or existing clumps divided now or seed of any of these herbs may be sown on a warm border.

Rhubarb

This is a paying crop and if planted in richly manured soil will give results. Strong clumps of Giant Winter and Victoria may be secured from your nurseryman and planted without delay. Plant in rows three feet apart. Dress existing roots heavily with farmyard manure.

This Month in the Ornamental Garden

Northern California

Written for California Cultivator By A. R. Gould

MARCH brings us still more work in this department, as we must prepare for summer displays and to keep up a succession it is necessary to make several sowings during the coming months.

Enemies of Plants

There are numerous enemies of plants everywhere, both as fungous diseases and insect pests. Among the most important of the latter are snails, slugs, caterpillars, mites or red spider, scale, mealy bug and last, but not least, the green fly, or aphis. These latter increase very rapidly. Prof. Huxley has stated that the tenth brood of aphis would contain more animal matter than the population of China. These very destructive creatures suck the juices of the young tender shoots of plants where they may be found on sweet peas, roses, stocks and other flowers. A solution of nicotine mixed with a little soap, sprayed at intervals will generally prove an effective method to adopt. Paris green or lead arsenate will prevent the ravages of the caterpillars if sprayed on the plants in time. Sulphur should be used against the mite or red spider and constant vigilance day and night is required to destroy snails and slugs.

The Flower Seed List

If you have not yet ordered your flower seeds for the season you should study the list without delay as the seedsman's stock is larger early in the season.

Flowers for Partial Shade

The question is often put, "What can I grow in partial shade?" and here we may mention the following: Lilies, pansies, viola, wallflower, verbena, sweet william, begonias tuberous, nigella, or love-in-a-mist, columbine, marguerite, calceolaria, and campanulas, among which are the Canterbury bells. You may secure bulbs of the lilies and seeds or plants of the others mentioned and use them to beautify the situation above referred to.

Flowers for Shady Places

Even here where many have despaired of improving such a location one may use cinerarias, primulas, forget-me-nots, violets, valerian, begonias fibrous, and mignonette. For ground cover under oaks or other trees having dense shade English ivy and vinca are both ideal to use.

Sowing Annuals Broadcast

For a bright color display sow the following seeds broadcast in the open ground after the soil has been well prepared. The seeds must be well raked in: Poppy, Shirley; linum or scarlet flax; Tagetes, Golden Gem; Dimorphotheca, orange daisy; candytuft; white livonia; viscaria and balsam. Any of these may be sown in this month direct to the flower beds or borders, their permanent quarters in a few weeks after germination. However, they will need thinning out.

Some Fine Buddleias

These are large evergreen shrubs and have of late become very popular. Recently the writer saw a beautiful white winter flowering variety quite distinct from the others in that it was also very fragrant. B. magnifica is a large deep purple flowering type of variabilis. B. globosa, having orange yellow globe shaped flowers and a compact form of bush growth, is also worthy of notice, and B. madagascariensis, also orange colored, has long spikes of flowers, the plant being of very vigorous growth.

All the above mentioned should find a place in the garden and they may be easily propagated from cuttings or slips placed in sand in a warm frame.

Fragrant Flowering Shrubs

Many gardens lack fragrance, which is a great loss, but among those shrubs which are very fragrant we should advise planting Daphne, pink and white varieties, abelia, lilacs and syringa.

The Perennial Border

Work connected with the perennials should be completed this month. Dividing the larger clumps and transplanting should be performed without delay, and any new plants raised from seed planted in their respective groups, oriental poppies in solid groups of color, phlox, golden glow, a tall plant for the background, hardy asters in variety, pentstemon, sweet williams, polyanthus and heuchera effectively grouped provide a summer and fall display to which we might add the anchusa, geum and gaillardias, with a border edging of double daisy, and violas, white and blue.

STYLEPLUS CLOTHES

To the boys going back to civilian life

You will need new clothes almost the first thing.

If you were not a Styleplus wearer perhaps these facts will convince you:

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Southern California

Written for California Cultivator

THERE are so many spring months in California that it is hard to tell which is the most important. Any spring work which has not been done in the preceding months should be cleaned up during March. Lawns are now getting greener and handsomer than ever and need additional fertilizing. Bone meal and tankage are two good lawn dressings. Uncultivated ground which is covered with weeds should be spaded at once. One may still plant sweet peas during the earlier part of the month. One may well apply manure during this month. The flies are not so bad as when it is spread around during midsummer. The mulch checks evaporation and puts the soil in excellent condition.

Finish sowing the annuals, or rather, continue for one may sow annuals practically the year around, but make this the most liberal planting month; asters, balsams, coxcomb, cosmos, larkspurs, marigolds, nasturtium,s zinnias, and dozens of others; especially plant nasturtiums. They will stand for neglect and are a fine soil cover and usually grow rank enough to prevent weeds from getting a start. Use these in out of the way corners.

Cuttings. This is a good month for making cuttings, and don't forget the homely geranium. Nothing more gorgeous can be shown than the effect of massing some of the bright colored geraniums, and if water gets short in midsummer they will stand for much neglect.

Then there are poinsettias, begonias, carnations, fuchsias, heliotrope, marguerites, salvia, and later in the month, chrysanthemums and other plants which are grown from cuttings or rather by division. In this class are the Shasta daisies, Golden Glow and dozens of others which will occur to every gardener.

The old callas which have been frozen down should be encouraged. We have never seen anything give color and mammoth size equal to a half a dozen handfuls of bone meal thrown around calla plants. We have grown leaves four to four and a half feet in length, but remember they take lots of water and a bit of shade in midsummer is not unacceptable. New callas may also be planted, as may cannas, dahlias, tuberoses, tigridias, and don't forget that glory of the garden, gladioli. Loosen the soil around the amaryllis and give them a good mulching. The true amaryllis, that is the pink midsummer or early fall bloomer, gives wonderful cut flowers. The spring blooming amaryllis, or hippeastrums, will appreciate quick acting commercial fertilizer.

Those roses which were pruned last month should now be given abundance of water and fertilizer. We can force Christmas bloom by proper midsummer handling of these plants, but the true glory of the rose is shown by its natural spring bloom.

In sections where rain has been a bit scarce don't forget to lay the hose where it will run for several hours on the roots of the wistaria. It is time for it to be getting ready for the wonderful bloom which it will give a month or two later.

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

When Are Eggs Fertile?

Our hens have had no rooster with them for a month but now have him with them again. How long will it be before eggs are fertile? When placing a rooster in the flock for the first time when would eggs be fit to set? How long will eggs remain fertile after removing male bird? Would a cross on Plymouth Rock and Cornish Indian Game make a better market fowl than straight game?—Subscriber, Lakeside.

Generally speaking, fertility cannot be counted on till the male has been with the hens about two weeks, but in this case, since he is not a stranger, you should have a reasonable per cent of fertility by the end of the first week. Tests have shown that some eggs are fertile as early as four days after mating, and the majority are fertile in eight or nine days, but there are always some hens in a flock that are slow in getting acquainted, so, when hatching eggs are to be sold it is better to wait two weeks if the male bird is new in the pen. Fertility lasts five or six days after the male is removed, and sometimes longer.

A cross of Barred Rock and Cornish ought to give a market bird that would reach market size a little sooner than straight game, though the color would not be as satisfactory as a cross of Cornish on R. I. Red. A well known Cornish breeder tells me that his chicks from a cross of Cornish male on R. I. Red hens reach one and a half pounds in six weeks. Game breeders claim that there is no better table bird than the game, but the game does not grow quite as rapidly as its crosses with other breeds.—J. A. K.

R. I. Reds or Plymouth Rocks

Which are the best all 'round chickens to raise, both for eggs and meat? Which is better, Rhode Island Red or Plymouth Rock?—Subscriber, Del Sur.

I should not dare to say which is better, for both have their admirers. Californians generally consider the Red the better layer, but Barred Rocks have made some splendid records in the egg laying contests. On the other hand, it is pretty generally agreed that the Rock is the better breed for meat. It is just a question of which you want more, eggs or meat. No breed is equally good for both. Probably a good laying strain of either Barred Rock or Orpington comes as near being the ideal dual purpose fowl as you can find.—J. A. K.

Who Is Breeding Buff Ducks?

Please give me the addresses of two or three people who are breeding a good grade of Buff Ducks. I know of the Ferris Ranch, Pomona; they have no stock for sale. There do not seem to be many people breeding them, judging by the dearth of for sale notices.

I find no one advertising Buff Ducks except the Ferris Ranch. If any reader of the Cultivator has them, now is a good time to let it be known.—J.A.K.

Rabbits Have Indigestion

What cure is there for young rabbits that get poor and die. The apparent cause is white spots on the liver and very little gall. I am feeding dry alfalfa, rooted barley with a little green grass and a few carrots at times.—Subscriber, Vallejo.

The trouble is caused by indigestion, may be because of feed or inherited disposition. Feed corrective foods such as a variety of weeds, barks of orange, apple or apricot sprouts. Feed sparingly yet regularly. —W. D. W.

Egg-Eating Dog

I have a dog five months old that eats eggs. What can I do to break it of the habit?—J. H. Armstrong, Stockton.

Personally, I don't think a dog belongs on the same ranch with chickens. If you break him of eating eggs you will also have to teach him to let your young chicks alone. However, I do not see why an intelligent dog cannot be trained not to eat eggs or catch chicks just as easily as he can be trained to stand on his hind legs and do other useless things. Why not try punishing him every time he is found in the chicken yard? A cat that has been accustomed to chicks all its life will play among them and never think of touching one. Surely a dog has as much intelligence. If it has not, there is only one thing to do.—J. A. K.

Tanning Rabbit Skins

How are rabbit hides tanned for fur?—Subscriber, Vallejo.

Remove all flesh and fat from skin while fresh. Dissolve one quart common salt in one gallon water, add one ounce sulphuric acid. Three days in this solution will tan baby rabbit skins, 21 days mature skins. Six weeks' soaking will not injure either, and it is best to take time. When tanned, remove from first solution and wash in mixture of five gallons water and ½ pound sal soda. Hang skin in shade for about 24 hours. Rub and work skin to make soft and pliable, then roll up in sack to keep from drying. Repeat this process several days until skin is dry and soft. Don't permit skin to become dry and stiff until work is completed.—W. D. W.

Is Rabbit Raising Profitable?

Can rabbits be raised profitably for

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Get thrips now as they come from the ground to lay their eggs. A million dollars' worth of damage—that's what they do every year to California prunes, cherries, pears, apricots, etc. And all because they're not killed in time.

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the market at the present prices of feed? If so, what breed would you recommend for that purpose? At what age and weight should a young rabbit be placed in the market at the most profit and what is the average cost to produce a rabbit for the market?—Subscriber, Berkeley.

Yes. The writer can prove this by his own experience and that of many members of our local pet stock association. One can waste money or save money in buying feeds. One of our members saved 35 cents per sack on roll barley by shopping around a little last week. One member bought his hay loose at $11.00 per ton and another stood and looked at it longingly one day for he was then buying his by the bale and paying $26 per ton. The question presents many phases and is one that is often discussed in our club meetings, and it would pay you to join your local club and have a part in these talks.

Belgians, New Zealands or Flemish make good market stock. The age for killing depends on the demands of your market. Some want fryers, some broilers and some roasters. The average cost per pound can only be determined for you by a test of stock fed on the foods obtained in your market for a certain period of growth. Take a doe with litter just born and estimate cost of food for three months and then weigh stock and you will know accurately. It generally runs about from 11 cents to 15 cents per pound. You will find it very helpful to read carefully some good rabbit book where these and many other questions are discussed.—W. D. W.

Beans for Poultry Feed

Can you tell me how beans at six cents per pound would compare in feeding value with corn and barley as feed for laying hens, if I cook the beans.—Subscriber, Monterey County.

Beans at six cents a pound are considerably more expensive than corn or barley and much less palatable. For some reason hens do not take readily to a bean diet. If the beans are ground or broken and mixed with other grain in such a proportion that the hens do not notice them, they will eat them, but they prefer other things. I have in mind a friend who bought a quantity of weevilly beans thinking they could be cooked and fed to his hens, but the hens have steadily refused them unless they were thoroughly disguised. If I had the beans I would try to fix them so the hens would not know what they were eating, but I would not buy them at any price.—J. A. K.

Proper Ration for Poultry

Please tell me what is the matter with my chickens. I had a fine show rooster and knew the flock from which he came and know there wasn't a sick one among them, but after I had him about two or three weeks he became squatty and wouldn't wander around for feed, and his droppings were a very light brown with a tinge of very light green and then on top was always a big lump of white. This was quite hard. His comb and head turned very dark but never got black. My chickens are in an old chicken yard but there have been no chickens there for four years. I have guessed it to be cholera as the trouble seems to be contagious. A hen died yesterday and I have four hens setting and their droppings are turning the same. Will the little chicks be all right if I take them away from the hens as soon as out of the shell? Is there a cure? What shall I do? The chickens have all the green grass and alfalfa they can eat and table scraps. The setting hens have wheat.—Subscriber, Helm.

Cholera is a very rare disease in California and is characterized by a yellow coloration of the urates, or white, solid portion of the droppings, which is not in accordance with your description. I think your chickens have enteritis or dysentery, due to wrong feeding. You say they have green grass and alfalfa and table scraps, all but the sitters, which have wheat. If, as this seems to imply, the general flock has no hard grain and no mash, nothing but greens and table scraps, which are quite likely to be more or less spoiled, the trouble is easily explained. Chickens must have some hard grain to keep their digestive organs strong and active. They must also have grit for grinding the grain. Table scraps are all right once a day, but they should be cooked, along with potato and apple parings, waste cabbage leaves, etc. Boil them till soft, and then thicken them with bran or middlings or with the commercial dry mash, which ought to be before them in hoppers all the time. This mash is best given early in the afternoon, though some very successful feeders give it at night. Sprouted oats or barley in the morning, with fresh greens at noon, the moist mash at 2 o'clock, and a mixture of barley, milo and wheat at night makes a good, wholesome balanced ration.

To cure your sick chickens, get them onto the proper ration first. Second, give the whole flock a dose of Epsom salts, a teaspoon to each bird, dissolved in water and mixed in the moist mash. Mix powdered charcoal with the mash. Third, Dr. Salmon recommends this treatment, which will not cure your chickens unless they are properly fed, but which may hasten their restoration to health. He suggests either one of the following:

1. Subnitrate of bismuth, three grains; powdered cinnamon or cloves, one grain; powdered willow charcoal, three grains. Give twice a day mixed with food or made into pills with flour and water.

2. Subnitrate of bismuth, three grains; bicarbonate of soda, one grain; powdered cinchona bark, two grains; mix and give three times a day in a paste made with rice flour. When diarrhoea is arrested, bismuth and soda are no longer needed. Give as a tonic: Powdered fennel, anise, coriander, and cinchona — each 30 grains; powdered gentian and ginger, one dram; powdered sulphate of iron, 15 grains. Mix and give in the feed so that each fowl will get two to fourteen grains twice a day.

Sick birds should be removed from the flock as soon as they are noticed. Houses and runs should be cleaned and disinfected. Drinking vessels and food troughs should be scalded. If the hens still have diarrhoea when the chicks hatch they should not be allowed to brood them. It would be better to put the eggs under other hens if they are available. It is possible they will not be infected in any case, but one cannot be too careful.—J.A.K.

Green Feed Cutters

What kind of green feed cutter is the best? Where can I get it and how much will it cost for either hand or power?—Subscriber, Gridley.

I have mailed you catalogs which give the information you wish as to prices and kinds of clover cutters. Which one is the best depends on how much use you have for it. For a large flock you would probably find the power cutter more economical of time and labor. For a small flock its expense would hardly be justified.—J. A. K.

Home for Old Ladies

Can you give me the location of a Protestant home for old ladies? Who could I address to find out particulars?—Subscriber, Covina.

There are two such homes in Los Angeles, the largest being the Hollenbeck Home for the Aged. A card to it will secure information as to the requirements but we believe there is a long waiting list, and in addition that home is open only to those who can make certain cash payment with the application. When that is made lifelong care is assured. One may also write to the W. C. T. U., Temperance Temple, Los Angeles, California, and secure information as to old ladies' home located on Avenue 57 of that city. In addition one may make application through their own church organization and often secure help in locating a home.

WOOL STOCKS ON DECEMBER 31, 1918

Dealers and manufacturers reported 213,600,000 pounds of wool, grease equivalent, held by them December 31, 1918. Stocks in pounds by classes as given in the bureau of markets, United States department of agriculture, report were: Grease, 140,524,763; scoured, 26,163,548; pulled, 15,447,429; tops, 11,817,192; and noils, 17,489,814.

The wool purchasing quartermaster reports on December 28, 1918, that the total stocks of wool in the government's possession, spot and transit, was 313,746,502 pounds and estimates the quantity of wool in dealers' hands not yet billed to the government at 70,000,000 pounds. Total manufacturers' stocks of grease, scoured, and pulled wool reported to the bureau of markets were 77,650,921 pounds. This amount added to the figures on government stocks gives a total of grease, scoured, and pulled wool in the United States on December 31 of approximately 460,000,000 pounds.

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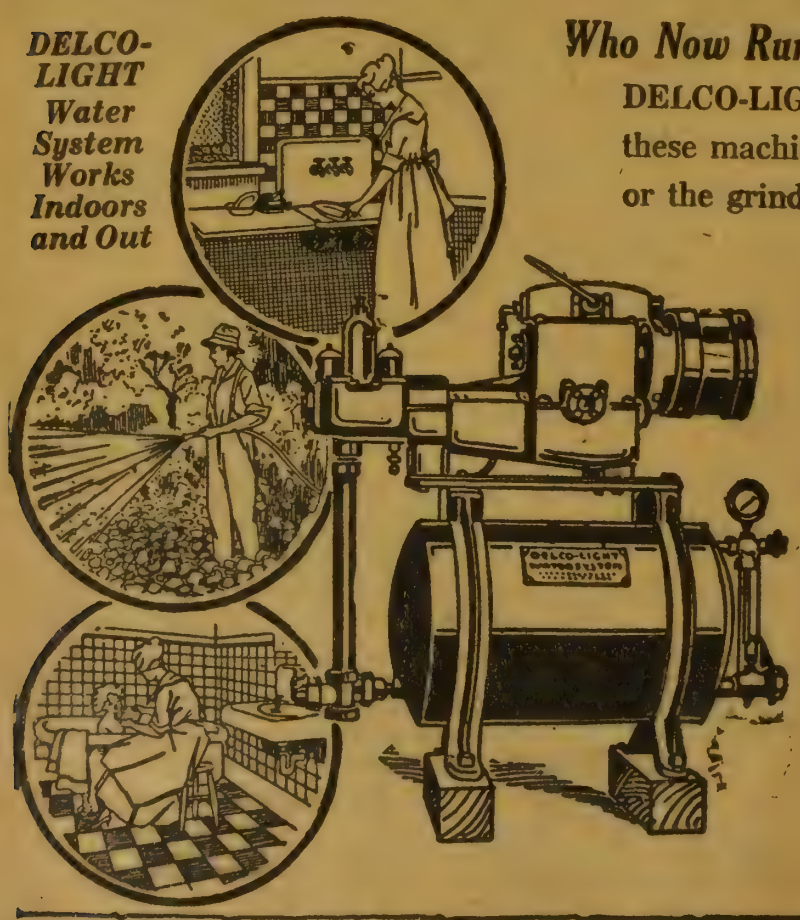
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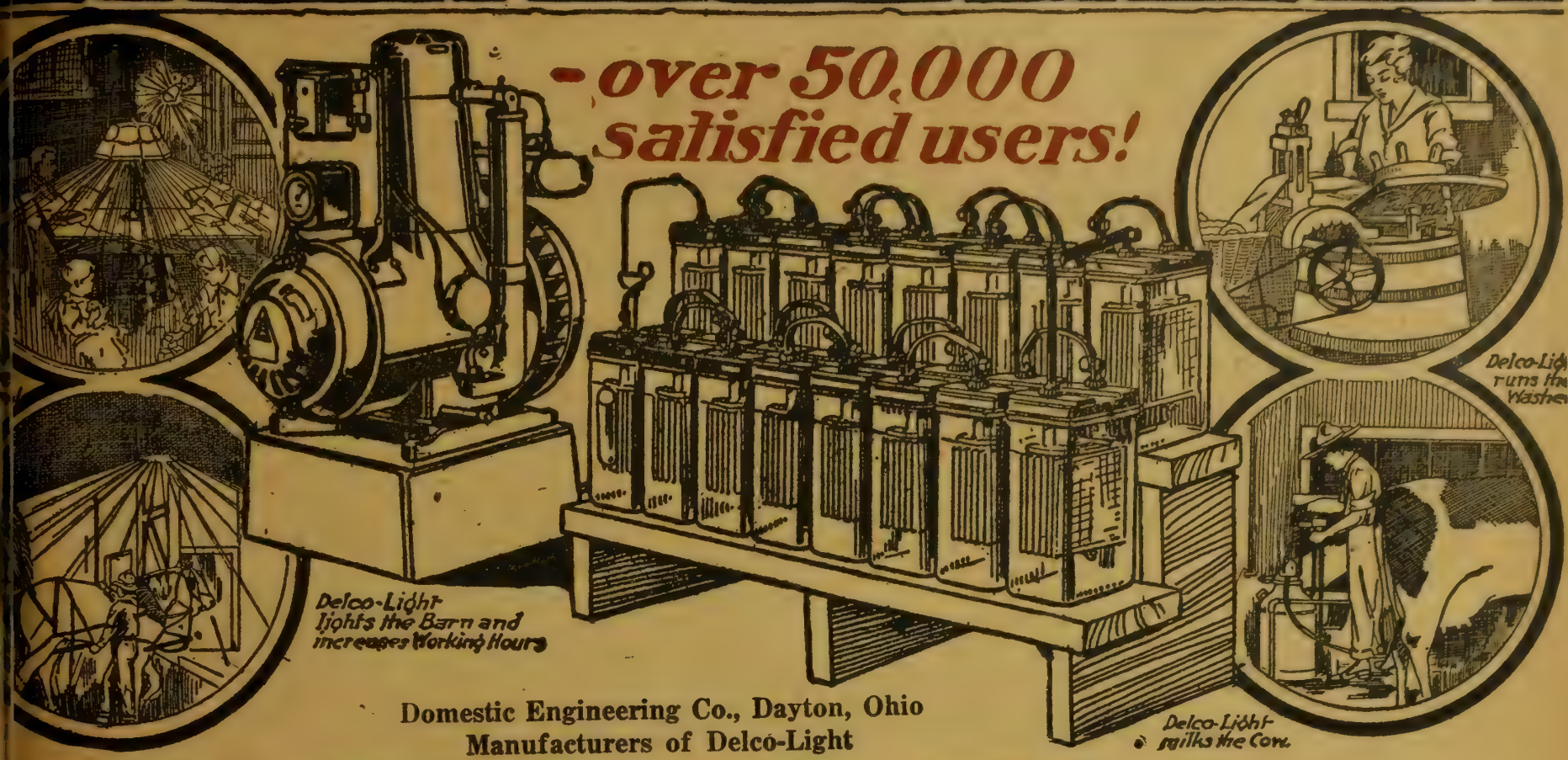
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March 12 and 13, 1919

In the New Sale Pavilion in Fond du Lac, Wis.

Would you like a chance at the cream of Wisconsin's Holstein Herds?
From no place in the world can you secure better, healthier, more dependable Holsteins.
The cattle consigned are a remarkable offering.

Among Them are:

A Daughter of Wisconsin's State Record Cow, 36.36 pounds, bred to the Highest Record Bull in Wisconsin, a 42.31 pound Son of Bess Burke Ormsby. In the pink of condition.

A Beautiful Daughter of the 40.32 pound sire, King Model, from a 23.50 pound dam, and bred to a 30.27 pound son of King Segis Pontiac Alcartra.

A Fine large 27.66 pound cow, bred to "The King," due to freshen before the sale, and will be re-tested. Calf sold also.

A Classy 25.435 pound four year old from a 31 pound dam, next dam 32 pounds. Also a 27 pound four year old, and a 28 pound four year old. Real Prospects for 30 pounds or better.

Some Good Record Daughters of Spring Farm King Pontiac 6th, and Fine Individuals. As Good as the Best.

A 22.03 pound junior three year old Daughter of Woodcrest Pietje Walker, and Bred to Iowana Sir Ollie. Not many of these for Sale.

A Beautiful Yearling Son of King Segis Pontiac, from a 26 pound two year old.

A Bull Calf, Some Individual Too, whose Five Nearest Dams average over 1000 pounds butter, and 23,000 pounds of milk in one year. Just good enough for Anybody, if Year Records Count for Anything.

Auctioneers: Haeger, Kelly & Mack. S. T. Wood in the Box
For Catalog or Information, Write
F. H. Everson, Sale Mgr., Lake Mill, Wis.

When writing advertisers, mention The Cultivator.

Poland-Chinas Sell Well

Written for California Cultivator By Bruce S. Bennett

A MORE enthusiastic crowd of breeders would be hard to find than those that comprise the Poland-China Breeders' Association of Kings County. What cooperation and good fellowship will accomplish was thoroughly demonstrated at their sale held in Hanford Feb. 22nd.

Unlike many such sales every breeder was on hand to assist in any work or boosting necessary to bring the sale to a successful conclusion. A very inspiring sight was a crowd of 25 pig club boys from Fresno County, accompanied by their farm demonstration agent, there to purchase pure bred sows. The boys are being financed by a number of banks of the county which believe in starting the boys right so are purchasing for them pure bred sows and gilts bred for early spring farrow. Owing to the high prices prevailing only part of the boys were able to secure pigs, but those that didn't will be supplied from the herds of the various breeders.

Seventy-one head of sows and gilts including a few boars sold for a grand total of $11,827.50, making an average of $166.58 which, I believe, is by far the best sale of Poland-China's ever held in the county, if not the state.

The top of the sale was from the herd of Wm. Bernstein. His magnificent sow, Kings Jumbo Lady, after a few minutes of spirited bidding, went to Mr. Gray of Hanford for $460. The consignments from the Bassett herd were snapped up quickly and totaled $2175, the tops bringing $430, $355 and $310. The wisdom of the association in securing Col. Ben Rhoades, of Los Angeles, to cry their sale was verified by the high average secured. The colonel was in good spirits, had the crowd with him from the start and kept things moving with the rapidity necessary in securing high averages.

Detail report of the sale follows:

No. in Catalog	Purchaser	Price
M. & A. L. Bassett Consignment		
1	J. F. McSwain	$310
2	California Polytechnic School, San Luis Obispo	155
3	D. Gray	355
4	D. Gray	235
5	J. F. McSwain	265
6	G. J. McCune	145
7	H. Linderman	150
8	L. J. Whitsen	130
10	D. Gray	430
Wm. Bernstein Consignment		
11	D. Gray	460
12	M. B. Cross	300
13	H. G. Large	125
14	W. L. Haag & Son	205
17	L. Bisel	125
18	D. Gray	205
19	Thos. Caesar	150
20-21	Ladies' Special, Mrs. Guerin	350
J. A. Crawshaw Consignment		
22	R. N. Blanchard	135
23	A. A. Maisbary	130
24	T N. Hale	125
25	(Pig) Wiley Brooks	55
26	A. T. Lewis	100
27	Will R. Burnett	100
Extra	(Boar pig) A. T. Lewis	70
John Bernstein Consignment		
28	M. B. Cross	120
29	(Pig) A. F. Busch	80
30	D. Gray	105
C. G. De Raad Consignment		
31	John Smith	100
32	C. O. Cowles	130
33	C. K. Ragan	110
34	Wallace Kennedy	122.50
Extra	(Sow and litter) Ira L. Mason	180
35	H. H. Linderman	95
36	H. T. McNeil	85
37	John Bernstein	110
38	John Bernstein	100
Dimmick Bros. Consignment		
39	A. P. Davis	150
40	C. O. Cowles	110
41	Almir Larson	115
42	J. F. Harriger	180
43	G. W. Cleek	125
44	(Pig) E. E. Robinson	55
45	Clarence Wallers	100
46	Ralph Erkenia	100
47	M. Gailley	100
W. L. Haag & Son Consignment		
48	Orval Fowler	160
49	M. B. Cross	140
50	M. B. Cross	150
51	M. B. Cross	150
52	H. H. Mansperger	125
53	Thos. Caeser	150
54	H. E. Hill	140
55	H. H. Mansperger	130
56	A. L. Bassett	150
57	H. H. Mansperger	145
58	H. G. Large	100
Hubbard & Sons Consignment		
59	A. F. Busch	165
60	Clarence Peterson	100
H. D. McCune Consignment		
61	Tressie Anderson	270
62	F. Guerin	255
63	H. H. Dingley	115
64	M. B. Cross	205
65	M. B. Cross	190
66	H. C. Shinn	325
67	A. J. Elliott	325
68	M. B. Cross	175
69	R. F. Guerin	260
F. D. Ross Consignment		
70	M. B. Cross	150
71	W. A. Young	190
C. N. Vaughn Consignment		
72	Wayne Parker	140
73	Russell Harris	125
74	Bernard Bennett	125
75	Vern Fullerton	150
76	D. C. Jones	100

NOTES OF THE SALE

Wm. Bernstein continued the habit he has formed of topping the sales, by doing so in this sale with the excellent specimen of the breed, King's Jumbo Lady, which was sold to Mr. Gray of Hanford for $460. Another, Betsy H., went to Mr. Cross of Merced for $300. Mr. Bernstein knows the value of advertising as these two animals were specially advertised for this sale in the Cultivator.

F. D. Ross, the efficient secretary of the association, was about the busiest man on the grounds. In fact he was so busy he did not finish 'til way in the night.

Dr. J. A. Crawshow, who enjoys a very lucrative practice, gets his relaxation from his Polands. As his offering was mostly young stuff he should be well pleased with the results of the sale.

John Bernstein was very busy all day boosting, especially the get of President, the boar that John banks on. He drove in seven young pigs and announced he would sell one buyer to take his choice—$180 was the price.

From the DeRaad herd came seven head, mostly late spring farrow, and age considered brought very satisfactory prices.

Dimmick Bros. had eight head in the sale and while they sold very satisfactorily were entitled to a little more than was received.

W. L. Hoag & Son, comparatively new breeders, sent ten nice gilts to the sale and were rewarded for their efforts by making the nice average of $144. All of these were of 1918 farrow and some rather late.

W. S. Hubbard & Sons entered only two animals but had the satisfaction of seeing one of them go way up to Mendocino County at $156.

When H. D. McCune drove in the two litter sisters, Big Jane and Big Ann, it kept Auctioneer Rhoades mighty busy as it seemed like everybody wanted to bid on these two at the same time. They went to H. C. Shinn and A. J. Elliott, both of Tulare, for $325 each. Had these two been in most any eastern sale the price would have been doubled.

Secretary Ross was only able to send two gilts of April, 1918 farrow, but they made the average of $170.

While Mr. Vaughn, one of the newer breeders, had nothing of his own old enough for the sale he showed his enterprise by going out and buying four. The four sold for $540.

During the sale Wm. Bernstein put on what he called the Ladies' Special—two young sow pigs—and the bidding was limited to the ladies. Mr. Bernstein's offer to buy back either in six months at the price paid for both produced a flood of bids. Mrs. Guerin of Visalia was the fortunate bidder, paying $350 for the two. We venture the opinion that neither will return to the Bernstein ranch.

LITTLE CHILDREN IN FRANCE SUFFERING FOR MILK

Serious conditions from lack of milk are related in a cable received at the office of the American Committee for Devastated France. Mrs. Dike and Miss Morgan, who are in charge of the committee's work in France, beg that at least 100 milch cows be provided at once to save the lives of babies and little children in the department of the Aisne.

It is almost impossible to buy cows in Europe and the few for sale are held at enormous prices. American breeders who can supply cows suited for export to France are requested to communicate prices and full particulars to the American committee's offices at 16 East 39th Street, New York City.

Berkshire Breeders Hold Best Meeting

WEDNESDAY and Thursday, February 19th and 20th, the members of the Berkshire clan met at the University Farm, Davis, for the fourth annual meeting and sale, and when the last event on the cards was over, every one in attendance frankly stated that the meeting had been—as advertised—a two day Berkshire exposition, and quite the most successful meeting ever held by the Western Berkshire Congress.

Taken as a whole this year's meeting was refreshingly different from past congresses. The Berkshire hog occupied the center of affairs rather than the Berkshire breeders. The entire program was planned to set forth the merits of the breed by actual demonstration. In place of the usual eulogistic addresses declaring the many good points of the Berkshires, a barrow contest was arranged—thus checking it up to the hog rather than a speaker. It is not beside the fact to state that the barrow contest at Davis was easily the best show of single barrows and pens ever held in this state.

The contest was limited to pigs farrowed since March 1, 1918, and the prizes and trophies offered were such that no less than 15 splendidly selected and fitted barrows were driven before Professor J. I. Thompson for rating. Professor Thompson had his work cut out for him and after he had carefully worked over his class, selected his three top barrows, and explained his reason for his ratings, the crowd felt that they had been treated to a highly instructive demonstration.

One of the most interesting features of this show was the fact that, with the exception of the third prize barrow, the winners were developed by young breeders. The first prize barrow was developed by J. Francis O'Connor of the Castleview Ranch, Santa Rosa, and represented his first attempt at barrow fitting. The second prize barrow was shown by W. F. Sandercock of the Natomario Rancho, Sacramento, and was one of the first developed in that herd. The third prize barrow was from the famous Humphrey herd.

After the single barrows had been judged, three pens of three barrows each, were placed. Frank B. Anderson, Sacramento, one of the youngest of the Berkshire breeders, had the first and second prize pens and W. S. Guilford of the Superior California Farm Lands Co., showed the third prize pen.

Following the on-foot judging, ten of the barrows were slaughtered and entered in the carcass contest. This contest was judged by Fred Farrell, a retail butcher of Sacramento, and the fact that the winning carcass was from a pig not placed on foot, but indicates that it is not always possible to tell what is under the skin.

The barrow and carcass contest developed the keenest interest and will doubtless be made an annual event at future congress meetings, and plans are being discussed that will probably result in a big barrow show at the state fair. Such contests serve to stimulate better feeding, and when properly conducted can be made to bring about a better understanding on the part of the producers as to what kind of a hog will come nearest producing the sort of carcass that the butcher likes.

The following table contains the results of the two contests. The pens of three were placed as stated above:

Owner	Live Weight.....	Dressed Weight.....	Dressing Percentage...	Rating on foot.....	Carcass Rating.....
umphrey	..390	329	84.3	1	3
Connor	...320	267	83.4	1	..
nderson	...220	169	77.0	..	1
nderson	...280	230	82.1	..	2
ndercock	.300	246	82.0	2	..
ndercock	.325	271	83.3	..	..
perior California Farm Co..	250	188	75.2	..	..
perior California Farm Co...	310	251	82.5	..	..
perior California Farm Co...	260	194	74.6	..	..
perior California Farm Co..	245	202	82.4	..	..

Following the barrow contest a students' judging contest was arranged. Nearly 100 students, most of them boys who left school at the beginning of the war, and who have returned to take up their work at the University Farm School, were entered. Three classes were provided, one of four sows, one of four gilts and one of four barrows. The boys were required to place each class and to give their reasons on one class.

The winners were:

J. P. Comerford, first; Edw. Lewis, second; L. F. Ernst, H. W. Woodward, B. J. Showers, D. Boucher, E. M. Penn and Paul Goya, all tied for third place.

After the various classes had been judged the annual meeting of the congress was called by President W. M. Carruthers.

For several weeks prior to the meeting there had been rumors afloat that this year's congress meeting would do one of two things—either set the breed back five years or put it ahead five years. No one could imagine that the first contingency would develop, because the character of the breeders identified with the organization is such that each would willingly make any personal sacrifice rather than to permit a situation to develop that would in any way retard the progress or dim the prestige of the breed.

Those who came expecting to see a political ruction develop were disappointed, but were treated to one of the finest demonstrations of breed loyalty.

Berkshire breeders are aggressive and it was but natural that a contest for the honor of directing the breed's progress shhould develop. It is no empty honor to be an officer of the congress and there were several aspirants for the office of president. Some insisted that President Carruthers stand for reelection. Other men had their supporters. It did look bad for a while, but President Carruthers saved the day by gracefully withdrawing his name, and after much pressure A. B. Humphrey, who has been one of the towers of strength in Western Berkshire affairs, and who had repeatedly declined the honor for a number of years, was induced to become a candidate. Immediately the skies cleared, Mr. Humphrey was unanimously elected president and what might have started a Berkshire revolution was averted. The following officers and directors will work with President Humphrey:

James Mills, Hamilton City, vice president; Frank B. Anderson, Sacramento, secretary; Mrs. Ruth Hardy, Orland; Geo. Murphy, Perkins; J. Francis O'Connor, Santa Rosa; W. F. Sandercock, Sacramento; Homer Hewins, Jr., Calistoga; H. C. Muddux, Sacramento.

Resolutions were passed endorsing the work of the American Berkshire Association; urging the state legislature to pass the pure food bill, the pure seed bill and the Rush dog tax bill.

At the suggestion of James Mills a resolution was passed urging that the state legislature adopt a more liberal policy toward the college of agriculture and the University Farm School.

W. F. Sandercock suggested that the Western Berkshire Cangress investigate the several fake hog syndicates operating in this state. The proposal met with hearty endorsement and the congress officials propose to do what they can to force these fake outfits out of business. All were agreed that the literature being used to entice money from innocent investors is calculated to deceive, and that the claims of huge returns are preposterous.

Following the meeting and election of officers the annual dinner was served in the University dining hall.

THE ONLY ONE LACKING

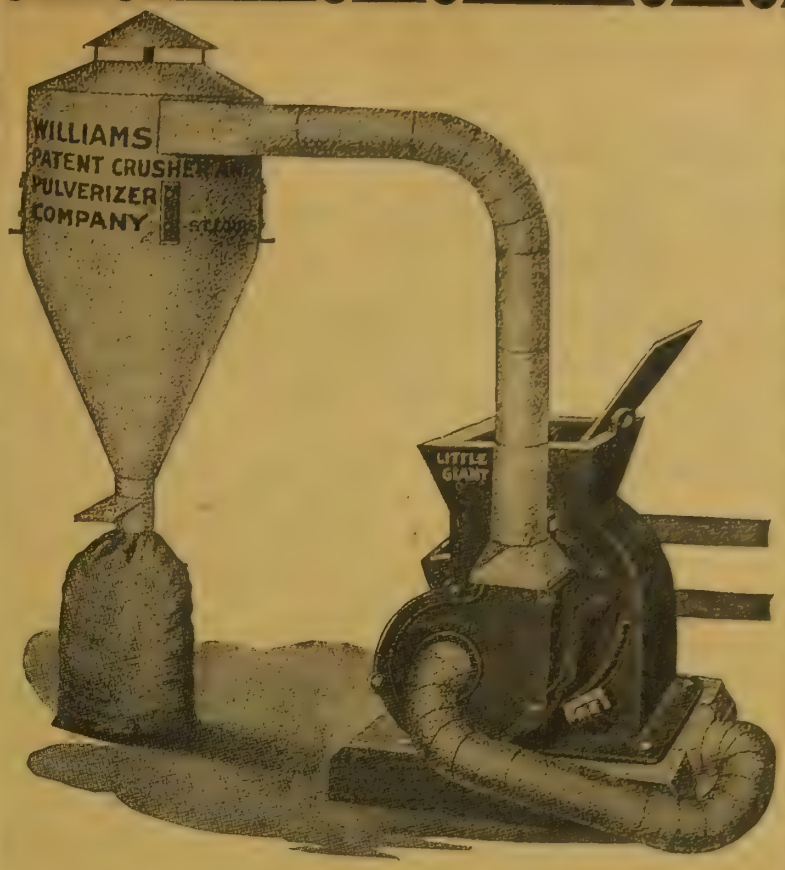
"Why are you so sure there is no such thing as a fourth dimension?"

"Because," replied the discouraged fat man, "if there was I'd have it.'

HER DIAGNOSIS

"What kind of a character is old Mrs. Gabby?"

"She's the kind of character that doesn't believe anybody else has any."



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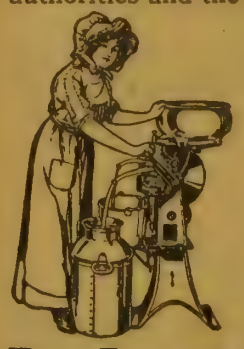
Formerly, with butter-fat at 25 to 35 cents a pound, a De Laval Cream Separator saved $10 to $15 per cow per year over gravity skimming.

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Order your De Laval now and let it begin saving cream for you right away. See the local De Laval agent, or, if you don't know him, write to the nearest De Laval office as below.

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Hearst Bldg. San Francisco, Cal.

Stray Thoughts of a Cowman

Written for California Cultivator By A. L. Spellmeyer

A farmer works hard with a $40,000 investment, feeds his stock, and probably has a couple of thousand bushels of corn left over to sell. The price for the corn he has fed to stock depends upon the price he gets for the beef and hogs. Therefore the value of his farm depends upon stock prices.

Along comes a speculator and sells on a ten cent margin or less a half million bushels of corn which works against the value of the farmer's corn and his farm and his stock. For $5000 margin this speculator can affect the probable corn returns of 250 farms. The investment of the farmers is $10,000,000 as against the $5000 used to affect the price. The man who advanced this view is a banker and farmer of Illinois and has a million or two himself, but as he says there are a lot of things which need adjustment, if production is to be increased and stabilized. If the farmers had a national association which worked it would be called a trust and wouldn't be allowed to influence farm product prices.

The live stock investment of this country, in cattle, sheep, hogs, land to raise them, and industries which supply them with needful merchandise probably total 60 billion dollars or more. The actual killing plants and stock yard's cost probably does not total a half billion dollars. It's like a cootie driving an elephant—as long as the elephant doesn't object.

We notice "J. O." is now advocating a "closer understanding" and increased production. From the book written some years ago we thought that all the prosperity of this country, its meat demand and its live stock wealth was due to the packers and that it was both righteous and above reproach in the system it used.

This view has been sadly perforated by the federal trade commission, and of course every man reserves the right to change his opinions. The light is permeating, and if true, that closer understanding and increased production is going to be a policy, there has been one long step taken toward better conditions for live stock producers. There isn't one producer in a thousand who won't meet the packers more than half way, and this country will be far more prosperous and our people eat better at lower cost. This get-together idea is good stuff and "J. O." is on the right track, if he doesn't jump it at the first few bumps.

Some of us have been thinking that these few big food handlers didn't care much what this country did or whether its producing industry was shot to pieces or not. The dollars can go elsewhere and make their interest if conditions become too burdensome. Some of us figure that all those new plants in South America and Australia could still make a lot more money as the less production in this country the more demand for chilled and frozen import meats. They can raise big steers in South America for less than we can summer a cow and meat is half to a third of our prices.

Capital must have a fair return and our packers must make money so we cannot be too severe in our judgments or taxation, or we will merely stimulate a foreign industry, raising it to compete against our own essential live stock and farm production. More production can be fostered by government interests and financial backing. If "J. O." would forget for a while his own interests and apply his great talents to solving this food problem, without bias, he would be hailed by future generations as our economic George Washington.

Half of the trouble with the cattle business today is financial, and the government can correct that with long term cattle loans as those six months loans are a mere delusion for any man in the producing stock line, although of use to feeders.

Chicago and Kansas City loan heavily to Arizona, which borders California. Trade follows loans. Kansas City and Chicago do an enormous mercantile trade with merchants right at Los Angeles portals, and Kansas City gets the bulk of the sheep and the cattle which go on the fat market. We will never have a city here (Los Angeles) until we get a different financial line up, and handle the money for producing industries, as well as give it a stockyards for the stockmen.

The oldtimers in the Biblical days lived seven or eight hundred years, raised great herds and the people to herd them. All they had to do was to graze the grass, fight off the wild animals, spin the wool and make their sandals, and eat the meat. They didn't have to figure packers, or tight money, or a poor market. Plenty of time and lots of help. They didn't have blizzards to contend with or winter feeding, and when they grazed out the country moved every hundred years or so to a new range.

Later a lot of herders and farmers got together and started a town, which they called Rome, and which whipped all the other towns in their parts. When the farmers and the herders got pushed to one side in the councils by the politicians and soft livers, Rome had a tumble.

This age and generation is wiser, as intellectually we all know the value of raw products and producing industries but have a hard time convincing our political directorate and representatives that we want the government to back up production and start it by giving us cowmen long term loans so that we can get down to producing good cattle and more of them.

All labor troubles and unrest hurt the stability of live stock prices, and Ole Hanson did good work, if he can make it stick. We have lots of work in roads and building to do at home and ships to deport the anarchists. It would be hard lines for the Southwest to run up against tight money and troubles after all the grief and loss during the last year.

The spring prices are still unsettled although many sales have been made at considerably advanced prices over last year. A bunch of poor quality mixed California stock cattle sold recently for $60 a head and a big bunch of good Colorado cows at $87, which shows a fair demand. Yearlings are held in Arizona from $35 to $48 and in Nevada and Utah $40 to $45. Good Panhandle yearlings are held at $50. There is a big steer demand but few cattle of age to fill it.

Clif Harris is to bring out some registered Missouri whiteface Herefords next month and has assembled about five cars of the good ones. Sometime in the years to come the stock industry is going to thank Harris for his efforts for better California bulls, as to convince a man who wants a bull

to buy a registered one takes as much time as to sell a carload. Such men as Harris, and Bellows, the Shorthorn ribbon winner, believe there is a great future in growing fine cattle in this state. It is surprising how many good herds in both Durhams and Shorthorns have been established and developed here within the last two years, and new men are joining the ranks every few weeks.

Any man who has tried to develop a good herd from grade cattle can appreciate what work and constant effort it entails. Better bulls and culling do wonders, but there always comes a time when it dosen't seem worth while, but the man who sticks and makes his cattle weigh 100 pounds more than his neighbor's finally gets there, financially.

Adam Patterson, the oldtime cow man from Nevada, was harking back to the time when beef brought a cent and a half per pound and yearlings $6.00 a head. As he says, "The price of cattle in the end depends upon how much meat the working man eats and if he has the money to buy it with." The upper crust may go strong for sauces and chicken a la King, but the working man buys the thick roasts and juicy steaks and goes to it in bulk.

A man can't help but wonder how much of the reported increase of cattle in the United States is like the big increase of hundreds of thousands of head reported for Arizona, which is due entirely to closer reporting, closer taxing and closer estimating, and not actual increase in cattle during two years of drouth and loss. In 1907 we had about ten million more cattle and twenty million less people and no close methods of estimating numbers.

INCREASE PROFITABLE BUTTERFAT PRODUCTION

The following are essentials in profitable butterfat production, according to H. H. Kildee, formerly of the dairy husbandry division of the University of Minnesota, University Farm, St. Paul:.

Proper shelter in a warm, light, well ventilated barn. The leeward side of a barbed wire fence is an expensive shelter for milk cows.

A knowledge of the herd through the use of milk scales and the Babcock test.

Corn silage and clover or alfalfa hay as patriotic, profitable, palatable feeds.

A grain ration in proportion to milk and butterfat produced.

Fall calving as a means of increasing production as well as price at a time when more labor is available.

A bushel of grain fed before calving rather than two fed afterward. Prepare the cows for the milking period.

Water of moderate temperature. Ice water is not conducive to greatest milk production.

A milking machine in case of labor shortage.

Cooperation with the neighbors in organizing cow testing associations and purchasing feeds in carload lots.

DAIRY FEEDING PRINCIPLES

Prof. C. H. Eckles, formerly professor of dairy husbandry in the University of Missouri for a number of years, and now of Minnesota, and who has conducted some of the most valuable experiments and also made some of the highest records with dairy cattle in the United States, has the following to say in regard to feeding and milk production:

"A dairy cow uses feed for the following purposes:

"1. For maintaining the body.

"2. To supply the material for milk.

"3. For developing the foetus.

"4. For growth in case the animal is immature.

"5. At times to produce gain in weight.

"For each of these purposes, three general classes of food material are required:

"1. Protein or nitrogenous material.

"2. Carbohydrates and feed to supply the heat for energy.

"3. Ash or mineral water .

"The main problem of feeding is to supply the proper amount of the food material of the three classes in the least expensive form."

MAKING STOVER INTO SILAGE

Some interesting results of Illinois experiments with feeding silage made from corn stalks are reported by H. P. Rusk. Mr. Rusk reports the following: The normal silage contained 7.35 bushels of corn per ton and cost $10.92 per ton as feed. On the basis of this value and three cents per pound for linseed oil meal, our standard winter maintenance ration costs us 24.8 cents per cow daily. On the basis of $1.50 per ton for the stover silage, and three cents per pound for linseed oil meal, the feed cost in the stover silage lots ranged from 7.2 to a little over 8.0 cents per head daily, or about one-third of the cost of maintenance with normal corn silage.

HOG CHOLERA LOSSES DECREASE

Losses from hog cholera declined greatly in the four years, 1914 to 1917 and a further reduction is expected for 1918, says a letter from the secretary of agriculture to Addison T. Smith, a member of the house of representatives.

The secretary calls attention to the necessity for state cooperation in the federal government's campaign against this destructive animal disease.

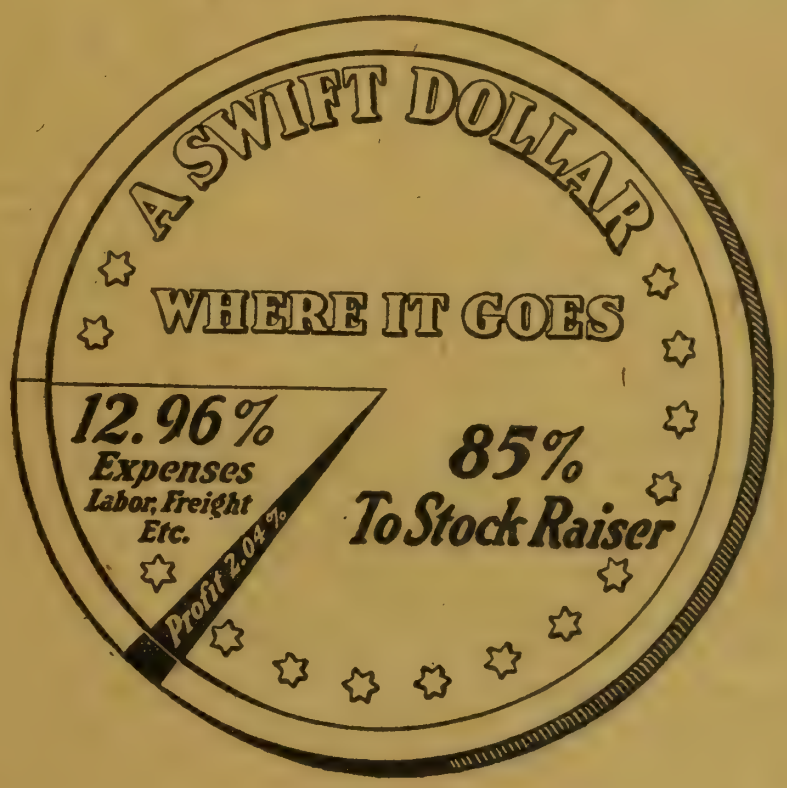
The losses for 1914 totaled 6,304,300 animals, which, valued at $10.40 a head, made a monetary loss of $67,697,461; for 1917, 2,952,144 animals, valued at $11.73 a head, a monetary loss of 32,475,190. During the four years the number of animals taken by the disease was 18,835,901, representing a value of $188,448,643.

CHANGES IN SALES DATES

The date of Walter F. Mitchell's public sale of registered Holsteins on his farm near Visalia, has been changed to Thursday, April 3, instead of April 9 as previously announced.

The dispersal of the E. R. Putz Holstein herd at Laton, has also been changed and the new date will be announced next week. It will probably be the day preceding or the day following the Mitchell sale.

The Swift Dollar for 1918



The above diagram shows the distribution of the average Swift dollar received from sales of beef, pork and mutton, and their by-products, during 1918.

1919 Year Book of interesting and instructive facts sent on request.
Address Swift & Company
Union Stock Yards, Chicago, Illinois

Swift & Company, U. S. A.

Live Stock News Notes

Sunnyside Holstein on Test

R. F. Guerin, owner of Sunnyside herd of Holsteins, has just completed a record of 25 pounds of butter in seven days from Cantate Wonder 3rd. She is a half sister to Melba Hengerveld, who made 30.38 pounds of butter in seven days. They are both daughters of Arcady Pontiac Wayne Hengerveld, who has 30 A. R. O. daughters. He was the senior herd sire of Sunnyside. He has more A. R. O. daughters than any other sire developed on the Pacific Coast.

McDonald Goes East for Angus

Alex. McDonald, herdsman in charge of the herds of beef cattle maintained by the University of California, at the university farm, Davis, has been commissioned by two leading Aberdeen-Angus breeders of the Hawaiian Islands to purchase for them 10 head of females and two bulls of herd heading caliber.

Mr. McDonald left for a trip through the cornbelt states early this week and expects to be gone about a month. While in the East McDonald will select an Angus bull to place at the head of the university Angus herd.

McDonald was born among the "doddies" of Scotland, and, for a number of years was in charge of the Angus herd owned by Hess of Iowa. He is not only a critical judge, but is a fitter of rare ability, having to his credit one world's grand champion steer, a reserve grand champion and a breed champion, as well as many other prize winners.

Majors to Buy 150 Head of Guernseys in East

E. W. Majors of Los Angeles, one of the leading dairy cattle experts of the entire country, is now in the East for the purpose of selecting between 150 and 200 head of high grade Guernsey cows for the Adohr Stock Farm, near Los Angeles.

Mr. Majors was formerly head of the animal husbandry department of the University of California, and later of the University of Minnesota. During the past few years he has been induced to act in a consulting capacity to many of the largest dairy firms operating in the West.

Mr. Majors states that he has never experienced a keener demand for dairy cattle than exists at the present time, and that apparently dairymen who sacrificed their herds in the winter of 1917-1918 are making every effort to get back in the game.

Carruthers Makes Big Berkshire Sale

W. M. Carruthers, proprietor of the Carruthers Farm, Live Oak, California, has recently completed a sale of 20 bred sows and gilts to the Toyon Farms Association of Los Altos.

Included in the sale were some of the top sows of the Carruthers herd, and, for the most part, are either daughters of Ames Rival 100th, or are bred to him.

The Toyon Farms Association maintains a high class herd of Holsteins at Los Altos, but it is understood that the Berkshires will be established on a ranch that the association is developing in Yolo County, near Haviland Station, just north of Sacramento.

Sandercock Boar to Pennsylvania

W. F. Sandercock, owner of the Natomario herd of Berkshires, has sold his herd boar, Winona Lee Champion 6th, to Paul F. Krause, Douglasville, Pa.

Mr. Krause, it will be recalled, recently selected a carload of California Berkshires for shipment east.

Winona Lee Champion 6th was sired by Laurel Champion and his dam was Miss L. 2nd. He is a boar of considerable scale, fine depth, and exceptional smoothness and will doubtless add much to the popularity Western Berkshires already enjoy in the East.

Modesto Jerseys

F. W. Elleby, Jersey breeder of Modesto, has purchased of David Larson of Stevinson five pure bred cows and heifers and a four-year-old bull, Wildwood Critic. Four of the six head, including the bull, are the offspring of one cow, "Marigold Cretesia," who is a very fine type of cow, also a heavy and persistent producer. She has never been dry since dropping her first calf. Mr. Elleby recently sold five cows to the Hearst estate and bought the five from Mr. Larson to replace them.

California Guernseys for Hawaii

Professor Gordon H. True has recently selected for the College of Hawaii at Honolulu, from the Hidden Valley Farm of A. J. Welch at Redwood City, three registered Guernsey heifers.

The consignment consists of a two year old daughter of Dairymaid's Prince, grandson of the famous Dairymaid of Pinehurst, and two under a year daughters of Argie's Prince out of imported dams.

In making this first sale of choice heifers from his herd Mr. Welch is proving his loyalty to Hawaii, where his family has large sugar interests, and to the cause of agricultural education. He is one of those public spirited men who believes the colleges should have in their herds the best of the various breeds of farm animals, and is willing to support this belief in a substantial way.

Gerstdale Jones Sells for $2250

A year ago last fall Gerstdale Jones sold for $6600, thus establishing a new high record for a Poland-China boar. A year ago 40 sows bred to this boar established a world's record price —the 40 head averaging $683.40. On February 2, Gerstdale Jones again passed through the public sale ring and sold to Winn Brothers, Mexico, Missouri, for $2250.

Gerstdale Jones is considered to be one of the outstanding boars of the breed and a number of his sons are in service in California herds.

Natomario Berkshire Sales

W. F. Sandercock, who is in charge of the Natomas Lands near Sacramento, is making every effort to make that district a Berkshire center. In order to encourage the farmers to take up the breeding of Berkshires, Sandercock established one of the choice herds of the West. This herd not only furnishes breeding stock to the farmers of that district, but is being called on to supply a much wider territory.

Recent sales of breeding stock include a boar by Ames Rival 102d and out of Princess Lee 50th, to Louis Heitman of Nevada; a spring boar by Winona Lee Champion 6th, and out of Symboleer Belle, to John Born of Woodland; a young boar by the above sire and out of the splendid sow Silberfa Bernice, to B. S. Stewart of Amador; a trio consisting of two gilts sired by Winona Lee Champion 6th, out of Symboleer Belle, and a boar by Ames Rival 102d, out of Princess Lee 50th.

California Hogs to the Philippines

During the Western Berkshire Congress meeting at Davis, Professor Gordon H. True of the animal husbandry department announced that he had been asked to select 40 Berkshire boars and gilts for the University of Manila. The shipment will assemble during the next few weeks and it is expected that practically every California herd will be called upon. The far Pacific is proving to be an important outlet for California breeders of all kinds of live stock.

A New Ayrshire Herd

Bailey McFarland, Ayrshire breeder of San Mateo, has recently sold to H. P. Faye nine choice heifers, the aged cow, Springburn Mossy, and a young bull.

Mr. Faye, who has been operating in the Hawaiian Islands, is establishing an Ayrshire herd on his River Garden Farms near Knights Landing.

The nine heifers are all sired by Willowmoor Robinhood 32d, the Steybrae herd bull, and the price paid for them averaged $500 each. Springburn Mossy was the dam of the champion bull at the Liberty Fair at Los Angeles. The price paid for her was $750.

McFarland Sells Berkshires

Bailey McFarland, of Steybrae Farms, San Mateo, has recently sold three Berkshire gilts sired by the English boar, Champion of England, to W. M. Carruthers of Live Oak.

Mr. McFarland secured a number of English bred Berkshires from H. W. Gossard of Indiana.

World's Record Poland-China Sale

The world's record Poland-China sale was held at Kansas City, January 30, when L. R. Glover sold 37 head of bred sows and gilts for $30,475.42, a general average of $823.66. The top price, $2000, was paid by A. D. Severe and R. W. Halford, Iowa breeders, for the two year old sow, Model Belle 2d, a daughter of Model Big Bob. Sol Leonard of St. Joseph, Missouri, paid $1950 for the fall yearling gilt, Mary Pickford, by W's Giant. Seven other sows and gilts fetched $1000.

Carruthers Makes Good Bull Sale

W. M. Carruthers of Live Oak has sold to Jerome O'Neil of the Santa Margarita Ranch, San Diego County, nine young Shorthorn bulls—all about ten months old.

Five of the calves were sired by Count Glory, champion Shorthorn at the past three state fairs, and are out of Lovely, Red Lady, Mysie and Alexandria dams. One is out of White Rose by March Knight.

Four bulls were sired by the white, Hallwood Villager—one out of a Rosemary dam, and three out of granddaughters of Choice Goods.

The bull was sired by Hallwood Flash, now in the Dibblee herd, and out of a Lovely dam. So well did the buyer like the Carruthers bulls that he offered to contract for the entire 1919 crop of bull calves.

Mr. O'Neil also selected a spring Berkshire boar pig by Ames Rival 100th.

Johnson Buys Eastern Duroc Sow

Fred M. Johnson, Duroc breeder of Napa, has recently purchased from G. B. McAndrews & Son, Vail, Iowa, a two year old Duroc Jersey sow sired by King Orion Cherry and out of an Orion Cherry King dam. She is a litter mate to a boar that sold for $1000 as a pig. The Johnson sow is bred to the popular Eastern boar, Orion Cherry King Jr.

A community auction sale under the direction of the Kerman farm bureau center was held on Washington's birthday.

MAMMOTH AUCTION SALE

Live Stock and Implements

ON THE GLIDE RANCH, ONE-HALF MILE NORTH OF FREEPORT FERRY ON THE YOLO SIDE

Nine miles south of Sacramento on the Riverside Road. Two miles south of Glide Station on the O. A. & E. Free transportation from this station. Ranch leased to other parties. Positively a sale—Rain or Shine. Big barn. All to be sold in one day

MARCH 6, 1919, 10 A. M.

200 High Grade Holstein Cows—Every one raised by us and all under eight years of age.
4 Registered Holstein Bulls.
100 yearling to two-year-old heifers.
50 big work horses and harness.
1 Belgian stallion.
150 fat hogs—150 to 200 pounds.
20 brood sows.

IMPLEMENTS

8 Mowers.
1 New McCormick Reaper.
1 Schmeiser Derrick Stacker.
1 Dain Stacker
6 Rakes.
1 Buncher.
5 Buck Rakes.
1 Hay Tedder.
2 Alfalfa Renovators.
1 Disk.
2 Fresno Scrapers.
8 Walking Plows.
2 6-Horse Harrows.
2 Jackson Forks.
9 Wagons.
1 Fanning Mill.
1 Surrey.
1 Buggy.
1 Seeder.
1 BLACKSMITH SHOP, COMPLETE, Chains, shovels, stretchers, forks and other articles too numerous to mention.

LINGGI AND LEINERT, OWNERS

Leachman, Auctioneer,

1004 Fifth Street, Sacramento, Main 1987R

Anchorage Farm Bred Berkshire Gilts

We now offer, at reasonable prices, a particularly choice lot of bred sows and gilts. All are bred to Anchorage Leader 2nd, an outstanding son of the World's Reserve Champion,

Star Leader

Sixty of our brood sows averaged 8¾ living pigs. Our last May pigs weigh over 300 pounds. Anchorage Berkshires have extreme size, are prolific, mature early, are splendid feeders, and are noted for their bone and feet. They are money makers. The Anchorage Farm guarantee—the purchaser must be satisfied—goes with every sale.

Full description and prices on receipt of your inquiry.

Anchorage Farm

Home of STAR LEADER, pronounced the greatest living Berkshire boar

Orland Calif.

A GRANDSON OF TILLY ALCARTRA

We are offering for sale a son of Prince Alcartra Korndyke from one of the best daughters of Prince Gelsche Walker.

This bull is a good individual, straight and well marked. He is backed on both sides by good yearly records, his dam having 542 pounds butter as a two year old and her dam 536 pounds as a two year old.

For price and further particulars write

The J. S. Gibson Co., Williams, Cal.

Berkshires Average $153

FOLLOWING the annual meeting of the Western Berkshire Congress at the University Farm, Davis, 20 head of superior Berkshires were sold at public auction for a general average of $153.75.

It had originally been planned to offer 50 head, but many recent sales, including the carload shipped to Pennsylvania, forced the consigners to trim their allotments, if the sale was to be held to the high standard of former years.

Perhaps the outstanding feature of the event, aside from the quality of the offering, was the fact that practically the entire offering was absorbed by men who are just starting in the business. Only two established breeders appear in the list of buyers.

No extreme prices were registered, but uniform range of values prevailed. Only two sows and one boar sold above the $200 mark.

The honor of consigning the top animal goes to Frank B. Anderson of Sacramento, a man who two years ago secured his foundation stock at the congress sale. Columbia's Leader, a two year old son of the noted Grand Leader 2nd, turned the trick for Anderson and at the bid of $310 became the property of Brown & Boyd, two young men just back from service, who are starting a herd near Mercuse, Sutter County.

The top sow, Princess Lee 49th, was consigned by W. F. Sandercock of the Natomas Company, Sacramento, who secured his start at the last congress sale. The second high sow fetched $230 and was consigned by J. Francis O'Connor of Santa Rosa, who, like Sandercock, made his start last year.

Another interesting feature of the sale, and one that should not be overlooked by other breeders, was that a goodly number of the animals were purchased by former students of the University Farm, who received their introduction to Berkshires while attending former sales held at that institution.

Ord L. Leachman of Sacramento did the selling in a very satisfactory manner.

The list of sales follows:

1—Leader's Belle of Glenoak, by Iowana Royal 34th, Oct. 10, 1917; consigned by Schmeiser Ranch Co., Davis; Brown & Boyd, Mercuse $135

Sandercock Land Co. Consignment

2—Princess Lee 48th, by Winona Lee Champion 6th, Sept. 8, 1917; Brown & Boyd 185
3—Litter mate; Brown & Boyd 240
4—Litter mate; Geo. Strauch, Del Poso Heights 160
6—Miss Villa Rookwood by Mayfield Rookwood 2nd, Nov. 17, 1917; Geo. Strauch 100
8—Rookwood Lady 113th, by Artful Duke 32d, April 30, 1915; consigned by H. L. and E. H. Murphy, Perkins; H. C. Muddux & Son, Sacramento 150

Frank B. Anderson Consignment

9—Columbia's Leader by Grand Leader 2d, March 20, 1917; Brown & Boyd 310
10—Alice Robin by Robinhood Baron S., Oct. 20, 1915; A. E. Greene, Hood 135

Castleview Ranch Consignment

13—Hopland Grand Lady 2nd, by Iowana Rival Majestic, Sept. 20, 1917; H. C. Muddux & Son 230
14—Hopland Iowan Princess 4th, by Iowan Rival Majestic; W. Fisher, Manteca 175

G. A. Murphy Consignment

22—Duke's Combination Lady by Duke's Combination, Oct. 13, 1916; W. F. Sandercock, Sacramento 155
24—Kennett's Lady by Kennett Lee Jr., Nov. 26, 1917; C. H. Hopkins, Woodland 125
25—Silver Glenn Laurel, by Winona Compton Champion 6th, Aug. 22, 1918, consigned by J. C. Bonner, Silverton, Oregon; A. L. Emmery, San Juan 90

Jas. Mills Orchard Co. Consignment

26—Gilt by Ames Rival 70th, March 2, 1918; H. M. Rodgers, Watsonville 160
27—Litter mate; H. M. Rodgers 150
28—Gilt by Winona Compton Champion 8th, March 5, 1918; C. H. Hopkins 105
29—Litter mate; H. F. Alps, Reno, Nevada 120
30—Gilt by Mayfield Rookwood 2nd, May 8th, 1918; Geo. Strauch 110
30—Litter mate; J. D. Rodolf, Yuba City 90
31—Boar, litter mate; A. L. Emmery. 150

LATEST ITEMS ON THE GUARANTY SALE

The auctioneers for the Holstein Breeders' Guaranty Sale to be held at State Fair Grounds, Sacramento, on Thursday, March 27, will be Col. Ben A. Rhoades, Los Angeles, and Col. Harry C. Cranke, Nez Perce, Idaho.

Several choice females in the sale are bred to Matador Segis Walker, senior herd sire at Carnation Stock Farms, Seattle. A senior three year old daughter of this great sire recently made over 40 pounds butter in seven days and another three year old now on test has 29.60 pounds in seven days to her credit.

An addition to the list of 30 pound cows in the sale was made at Rosamaines Rancho, A. J. Stalder, Riverside. She is by a grandson of King Segis, only five years old, and a splendid individual.

The latest 30 pound cow to be added to the sale is a beautiful daughter of King Hengerveld. She is now on test in the A. W. Morris & Sons herd at Woodland, and has over 30 pounds butter in seven days from close to 600 pounds milk as a senior four year old.

Adirondac Wietske Dairy Maid, who made 41.01 pounds butter from 831.7 pounds milk in seven days, now has to her credit over 158 pounds butter from over 3500 pounds milk in thirty days, the greatest combined milk and butter record ever made in 30 days by a cow in the United States. Her son is in the sale.

Some very choice heifers in the sale are out of daughters of Sir Skylark Ormsby Hengerveld, who now has five daughters from 30 to 34 pounds butter in seven days. His fifth daughter to go above 30 pounds is Verona Hengerveld of Glen Eva, who made 32.64 pounds butter in seven days in the herd of E. E. Freeman, Modesto. This cow also has above 130 pounds butter in 30 days at the present time.

Several of the good ones, including a 30 pound cow, are bred to King Pontiac Netherland Segis 3d, herd sire at Rosamaines Rancho, owned by A. J. Stalder, Riverside. The first three daughters of this bull recently freshened and have made official records. A senior yearling made 17.07 pounds butter from 335 pounds milk in seven days, and two junior two year olds have made 20.41 pounds butter from 404 pounds milk, and 20.52 pounds butter from 425 pounds milk in seven days respectively. A sister to this bull, by the same sire, recently made over 30 pounds butter in seven days.

LIVE STOCK NOTES FROM NEVADA

George Wingfield has lately added a flock of Rambouillets and a flock of imported Shropshires to his Churchill County ranch near Fallon

Jack Kington, formerly herdsman for the department of animal husbandry at the University of Nevada, has lately taken a position as herdsman with the J. H. Cazier & Sons Co., Hereford breeders at Wells, Nevada.

Hon. H. I. Dangberg of Minden is just completing a model dairy plant including a fine barn in which to house his young Ayrshire herd, just purchased.

A heavy rain and light snow has covered most of Nevada. Heavy snows in the Sierras guarantee an ample water supply for irrigation during the coming season.

The first spring foal has arrived at the Nevada Stock Farm, breeders of thoroughbreds.

Mr. Hale Marsh of Modesto has donated a Poland-China herd boar to the University of Nevada.

The Imperial County farm bureau schedules hog auctions at Brawley, March 4; El Centro, March 18. A third sale will be held on April 2, place yet to be announced.

Fresh air and sunlight combat disease in the stable. Dairy barns should be airy barns. Ventilation is conservation.

The farm bureau of Madera County held a hog auction on the 17th at Madera.

Consignment of the Hollywood Farm

Hollywood Wash.

TO THE

California Breeders' Sale at Sacramento, March 27th, 1919

A Daughter of a 35 pound cow, sired by a 32 pound sire and heavy in calf to Judge Segis.
A Daughter of a 31.5 pound cow, 27,860 pounds milk and 1127 pounds butter in 365 days and from a 33 pound sire, in calf to Judge Segis.
A Daughter of a 30.14 pound cow, 21,800 pounds milk and 891 pounds butter in 365 days and from a 30.4 pound sire with three 31 pound daughters, also heavy in calf to Judge Segis.
A 22.6 pound two year old granddaughter of Korndyke Abbekerk and from a 32 pound sire, also in calf to Judge Segis.
Three beautiful yearling heifers all from better than 31.3 pound dams. The six nearest dams of each one of them average over 31 pounds butter in seven days.



Lilith Queen Pauline

No. 110568

7 days:
Milk ..... 564.4 pounds
Milk ..... 564.5 pounds
365 days:
Milk ..... 26,135.9 pounds
Butter ..... 1077.21 pounds
Dam of a 32.3 pound junior four year old Daughter.

We are consigning a Daughter of this great cow and her granddaughter from the above mentioned 32.3 pound four year old.

The Hollywood Herd is under Federal Inspection.
Do not fail to look up this consignment.



JUDGE SEGIS

No. 2516, A R S, 80912.
Owned By
Hollywood Farm Hollywood, Wash.

SIRE OF 31 A R O DAUGHTERS

Vanderkamp Segis De Kol	5 years	37.47
Vanderkamp Segis De Kol	4 years	33.85
Vanderkamp Segis De Kol	3 years 30 days	115.08
Vanderkamp Segis Florrie	4 years	28.86
Vanderkamp Segis Florrie	3 years 30 days	106.95
Vanderkamp Segis Eva	2½ years	28.56
Vanderkamp Segis Eva	2 years 30 days	84.21
Vanderkamp Segis Girl	4 years	25.71
Vanderkamp Segis Girl	3 years 30 days	98.95
Vanderkamp Segis Clara	4 years	25.67
Vanderkamp Segis Clara	4 years 30 days	103.82
Vanderkamp Segis Belle	3 years	25.32
Vanderkamp Segis Belle	3 years 30 days	104.56

He is one of the best Sons of King Segis, and remember that it took Sons of this great sire to produce the only 50 pound cow, the 46 pound and 40 pound Champions of the Holstein Breed. Through his above mentioned Daughters and their records, Judge Segis has proven himself a sire of wonderful transmitting ability, regardless of the breeding of the dams of his Daughters or any special combination of blood lines.

His breeding is the very best. His opportunity with the Hollywood Herd of over three hundred head is great. Should he live but a few more years, his tested Sons and Daughters will exceed all others. Expert Judges have scored him 97 per cent perfect, and he is at eight years old as active as a two year old.

HOLLYWOOD FARM

Near Seattle, Hollywood, Wash.

JERSEYS

THE Jersey is an investment breed, not a luxury. They are noted as money-makers. They do not have to be pampered. They do equally well in Southern Texas and the Canadian Northwest. One Jersey will prove to you that you must have a herd. Write Dealers for prices and pedigrees. Send to us for important facts about Jerseys.



The American Jersey Cattle Club
22 W. 23d St., New York City

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right
S. F. WILLIAMS
ORLAND, CAL.
Member Orland Jersey Cattle Club.

Venadera Herd
REGISTERED JERSEYS
Young bulls from proven dams in Register of Merit
GUY H. MILLER
MODESTO, CAL.

ALL MY RECORDS
are made under ordinary dairy conditions. The farmers cow is
The Jersey
YOUNG BULLS FOR SALE
C. D. HAYWORTH
MODESTO, CAL.

Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
W. J. HACKETT
MODESTO, CAL.

Get One of My Jersey Bulls
to increase the production of your herd. They are rich in the blood of the great cow, Gertie of Glynllyn.
Visitors Welcome Correspondence Invited
A. A. Jenkins
R. R. Box 46 Tulare, Cal.

Calf Enemies
WHITE SCOURS
BLACKLEG
Your Veterinarian can stamp them out with Cutter's Anti-Calf Scour Serum and Cutter's Germ Free Blackleg Filtrate and Aggressin, or Cutter's Blackleg Pills.
Ask him about them. If he hasn't our literature, write to us for information on these products.
The Cutter Laboratory
Berkeley, Cal., or Chicago, Ill.
"The Laboratory That Knows How"

Polands for Profit



I Breed and Raise
Strictly big type Polands of best blood lines properly developed. Bred sows and gilts, and a few fall boars for sale at prices that are reasonable. Satisfaction guaranteed. R. J. Yates, Orland, Calif.

Duroc-Jersey Hogs
AT
IRELAND
Ranch at Owensmouth
City Office: 1219 Brockman Bldg., Los Angeles
Phone A 5368
Gilts Bred to Cherry Volunteer 2nd
for August Farrow For Sale

Live Stock Queries

Choice of Grain Feeds for Dairy Cows

With feeds at following prices, and no silage available, will you suggest a ration for Holsteins giving from 16-40 pounds per day: Bran, $50; copra meal, $57; cottonseed meal, $72; Sure-Milk, $57; barley meal, $58; corn, $73; alfalfa molasses, 60 per cent-40 per cent, $45; beet pulp, $48; alfalfa hay (good quality), $30. Your advice will be appreciated.—F. M. E., Claremont.

Prof. F. W. Woll of the University Farm answers:

The cheapest grain feeds at the prices given are doubtless beet pulp, wheat bran, and alfalfa molasses feed, in the order given, or probably with barley meal as number three. It is not likely, however, that there would be much choice between alfalfa molasses and barley meal at $45 and $58 per ton, respectively, as regards the amounts of nutrients furnished for a certain amount of money. Beet pulp, wheat bran and alfalfa molasses may be mixed in the proportion of two parts each of beet pulp and bran and one part of alfalfa molasses, all by weight. This will make a very palatable and economical combination of grain feeds and one that will make an excellent supplement for alfalfa hay, since it combines a large proportion of digestible carbohydrates with a medium amount of protein. Since it takes from 2 to 2½ pounds alfalfa hay to supply similar amounts of nutrients as one pound of common grain feeds, it will be readily seen that the former at $30 per ton is relatively high priced. A rather high proportion of grain feeds is, therefore, preferably fed to all high producing cows in the herd and to promising young heifers, viz., one part of grain for every four parts milk produced. Medium or low producers in the herd, on the other hand, will not be likely to give economical returns for more grain than about one pound for each five pounds of milk. The other feeds given are relatively expensive at the prices quoted and would not, at any rate, be likely to improve the ration suggested.

Contaminated Milk

We have a Jersey cow giving three gallons of milk a day but the cream is so strong that I cannot use it. I only let the cream set 12 hours, and when churned the butter is likewise strong. She is fed oat hay and bran.—Mrs W. B. A., Vacaville.

The condition you describe may be due to several causes. It is possible that the udder may contain some infection, but usually such a condition is the result of contaminated utensils. There are certain organisms that lodge in the seams of buckets, pans, and strainers, that will cause the milk to become strong, and as your letter would indicate that you only notice the condition in the milk after standing, we are inclined to believe it due to the utensils. Thoroughly sterilize all utensils by scalding and dry them in the sun or over a stove. If the condition persists it is probably due to udder infection, in which case a veterinarian should be consulted. Neither of the feeds mentioned would cause the trouble.

Curing Goat Skins

Would some kind reader of the California Cultivator give me any information in regard to curing skins? I have three very fine Angora goat skins and would like to know what process they should go through to cure them with hair left on. The skins are dry and hard, nothing having been done to them since they were taken from the goat several weeks ago.

I would like to have them, when finished soft and pliable, so that they may be used as rugs or for other purposes.—G. W. R.

Here are two methods of preparing fur. We shall be glad to hear of others. To prepare skins for making ladies boas, muffs, capes, etc., take the skin off whole by mutting from hock joint across vent to hock joint on opposite side and draw the pelt off over the head and cut off at a point back of ears; or, if the ears are to be left intact, let the cutting be done on a line extending around the point of nose. Then place the pelt on a stretcher made of half-inch board six inches wide at the top and four inches wide at the bottom. Cut this in two parts, from end to end. Stretch the pelt over the two, place edges together and rub salt over the pelt while fresh, and then sprinkle with powdered alum and allow it to dry. When about dry remove from boards and rub with the hands until dry. Then skin will be as soft and pliable as buckskin. Place your pelts where there will be plenty of fresh air, yet not in the direct rays of the sun.

Another method is to tack the skin taut, the fur side under, on a board, and after scraping the bits of fat off, moisten all over and sprinkle with a mixture of seven parts salt and one part pulverized alum. Leave about two days to absorb the salt. Then wet it again and repeat the mixture. About the fifth day wet it again and sprinkle with a mixture of two parts alum and one part salt. When dry it is cured and can be taken off the board. The above is from the Belgian Hare Guide.

Thirty-Two Pound Cow in the Freeman Herd.

E. E. Freeman, Modesto, has some splendid official records in the making in his herd of registered Holsteins. The full aged cow Verona Hengerveld of Glen Eva has made over 32 pounds butter in seven days and is still going strong. She is a daughter of Sir Skylark Ormsby Hengerveld, making the fifth of his daughters to make over 30 pounds. Julia Clothilde of Sleepy Hollow, also a full age cow, has 29.80 pounds butter to her credit in seven days. In some ways the most interesting record under way is being made by the beautiful junior two year old heifer Belle Faskie De Kol Witkop, who already has 24.85 pounds butter to her credit in seven days. She is an outstanding individual and is a daughter of Belle Faskie Hengerveld De Kol 2nd, grand champion cow at 1918 California state fair. Mr. Freeman's herd is headed by Segis Pontiac De Kol Dutch, a son of Segis Pontiac De Kol Burke and Miss Dutch. Thus the three nearest dams of this bull are all cows with records above 1000 pounds butter in one year and the seven day records of the three average over 30 pounds butter. His individuality is fully up to his breeding and Mr. Freeman has a fine lot of calves by him out of the splendid cows he is developing.

The Fullerton farm center is protesting against the telephone rate raise.

Our Country Needs Livestock and Poultry



Kreso Dip No. 1
for
FARM SANITATION
will keep Livestock and Poultry healthy.
KRESO DIP No. 1
EASY TO USE.
EFFICIENT. ECONOMICAL.
Kills Sheep Ticks, Lice and Mites; Helps Heal Cuts, Scratches, and Common Skin Diseases.
PREVENTS HOG CHOLERA.
WRITE FOR FREE BOOKLETS ON POULTRY AND LIVESTOCK.
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Anoakia Breeding Farm
Arabian-Thoroughbreds
Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion, and Don Castano, five gaited saddle stallion, winner in many prominent shows.
Mammoth Jacks
We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.
Poland China and Berkshire Boars
Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.
Correspondence Invited
Anita M. Baldwin
Santa Anita - Calif.
W. H. Taylor, Supt.

HOLSTEIN-FRIESIAN CATTLE
Registered young bulls from best families.
Registered Berkshire Pigs
Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.
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When Writing Advertisers, Mention The Cultivator.

Fine Herefords to Pacific Islands.

One of the choicest collections of Herefords to leave this country for the Hawaiian islands, was loaded at San Francisco this week.

The cattle were selected by James Wight, who has spent several weeks visiting the leading herds of the country. Included in the shipment were 16 bulls, 11 females and two calves.

Heading the list of bulls was the great senior calf, Choice Mixer, secured in the record breaking Mousel Brog. sale at $5150. This calf, a son of the famous Beau Mischief, is a youngster of rare promise. He is especially thick throughout, is nicely balanced, and is fronted with a magnificent head. Ten of the bulls—all calves—were secured from the Gable herd of Esparto.

The females represented some of the choicest breeding available and are of the character that will be a credit to the breed on the islands.

In speaking of the cattle situation on the islands Mr. Wight said:

"The Hawaiian Islands are really the cattleman's paradise. We have a wonderful climate, an abundance of feed and water, and our market is quite satisfactory. Just now there is a growing interest in better cattle of all kinds, with the interest especially keen for Herefords, as they seem to 'fit in' to better advantage.

"Some very high class herds are already in existence, and I predict that before many years cattle from the Pacific islands will be known to American show yards." When asked if the island trade preferred Eastern cattle to California-bred stuff, Wight said: "No. As a matter of fact we would much prefer to get our cattle here, but they are not to be had in this state. I secured part of my bulls here, and considering the age, they were quite as good as I could get in the East. California can produce good cattle—and does—but not enough of them."

Sales by Winsor Ranch

Winsor Ranch, Bonita, reports great demand for top Duroc-Jersey bred gilts. Mr. Walker writes: "It is perfectly normal as the demand and prices paid in the Middle West states are unheard of but on a cash basis, and the animals sold in last year's sales are returning a handsome profit.

"We have recently sold eight gilts bred to Great Model and Grand Golden Model, to Mr. Swett of San Fernando Valley; a boar and four gilts to J. T. Weight of the Imperial Valley; a sow bred to Great Model to Mr. Stevenson of Van Nuys; a boar by Great Model and out of our twice grand champion sow, Model Defender Lady to the Beaumont Milling Company of Beaumont; have also sold three sows, two boars and 20 youngsters to farmers around San Diego. We are practically sold out of gilts but still have five extra good boars, nine to ten months old that are sired by Great Wonder, the 955 pound Iowa grand champion, and Great Model, the sire of all the under six months winners at the Liberty Fair this year. We have sold 000 feeder hogs in the last 30 days and so most of our stock is pure bred sow. We hope in another year to have enough pure breds to raise feeders enough to consume all our feed so we will not have to buy grade feeders. We are enlarging our pure bred herd all the time with purchases from the best, buying nothing but the real tops. We now have in our herd five sows by the Iowa grand champion, Great Wonder; two by Grand Model, two by Grand Model Again (a son of Grand Model and Model Lady 3rd), one by Cherry Chief and out of a Proud Col. dam, five by the great Nebraska sire, Top Sensation, one by Cherry Friend, a son of Orion Cherry King, and second prize senior junior at the National Swine Show 1916, one by Grand Model 8, the first prize boar at Iowa 1917, one by the $2500 Grand Model Supreme, besides 30 gilts we have kept for our own use, sired by Great Model and Grand Golden Model and out of such sows as our Model Defender Lady and Cherry Blossom and some of the sows mentioned above.



True Models

Left, Great Lady, by Great Wonder and Model Lady 4th., first prize junior yearling Riverside 1918, weight 570 pounds. Center, Model Defender Lady, grand champion for two years at Riverside. Right, Cherry Blossom, by Cherry Chief, grand champion Riverside 1916, three and one-half years old and mother of 53 pigs.

LONDON LIKES AMERICAN BRED PERCHERONS

In announcing a special sale of 200 high class heavy draft horses of the American bred Percheron grade type by the director of remounts of the British army, the London Times says: "They have been specially selected for sale in London in response to many requests from users of heavy horses, including farmers. These draft horses are of the class which has done so well on active service. They are all powerful, healthy, and clean legged and are chiefly of the predominant colors, grays and blacks."

At last we will be able to make love to something more than a pair of eyes. —S. F. Chronicle.

Good qualities are jewels that only good breeding can set off to advantage.



This Champion
Brown Swiss
—a five-year-old, has made the remarkable yearly production record of 16,804.4 lbs. of milk and 727.64 lbs. of butterfat. Every dairyman has cows that could produce far more than at present, if they were as perfect in health as this animal.

No matter how well you feed your dairy cows, remember they have vital organs that get out of order. And nowadays there's

A Premium on Health!

Never before has it paid so handsomely to get every extra pound of milk from every cow in the dairy. You can see the profit in milk, now.

The digestive and genital organs are the seat of practically all disorders in cows. Barrenness, Abortion, Scouring, Retained Afterbirth, Lost Appetite, Bunches and other cow ailments usually arise from "forcing" the cow's production without aiding nature in the rebuilding process.

KOW-KURE has met with great success in the treatment and prevention of cow diseases. It acts on just the organs that the troubles start in—toning them up and aiding the cow to produce and reproduce with regularity. Its effect on the milk flow is direct and positive.

Send today for your free copy of our book,

"The Home Cow Doctor"

It gives much general information of value to dairymen.

Buy KOW-KURE from feed dealers and druggists; 60c. and $1.20 packages.

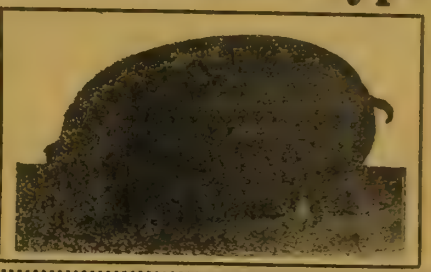
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Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett
Hanford, Kings County, Cal.



Grand Champion Boar **Grand Champion Sow**
Sacramento State Fair



Berkshires

Forty-three of our litters this year averaged ten to the litter. We sell foundation sows and boars to head your herd from our easy keeping, heavy producing strains. Write to

JAMES MILLS ORCHARDS, Hamilton City, California

DISPERSAL SALE OF DUROCS
Garden City Sanitarium, San Jose
TUESDAY, MARCH 18
30 - Sows, Gilts and Boars - 30

Best of breeding. Orion Cherry King and Col. strains, 700 pound senior yearling sows, in pig. One 900 pound two year old boar, Orion Model, Jr. Several boars ready for service—perfect in type. Gilts of the very best breeding, bred or open. All of the Mammoth type. The best ever offered at any sale in California. Sale will be held at 1 o'clock. Terms Cash, or its Equivalent.

L. J. BELKNAP, Garden City Sanitarium, San Jose, Cal.

When writing advertisers, mention The Cultivator.

PUBLIC SALE
45 REGISTERED 45
HOLSTEINS

Having decided to retire from the breeding and dairy business, Mr. E. R. Putz has instructed us to sell his entire herd at public auction on his farm near

LATON, CALIFORNIA
Wednesday, April 2, 1919

The registered Holsteins in the herd, about 45 head in all, carry some of the best blood of the breed. It will be an opportunity to secure some very promising cattle. The females include

TWENTY-FOUR GREAT GRANDDAUGHTERS OF PONTIAC KORNDYKE
THREE DAUGHTERS OF ARCADY PONTIAC WAYNE HENGERVELD
THREE DAUGHTERS OF PRINCE BEAUTY PIETERTJE SEGIS

The herd sire, PRINCE LUNDE KORNDYKE 2ND will be sold. He is a fine individual and is sired by a son of PONTIAC KORNDYKE.

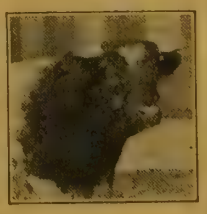
45 HIGH GRADE HOLSTEIN COWS AND HEIFERS will also be sold, and dairymen will find a good clean lot of milking stock in this sale.

Every animal tuberculin tested and sold subject to retest by the buyer.

Auctioneer:
Col. Ben A. Rhoades,
Los Angeles.

MANAGEMENT
CALIFORNIA BREEDERS SALES AND PEDIGREE COMPANY
C. L. HUGHES, SALES MANAGER
SACRAMENTO, CALIFORNIA.

Use a Shorthorn Bull



and add 200 pounds to every steer you raise. A load of Shorthorn yearlings sold for $20.75 at Denver in January, the record price for feeders. Four loads of Shorthorn steers brought $524, $361, $358, and $349 per head at Chicago in December. Why not start a Shorthorn herd by putting in two or three registered females and keeping the female increase? You would soon have a valuable herd at small cost. Pure breds pay the best.

Brighton Farm Herds
Registered Shorthorns
and
Berkshires—Both Sexes
H. L. & E. H. Murphy
Perkins, Cal.

Some of the finest
GUERNSEYS
in the West are at
Hollow-Hill Farm
Colton, Cal.
Only Bull Calves For Sale



$17,500 per Year in Prizes

for officially authenticated butterfat records is offered by the Holstein-Friesian Association of America for the purpose of furnishing reliable data as to the merits of the Holstein-Friesian breed as butter producers. This method has demonstrated the unequalled ability of the breed. These cows hold all A. R. O. records for amount of butter.

If interested in
HOLSTEIN CATTLE
Send for our booklets—they contain much valuable information.
HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA, Box 120 Brattleboro, Vt.

THICK, SWOLLEN GLANDS

that make a horse Wheeze, Roar, have Thick Wind or Choke-down, can be reduced with



ABSORBINE

also other Bunches or swellings. No Blister, no hair gone, and horse kept at work. Economical—only a few drops required at an application. $2.50 per bottle delivered. Book 3 R free.
W. F. Young, P.D.F., 244 Temple St., Springfield, Mass.

When Writing Advertisers, Mention The Cultivator.

Marketing Livestock by Motor Truck

GETTING a bunch of live stock to market quickly while getting is good—before a drop takes all the joy out of a season's profits—is one of the things motor transport is enabling farmers to do. Uncertain railroad transportation and car shortage have led to a marked increase in the number of fat hogs, sheep and cattle hauled to market in motor trucks during the last year. The fat stock travel with greater comfort and are not so long on the road where the truck supplants the train for hauling purposes.

Although the movement of live stock to market by motor usually costs more than that by railroad, this extra expense is more than balanced by the rapid delivery of the stock on the market which is effected before the market price has much opportunity to fluctuate. Furthermore, when the lorry is used, as a rule, hogs from a single farm are loaded in one truck and hence there is less liability of the animals fighting in transit as compared with conditions in the average carload of mixed hogs shipped by rail.

In investigating the extent of motor truck transportation to the Omaha live stock market, the United States department of agriculture found that during the last forty years the movement of live stock by wagon to South Omaha from farms within a radius of five to 25 miles of that market has been fairly large. Development of better highways and more rapid means of transportation, that is, the motor truck, has extended the territory from which the stock is hauled. Fat animals now are being hauled by trucks to South Omaha from farms at much greater distances than those formerly served by wagon. A number of commission firms cater particularly to the motor truck, or less than car load trade. Their business is increasing, because many farmers are purchasing trucks for the special purpose of delivering live stock to the market.

Motor truck companies with from one to four trucks have been formed in various towns and cities within a radius of 50 miles of Omaha to accommodate the demands of the farmers for such service. These companies are developing not only the live stock trade of the market, but also a "back haul" trade of groceries, merchandise and general freight such as feeds, fertilizers and other farm supplies. On the morning of September 5, 1918, between 5:30 a. m. and 8 a. m., 40 truck loads of live stock were delivered at the Omaha stock yards, and of this number 19 of the vehicles were owned by farmers.

The charges for hauling stock by motor truck vary with the distance to market. Some of the companies charge a flat rate of 25 cents a hundred pounds to the Omaha market, and add one cent or more a hundred pounds for the distance hauled. Other firms charge by the load from $10 to $15 for the trip, depending on the distance from the farm to the market and the number of animals carried. Although the hauling charges at present are considered extremely high, as the truck hauler charges 50 to 60 cents a hundredweight as compared with 12 to 15 cents a 100 pounds freight rate, still the general tendency seems to be for a greater number of farmers to use the motor truck method as profitable.

The carrying capacity of the truck varies with the size, age, class and weight of the animals. A standard two ton truck, on the average, will carry about 20 head of medium weight hogs. The floor space of the truck, when small stock such as sheep and hogs are transported, is often increased by double decking the machine. Usually in mixed truck loads of cattle, hogs and sheep, the maximum carrying capacity of the truck is not utilized. As a rule, the companies operate large trucks of from three to four tons capacity, while the majority of the vehicles owned by farmers are from one to two tons.

Figures indicate how the motor truck delivery of live stock at the South Omaha freight yards has increased during the last two years. During the first nine months of 1917 only 52,129 hogs constituted the Omaha "drive in," which included the animals conveyed to market either in wagon or motor vehicle. There was an increase of 90 per cent during the same period in 1918, 142,220 hogs being delivered by wagon and motor truck, the increase resulting largely from the use of the motor truck. In the case of cattle, the "drive in" during the period from July to September, inclusive, 1917, aggregated 12,189 head, while in the same period in 1918 it amounted to 17681 cattle.

Motor Trucks Are Used Extensively

The Cincinnati, Indianapolis and Louisville markets receive a large proportion of their hog supplies directly from the farms, motor trucks being used as conveyances. One typical, double deck truck load of live stock unloaded at the Cincinnati stock yards in the presence of a representative of the United States department of agriculture, consisted of three head of 850 pound cattle, seven calves weighing 150 pounds each, and 11 hogs averaging 185 pounds. Another large load consisted of seven cattle each weighing 750 pounds, while still other truck loads, dependent upon the size of the trucks, were made up of from 10 to 25 hogs which weighed from 175 to 225 pounds each.

The custom in hauling by motor truck to the Cincinnati market is to charge a flat rate of from $15 to $30 a trip for the use of the large truck to convey the live stock from 15 to 40 miles. One shipper reports that he hauled 25 hogs a distance of 43 miles in four hours, and that the actual shrinkage of these hogs, which weighed approximately 200 pounds apiece, was from six to ten pounds. The trucks engaged in the regular business of hauling live stock to Cincinnati increase their income by carrying feeds, fertilizers and other supplies back to the farm.

Other Increases Found

At Kansas City a marked increase notable in the local "drive in" has resulted largely from the increased use of motor trucks. During the first eight months of 1918, a total of 72,887 hogs were handled by motor truck and wagon, which is an increase of 21,505 over the same period in 1917. Denver, Colorado, makes note of an increase of 223 per cent in sheep, 12 per cent in hogs, and 13 per cent in cattle in the local "drive in" during the first eight months of 1918 as compared with 1917. At St. Joseph, Missouri, the "drive in" during the last year has more than doubled as a consequence of the extensive use of trucks. During a single day at St. Joseph, 1400 hogs, 200 cattle, and a considerable number of sheep were brought to the market, largely in 190 motor trucks.

With good, permanent roads on the boom in all sections of the country, and transportation by motor truck more satisfactory in every way, the department of agriculture investigators believe that the future promises cheap and efficient marketing of many of the smaller animals by means of power vehicles. The effect of market fluctuations is reduced to the minimum, because, in the main, only a few hours are required for the market trip by motor trucks.

Anchorage Farm Berkshires in Demand

Mrs. Ruth Hardy, California's first live stock woman, who is responsible for the establishment and development of the famous Anchorage Farm herd of Berkshires, Orland, received proper recognition for her efforts in helping to make good the Berkshire slogan, "Berkshires on Every Farm", when the members of the Western Berkshire Congress unanimously elected her to a directorship of that organization.

When the Anchorage herd was established early in 1917, Mrs. Hardy secured the boar Star Leader, from the University herd, and when she paid $1500 for him she showed keener judgment than Professor Thompson who sold him!

Star Leader, a son of Grand Leader 2nd, is conceded by all to be one of the most remarkable boars that the breed has produced. He is not only a great individual (and there are those who claim that he is the greatest individual Berkshire boar now living), but he is responsible for many very high class sons and daughters. So popular has his blood become that Anchorage Farm enjoys a very wide and growing demand for his get, as is indicated in the following list of sales, 15 of which were shipped in one week. All are either sons or grandsons, daughters or granddaughters or are bred to a son of Star Leader:

To T. W. Ringer, Seattle, two boars and five gilts; T. W. Mayhews, Sacramento, two bred gilts; to Elsie Davis, Yuba City, one boar; to Frank Gilloon, Sisson, one boar; to Peter Sieth, Palo Cedro, one boar; to Gee Brothers, Corning, a boar and gilt; to W. H. Paxton, Nevada City, three bred gilts; to G. W. Cornwell, Santa Cruz, two bred gilts; to Mrs. J. T. Varley, Bakersfield, bred sow; to L. W. Meyers, Walnut Grove, bred sow; to G. W. Williams, Rackerby, a boar; to S. M. Coates, a trio; to C. W. Wilson, Paynes Creek, a boar; to R. G. Gillette, Marysville, a bred gilt; to Mr. Eible, Willows, two gilts and a boar.

Training Offered to the Wounded

A FORMER bell boy injured at Chateau Thierry, with practically no education and outlook for the future, has been given a short course in an automobile school by the Federal Board for Vocational Education and placed in a large garage, where he is earning a good wage and learning the mechanism of the car, so that his earning capacity will increase.

A young man of ability wounded at Belleau Wood, a member of a family of physicians, who had been trying to earn enough by occupations for which he was untrained, to put himself through medical college, is being given one year of a medical course with the prospect of continuing the training if it proves to be suitable.

Another young man, a physician, lost both his legs in the Argonne and so could not return to general practice. He will be given graduate training so that he may carry on office practice as a specialist.

One young sailor who was prepared to enter medical school lost his hearing from shell concussion, and is being given a course in lip reading to be followed by a course in bacteriology.

One case, typical of many, is that of a young man with general farm experience, who is physically unable to do the heavy work of the farm, because of rheumatism incurred in one of the cantonments, and is being trained in scientific farming, so that he can be placed as a manager with the expectation of ultimately managing a farm of his own. Another who has grown up on a small farm, asked for a course in motor engines and tractor operation, so that he could go into partnership with his father on a large farm suitable for tractor cultivation, as he was incapacitated by an artificial limb for general farm work.

A man of thirty, whose previous occupation required the handling of logs and heavy machinery, but who had read books on engines and electricity is being given a course in electrical station operation, because an injury due to shrapnel to his back makes heavy work impossible.

A stone mason, with some knowledge of stationary engines, lost his left arm at Chateau Thierry, and is being given training in gas and stationary engine operation.

Common Sense Training

"There is no mystery about the work of retraining war disabled men so as to make them 'efficient'," today declared Dr. Chas. A. Prosser, director of the federal board for vocational education. "It is simply the application of good common sense education and good judgment. It is merely the utilization of the abilities remaining to the disabled man, which can be as trained as in most cases to be ju

as effective if not more so, than the ones which he lost by reason of his injuries.

"It is surprising the number of things a man is capable of doing. If he has been engaged in an occupation which requires the use of his legs, such as operating a foot power press, we do not throw away his trade knowledge, but he is educated to use his hand, or perhaps the stump of his leg by means of a special adjustment, and can continue doing that which he knows best just as well as before he received his injury, or if he is disinclined to continue that work, he is reeducated for some other phase of the same industry which he knows well, and which appeals to him, thus preserving his trade knowledge.

"This reeducation is given in the various industries and factories as well as in the leading technical and trade schools of the country. It is absolutely free to the disabled man; if he is single, he is given $65 a month support fund, all other expenses being paid, and if married or there are other dependents, a larger allowance is made.

Skilled Farm Labor.

Labor is the great problem on the farm at the present time. War conditions and abnormal wages in the various lines of industry have demoralized farm help to such an extent that it is exceedingly difficult to get assistance requisite to carry on operations.

In this state of chaos the Federal Board for Vocational Education has hit upon what seems to be a solution, and has created a brand new profession —that of "farm mechanic," and it is figured that any farm of more than 100 cultivated acres can very well afford to have a man of this sort.

The men being qualified for this work are disabled soldiers who before injury were farm boys. With this background of agricultural knowledge these men are being taught to operate modern tractors which do the work of many teams and men. They are being taught operation, care and upkeep of motor trucks and other gas engines. They are being given a general course in looking after all machinery used on modern farms, and indications are that the supply of these specially trained men will not begin to equal the demand. Farm hands who before the war could not hope to make more than $25 or $30 a month as laborers can by becoming proficient as farm mechanics, qualify for positions paying from $100 to $125 per month with steady employment the year around.

It is an exceedingly interesting development of our national rural life brought about by forces of necessity, and is but another illustration of the well known fact that the emergency is usually met in one form or another.

Farm boys who have been discharged and are disabled as a result of their services either by sickness, accident, or disease, would do well to write to the Federal Board for Vocational Education, Washington, D. C., and obtain the particulars of this training which the government provides free for its disabled men.

A NEW ENGLAND CHAMPION COW

Rag Apple Aaggie Colantha 233800, a four year old pure bred Holstein cow, bred and owned by the D. W. Field Farm Company, of Massachusetts, has recently given evidence of her wonderful inherited producing ability by giving 346 quarts of milk during a seven day official test; the fat contained in this milk being equal to 41.24 pounds butter. For seven consecutive days this remarkable cow averaged 49 quarts of milk per day; giving on her best day 51 quarts, while during her 30 day test she gave 1380 quarts, or an average of over 46 quarts. Her butter production for the 30 days was 163.68 pounds, and this record entitles her to second place in the list of highest producers for the 30 day period, the leader being Ormsby Jane Segis Aaggie, known as "the great white heifer," the only cow that ever made two seven day butter records each over 40 pounds. Rag Apple Aaggie Colantha is in splendid physical condition and still in test, producing around 100 pounds milk and over four pounds fat per day. Her average daily grain ration is 24 pounds.

This New England champion comes from a family of high producers; her dam, Dutchland Colantha Aaggie Cornucopia 110176 being a 34 pound daughter of the famous Colantha Johanna Lad, sire of so many great milk producing daughters. Her granddam is a 30 pound cow and her great grandam is the noted Aaggie Cornucopia Pauline, a 34 pound cow which stands at the head of the only 30 pound four-generation group of cows in the world.

WHY CROWE LIKES HEREFORDS

S. R. Crowe of Haywards, who in partnership with Clifford B. Harris of Los Angeles recently purchased 80 head of Hereford breeding cows from George Watterson of Bishop, now has his herd installed on a ranch situated between Haywards and Pleasanton.

Messrs. Crowe and Harris made an equal division of the lot and the Harris cattle were shipped to Missouri where they will be prepared for the forthcoming Harris sale.

Practically all the cattle secured from Watterson represented the Repeater line of breeding made famous in the O. Harris herd.

Among the 40 head retained by Crowe, 30 are of rather direct Repeater breeding and six are out of Repeater dams. Most of the cows are now in calf to the service of a Bonnie Brae bull.

Mr. Crowe saws that it has always been his ambition to own a herd of registered Herefords, as he believes them to be better adapted to the range than any other breed. He arrived at that conclusion a good many years ago when he was operating a cattle outfit in Northern California. It so happened that he was carrying a good many whitefaces at the time and shortly after winter "broke" he suffered a severe accident that sent him to bed for 16 weeks. That winter turned out particularly bad. Hay was scarce and help short and before the snow melted a lot of his cattle died. Every day his men would bring him bad news which naturally did not hasten his recovery. Finally, however, he was able to get out.

"I expected to find that I was just about out of the cattle game," Crowe said in relating the story, "but when I checked up on my stuff I found I wasn't so bad off as I had figured. Of course my losses were pretty heavy, but I found this out: Most of the stuff that pulled through had white faces and was able to walk. That winter made a Hereford man out of me."

FIRST 1000 POUND COW IN TULARE COUNTY

Hertinga Willis, a registered Holstein cow owned by W. J. Higdon, Tulare, has completed a 365 day record of 23,963.5 pounds milk and 1003.25 pounds butter, the highest yearly record to date in Tulare County. The junior two year old Madrigal Mooike 2nd finished with 20,160.3 pounds milk and 751 pounds butter in 365 days, which gives her the California milk record in class. Of the seven day records recently completed in the Higdon herd, Leda Hartog Ormsby 2nd made 25.46 pounds butter from 548.9 pounds milk. Wayne of Rock Martha has 18.76 pounds butter to her credit in seven days and is still on test. She is a two year old daughter of Wayne of Rock, the good cow that recently completed a yearly record of 802 pounds butter in one year. Herdsman Harry Redd has some more good ones that will be heard from shortly.

NEW CROPS FOR CALIFORNIA

Special crops are needed for conditions near the coast of California and in the mountain districts, where the weather remains cool at all seasons and many crops fail to grow or to reach normal maturity, and the United States department of agriculture is conducting experiments with a number of plants, many of which have been imported for this purpose. Special interest attaches to the possibility of securing varieties of potatoes and other root crops from the high table lands of South America, which are able to grow under conditions of low temperature. Numerous other food crops, fruits and useful trees that grow successfully in the cooler mountain regions of South America are being studied to determine their possibilities of use in California. Among these are varieties of Indian corn from the cool table lands of Peru, including the remarkable large seeded Cuzco type of maize.

PROPER FORM FOR SCREW DRIVER END

Almost everyone uses the screw driver more or less, yet how seldom, even among mechanics, do we find it properly ground. To be sure its uses for all purposes from that of a can opener, a clam hammer to that of a crow bar precludes the point being ground in the form to best serve its real purpose, that of driving screws. If neat work and good smooth heads for the screws, when in place, are desired, then grind the screw driver bit square across the end with sides flat and parallel back a distance equal to the depth of slot in the size screw to which the driver is adapted. This leaves the edge somewhat weaker than the old wedge shaped end so commonly used. However, if the bit is made of good tool steel properly tempered, it will give much better service with much less effort required. A. Cammack, Colorado Agricultural College.

APRIL 9 DATE OF HEREFORD SALE

Under the auspices of the Pacific Coast Hereford Cattle Breeders' Association approximately 75 head of registered Hereford cows, heifers and bulls will be sold at public auction at University Farm, Davis, on Wednesday, April 9. The offering will consist of drafts from leading Pacific Coast Hereford herds, and it is expected that the sale will accomplish much in disseminating the blood of some of the best families of the breed still further throughout the West.

60 REGISTERED 60
Holsteins
AT PUBLIC SALE

We will sell the entire milking herd of registered Holsteins owned by W. F. Mitchell, on his farm near

Visalia, California
Thursday, April 3, 1919

This is one of the best herds in the San Joaquin Valley, one that has been built up through years of constructive breeding by the present owner.

There are many official record cows in the sale, up to over 31 pounds butter in seven days.

PRINCE HISKE WALKER the well known Mitchell herd sire, will be sold and most of the females in the sale are bred to him. This bull would not be offered for sale at all but for the fact that his young daughters will be retained as Mr. Mitchell's future breeding herd.

Every animal tuberculin tested and sold subject to retest by the buyer.

Auctioneer
Col. Ben A. Rhoades

For catalog apply to managers.

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B-K is scientifically correct for this work. Used as a douche for the uterus, it quickly brings the after-birth, dissolves the slimy albuminous matter, kills the germs, stops discharges and controls the infection. B-K does not cause straining, but is soothing and heals the tissues.

Send for "evidence" and free Bulletin No. 52 "Contagious Abortion." If your dealer does not have B-K send us his name.

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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Bulk Handling of Grain Pays

Bulk harvesting and storage saved an enormous amount of money, time and labor this year on the Moreing Brothers ranch north of Sacramento. The harvesting cost, even with their old steam tractors as motive power to pull the combined harvesters was exactly 50 per cent less per day than it would have been if the grain had been in sacks. The saving of labor in warehousing the grain reduced to less than half that ordinarily required for handling in sacks. Losses due to leaking sacks, weather damage, fire, rats, mice and other vermin, as well as through theft, was almost totally eliminated.

Thousands Saved

According to estimates, based on the quantity of wheat harvested, and handled this year, more than $43,000 worth of sacks, at the prevailing price, was saved by handling this crop in bulk. Last season, when the yield per acre was slightly greater on the virgin land, the bulk handling methods instituted, saved the costs on 294,000 sacks. The jute sack committed suicide on that ranch the year previous both because of the extra cost of sacks and the cost of extra labor to harvest the grain in sacks.

Harvesters Easily Changed

It is a simple and comparatively inexpensive matter to fit bins to the combined harvesters, lengthen out the bucket elevators which convey the grain to the sacking spouts when sacks are used, so that grain is delivered into the bins. These are about 4½-ton capacity on the large 34-foot combines used on the Moreing Brothers ranch. Each is fitted with a spout, which permits the delivery of the wheat into grain tight wagon boxes, which are driven alongside. The Moreing Brothers' operations are so large that 45 of these tank wagons, hauled by four-horse teams, were necessary to keep up with the seven or eight big combines.

Reduced Labor Costs

Grain is as quickly and easily dumped from the wagon box to a hopper at the grain warehouses on the property, or located at convenient points along the levee, and a simple bucket elevator and screw conveyor, working in a trough, delivers the grain to the several square storage bins in the long corrugated iron building. Only two men were needed for the unloading and storage work at the Moreing warehouses, which is in sharp contrast with the sweating crew of sack buckers, trucking the sacked bins into the ordinary warehouse, under most conditions of grain handling in California.

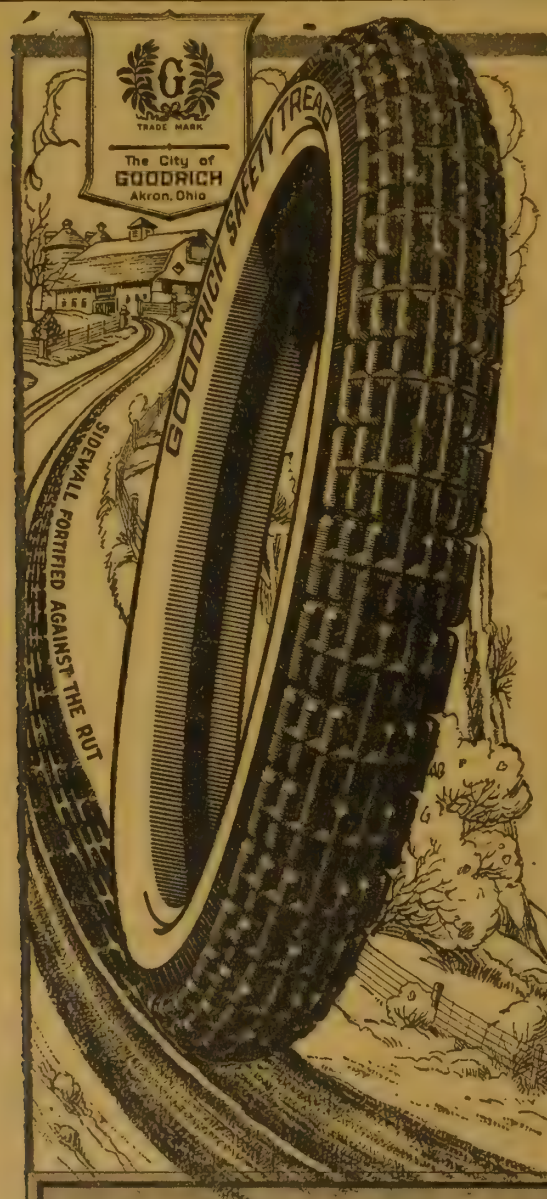
Metal Grain Bins

Bulk handling of grain in California has demonstrated its economy of time, labor and money costs for sacks, as well as in the 25 per cent savings from fire losses, weather damage, inroad of rats, mice and other vermin, and theft, by the use of small metal grain storage bins in a number of parts of the Sacramento and San Joaquin Valleys. Progressive farmers here and there have found a way in which they could increase their financial income from their grain cribs by preventing these profit reducing charges and losses, and the small metal grain storage bins and small, efficient tubular steel elevators have come into use in a number of places.

NO MORE GERMAN SEED FOR BRITAIN

That it would not trade with Germans for five years was the decision reached by the Agricultural Seed Trade Association of the United Kingdom at its annual meeting held in London. The possibilities of growing in Great Britain seeds of grasses hitherto imported, chiefly from Germany also were discussed. The question of providing more adequately for better seed testing and grading throughout the country also was under discussion in connection with the decision by the board of agriculture to establish a national institute of agricultural botany at Cambridge. Members of the trade through the association have contributed $75,000 to this institute where it is hoped to establish a center for testing seeds both for germination and purity. There was no reason, in the opinion of the members who discussed the matter, why London should not now become the recognized station for at least the whole of Great Britain, as Zurich was looked upon as the central testing station for practically the whole of Europe before the war. It was agreed that whatever method of testing was finally decided on, it should be one that would satisfy not only Great Britain but also the Continent and America.

That agriculture had been almost, if not quite, the "most controlled" industry since the outbreak of the war was the statement made by Lord Selborne at the annual general meeting in London. If a considerable section of the population had learned that agriculture was the most vital industry, and that its welfare should be the first duty of the state, the trials of the producer would not have been in vain, he said. It was probable, however that its trials were only beginning. It was certain that reconstruction as conceived in some quarters would threaten the prosperity if not the actual existence of the agricultural industry. It therefore behooved everyone concerned with its well being either as producers or friends of the rural community to organize themselves with a more earnest spirit than had obtained hitherto.



They Shorten The Road to Town

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Their extra thick, extra wide SAFETY TREAD, with the Goodrich interlocking safety bars spreading to the sidewall, lay more tough rubber and more non-skid safety tread on the road—their overlapping tread and side strip fortify the sidewall against the grinding and scraping of deep ruts—and their whole burly, broad shouldered structure fits them for farm service.

For a high-powered car use Goodrich Silvertown Cords.

In your heavy hauling, Goodrich Truck Tires furnish the same low cost full-work-day service.

A farm on a Goodrich basis saves money.

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GOODRICH TIRES

"BEST IN THE LONG RUN"

THE HACK SAW

Almost any kind of a tool kit is incomplete without a good hack saw. To the mechanic it is almost indispensable, while to the man who does his own repair work on machines or about the farm its usefulness is great.

In choosing a hack saw, keep the following points in mind: The frame must be rigid or it will twist out of line when the blade is drawn tight. The blades used should be as short as the work will permit, as short blades are less expensive and less liable to breakage. The frame should be arranged so the blade may be turned at right angles to the usual position for special work.

In using the saw remember that oil should never be used on the work as it tends to glaze the surface; enough pressure should be used to keep the teeth biting freely and not allow them to scrape and glaze the surface; the blade should be drawn tight when in use and the tension released when not in use, if the frame is to be kept in good condition. Forty strokes per minute is about all the ordinary blade will stand without heating, and washing down the points of the teeth; for thin metal or tubing, blades having 24 teeth per inch should be used; for general work 14 teeth is best.

Few hand hack saw blades are ever worn out by proper use. Hard material, fast running and twisting usually account for their destruction.—A. Cammack, Colorado Agricultural College.

DIAMOND CUT DIAMOND

Butcher—"This pound of butter you sent me is three ounces short."

Grocer—"Well, I mislaid the pound weight, so I weighed it by the pound of chops you sent me yesterday."—Boston Transcript.

TIME TO CUT IT

"Don't you think her voice ought to be cultivated?"

"No, I think it should be harvested."—Boston Transcript.

The Cultivator Patterns



8990—Ladies' Slip On Waist. Cut in sizes 36, 38, 40, 42 and 44 inches bust measure. The fastening is on the shoulders, as the waist slips on over the head.

8986—Boys' Suit. Cut in sizes 2, 4, and 6 years. The blouse is cut in a point, and the separate trousers are straight at the lower edge.

9005—Ladies' One Piece Slip On Apron. Cut in sizes 36, 40 and 44 inches bust measure. The apron is open as far as the waistline at center front, so that it can be quickly slipped on.

8971—Ladies' Slip On Waist. Cut in sizes 36, 38, 40 and 42 inches bust measure. The front of the waist is all in one piece and is cleverly cut so that it forms a square plastron.

9000—Ladies' Dress. Cut in sizes 36, 38, 40 and 42 inches bust measure. The four-gored skirt has a plain panel at the front and is gathered all around at the slightly raised waist-line.

8983—Girls' One Piece Dress. Cut in sizes 2, 4, 6 and 8 years. The dress is softly gathered at front and back of the round neck, which is bound with a bias roll of the material.

8993—Ladies' Four Gored Gathered Skirt. Cut in sizes 24, 26, 28, 30 and 32 inches waist measure. The yoke is cut in tabs at the waistline and buttons onto the belt at each side.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

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Household Department

THE ROAD TO LAUGHTERTOWN

Oh, show me the road to Laughtertown,
For I have lost the way!
I wandered out of the path one day,
When my heart was broken, my hair turned gray,
And I can't remember how to play!
I've quite forgotten how to be gay,
It's all through sighing and weeping, they say,
Oh, show me the road to Laughtertown,
For I have lost the way!

Would ye learn the road to Laughtertown,
Oh, ye who have lost the way?
Would ye have a young heart though your hair be gray?
Go learn from a little child each day,
And catch the lilt of his laughter gay;
Go serve his wants and play each day,
And follow his dancing feet as they stray;
For he knows the road to Laughtertown,
Oh, ye who have lost the way!
—British Weekly.

FRANCE REPLANTING ORCHARDS DESTROYED BY HUNS

THE fury of the invading Germans knew no bounds. Not satisfied to terrify defenseless citizens, to burn cities, to carry off rich furnishings, jewels, grain and cattle, they even wreaked their spite on the trees of northern France. Woodland and orchard were laid low. Proud trees that stood sentinel along the white French roads—cherry, pear, peach and plum, whose delicate blossoms filled the spring with perfume, whose ripening fruit laughed in the sunshine—cut down, ruthlessly, and left prostrate where they fell, or injured sufficiently to insure slow though certain death—for retreat had sounded and the enemy must be left "haught but his eyes to weep with!"

It is down at "Petit Trianon," where the gay belles and beaux of Márie Antoinette's court had disported in the simple garb of peasant folk, that the "Pepiniere National" (National Nursery) has been established for the cultivation of plants and trees for the restoration of the devastated regions. One day in December, 1916, Lieut. Georges Truffiant, of the French army, wandered through the fields about Versailles—fields that had only mothered the flowers, only known the light footsteps of powdered marquises and the slippered tread of court ladies—and it was the idea of this practical soldier that this very ground should give of its best for France. So Trianon, long captive of weeds and wild nature, with the exception of a few stately elms and cedars, became, in April, 1917,the "Pepiniere Nationale de Versailles."

This was the beginning of a nation-wide movement and the nurseries thus established throughout interior France have not only furnished millions of fresh vegetables for the soldiers' mess, but many thousands of trees and saplings that have been and are being transplanted through the northern departments, replacing those that have fallen under the merciless axe of the Hun.

The reconstruction of the French orchards involves the planting of at least 2,000,000 trees. France, with characteristic resource, has provided funds to meet the expense. There is a subvention made from the fund of three million francs appropriated by the chamber of deputies to the national office of agricultural reconstruction. This portion will be used for the replanting of trees in the invaded regions only. Then the interest and support of the Touring Club of France has been enlisted, insuring propaganda and publicity not only in France but throughout the allied countries. Already much encouragement in the way of financial aid has come from private individuals and societies, among them the American Red Cross, which gave its check for $10,000. Recently 10,000 live fruit trees were shipped from the United States for transplanting in French soil.

We needs must think of the murdered trees of France when we look out at our own blossominbg orchards and the green-gold of our forests smiling in the sunshine. Thankful, indeed, are we that the sacred temples of America's quiet woods have been spared the desecration of the despoiler. We are glad that our trees are to stand in place of those that have fallen and as our men have died, there on the long battle line, so will their youth and vigor rise anew in the flowers and fruit of France, carrying on the great scheme of nature, the perfect circle of "the resurrection of the body and the life everlasting."—The Red Cross Bulletin.

THE MAN WHO TAUGHT OUR NAVY TO SHOOT

In the December Boy's Life William Heyliger gives a sketch of Rear-Admiral Sims in the course of which he relates the story of Sims' battle for target practice in our navy:

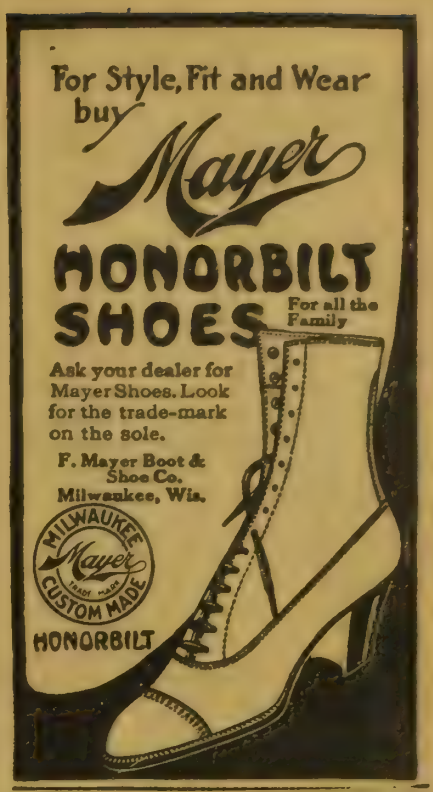
"Back in 1901 he was a lieutenant attached to a warship of the Asiatic fleet. He studied gunnery—morning, noon and night. He believed that when a gun was fired, the shell should hit something. He knew that in the battle of Santiago, in the Spanish-American War, the American warships had scored but one hit for every one hundred shells fired. At the time no other navy could show any better marksmanship; nevertheless, those ninety-nine misses worried him.

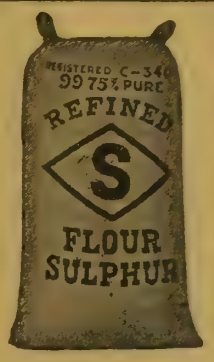
"In China he met a young British naval officer who, also, had ideas about gunnery. The British officer was experimenting with a tube that when attached to a big gun fired a very small shell. The tube pointed exactly as the gun was pointed. By mathematical calculation the accuracy of the big gun could be determined by firing the small tube at a miniature traget.

"Sims was quick to see the possibilities of the idea. He made one of the tubes and attached it to the gun he himself commanded. Because of the great cost of shells it was then, and is now, impossible to have much traget practice with the big guns. But Sims drilled his crew day after day with his tube attachment. If he saw other naval officers smile at his experiment, he paid no attention. And when general target practice was next held the crews that Sims had patiently and tirelessly drilled out-shot the whole fleet.

"After that Sims had but one idea; that every gun crew in the navy should be drilled in the new way. He wrote a long letter to Washington. But the navy department was busy with a thousand and one routine duties; and besides, a new idea always has had to struggle hard to oust the old and the accepted. Sims wrote again and again; weeks gave way to months and still he continued to mail his letters. Finally, when there seemed no other way, he wrote to Theodore Roosevelt, then president of the United States. Back came a cablegram ordering him to report at Washington.

"There the determined young lieutenant was granted an interview with the president. In those days it was





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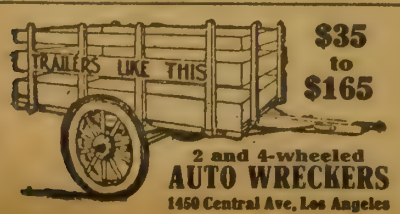
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Persimmon Trees

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SEED, TREES and PLANTS
Send for our Catalog.

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434 S. Main St. Los Angeles, Cal.



$35 to $165
2 and 4-wheeled
AUTO WRECKERS
1450 Central Ave, Los Angeles

the custom in all the navies of the world to be content if shots struck anywhere near a target. Sims argued that shells that struck 'near' enemy ships were wasted. He asked for a real target and an actual count. If shells were being wasted something should be done. And that 'something,' to the dogged mind of Sims, was the method he had proven when his gun-crew had out-shot the Asiatic fleet.

"After all the weary months he was at last given his chance. The target President Roosevelt provided was an abandoned lighthouse rigged with a great spread of canvas. With fast-beating heart Sims watched a fleet approach and fire salvo after salvo. When the last gun had spoken the canvas was examined. Only one shot had reached its mark. Sims had proved his case."

AUNT ABBYS CALLER

"I declare," said Aunt Abby, falling weakly into the nearest chair when she had closed the door after a departing guest, "I'm about tuckered out."

Her young niece, Caroline, looked at her in astonishment.

"Why, Aunt Abby," she exclaimed, "what is the matter? I always thought that you enjoyed people more than anybody I ever say. I didn't suppose that they could tire you."

"They can't, most of them," Aunt Abby replied, "but I must confess Mrs. Eli Hewett is too much for me; I always feel as if I'd been drawed through a knothole after she's been here for an afternoon. She isn't interested in one mortal thing except herself. I kept count today to sort of keep my spirits up, and I tried her on twenty-seven different things and people, and she wasn't interested in any one of them—not in church or missions or flowers or bead work or cooking or the doings of society; she wasn't even interested in the new minister's wife, which, to be sure, was so remarkable that it seems as if I might have counted that to her credit.

"Folks complain that Laura Potter can't talk about anything but clothes, or Mis' Little about anything but her house, but land sakes, I could talk with either of them all day, and have a real good time. There's lots of interesting things about clothes and housekeeping if you set yourself to discover them. It's the folks that ain't interested in anything that wear on me.

"Caroline Tucker, if you ever get into that state of mind you make it a matter of of prayer and don't you give up till you get interested in something if it's nothing better than shoe-strings."

"Yes, ma'am," Caroline replied, with suspicious meekness. "Do you suppose music and tennis and my Campfire Girls, and how to raise money to rent and furnish a room for them, and retrimming hats so as to make people think you have new ones when you haven't, and poetry and stenciling, and trying to get hold of little Bob Haywood, and neighbors and neighboring, and—"

Aunt Abby's eyes met her niece's laughing, but unabashed.

"I didn't say you were in immediate danger, Caroline Tucker; but all the same, it won't hurt you or anybody else to remember what I said," she declared.

Good opportunities are lost to the lover who knows not how to embrace them.

Rain, rain, come today, with your gripsack packed for a nice, long stay.

"DON'TS" IN THE USE OF THE SEWING MACHINE

Don't forget to oil the sewing machine frequently. The treadle and pitman should be oiled in their bearings almost as often as the working parts above the table.

Don't allow the machine to stand uncovered when not in use, as it collects dust and lint. The working parts below the cloth plate should be dusted and lint removed frequently with a small camel's hair brush. The parts above the cloth plate should be wiped often with cheese cloth.

Don't run the machine when the presser foot is down and there is no material in the machine, as this roughens the under side of the foot and blunts the feed.

Don't run the machine while it is threaded without a piece of material under the foot, as this causes the thread to knot around the bobbin and makes a big, ugly bunch of thread on the under side of the work when stitching is begun. There is often a tendency on the part of the operator to stitch several inches after the end of the seam has been reached. This is a bad practice.

Don't pull the material while it is being stitched, as this causes a stretched, tight, ugly stitch and very often blunts or breaks the needle. The feed will take care of this unassisted and will push the material through as fast as the machine can take care of it.—Beryl Dixon, Colorado Agricultural college, Fort Collins, Colorado.

HOME MADE SOAP

Make soap of fats which cannot be used for cooking.

First clarify the fat. Melt it up and add water, bring to a boil, and allow to cool. The fat will form a solid cake on the top of the water. The impurities may be removed from the bottom of the fat. Melt fat again and heat until all water has evaporated, till bubbling stops. Then slice a medium sized potato into the fat and strain through a dry piece of cheese cloth.

To each five pounds of lukewarm grease use one small can lye, one quart cold water, one-half cup hot water, three tablespoons borax, one-fourth cup household ammonia, two tablespoons sugar, one teaspoon salt.

Mix lye and cold water, let stand till cold, stirring occasionally. Mix one-half cup hot water with three tablespoons borax. Let this cool and add one-fourth cup household ammonia, two tablespoons sugar and one teaspoon salt. Pour lye into grease slowly, stirring continually with a wooden spoon or spatula. Add other mixture, stir until light and thick. Pour into an enameled pan lined with paraffin paper. Crease before soap gets cold. Louise F. Lacey, Colorado Agricultural College.

RECIPES CALLING FOR USE OF BEET SYRUP

Chocolate Cake

1½ cups mashed pumpkin
1½ cups beet syrup
2-4 eggs
½ teaspoon salt
4 teaspoons baking powder
3½ cups white flour
2 squares chocolate

Mix the syrup and softened fat and add the egg. Mix dry ingredients and add alternately with milk to the first mixture. Add melted chocolate. Bake in moderate oven.

Pumpkin Pie

1½ cups mashed pumpkin
½ cup best syrup
1 teaspoon salt
½ teaspoon cinnamon
¼ teaspoon ginger
¼ teaspoon nutmeg
1 egg
⅞ cup milk

Mix syrup, salt and spice, add pumpkin, slightly beaten egg and milk. Bake in one crust.

Drop Cookies

1 cup beet syrup
½ cup melted fat
2-3 cup sour milk
4 cups white flour
½ teaspoon cinnamon
½ teaspoon cloves
½ cup raisins, cut

Mix the ingredients in the order in which they are given, sifting the dry ingredients together. Drop the cookies by small spoonfuls on oiled pans and bake them in a moderate oven.

TESTED RECIPES

Southern Brown Bread.—One-half cup molasses, two cups sour milk, two spoons soda, one pint flour, one pint meal. Steam for two hours.

Nut Cake.—Three eggs, one and a half cups sugar, one-half cup butter, six cups milk, two and a half cups flour, one and a half teaspoons baking powder, four and a half cups nut meats. This is a loaf cake.

White Sugar Fudge.—Two cups white sugar, one-half cup milk; two level tablespoons butter. Cook together till a drop of the mixture will form a soft ball when dropped in cold water. Remove from fire; add one teaspoon vanilla and one-half cup raisins and beat. Chopped nuts may be added instead of the vanilla and raisins.

THE MENTONE SAGE SAYS:

The more you find fault the more expert you become.

When the right girl meets the right man there is not much more to be said except by the minister.

You are late—you've missed your date.
Fool, I'm Time—I never wait.
—Herbert Kaufman.

Poultry for Profit

Read what Portland Oregonian has to say about this book and its author. There is a woman down in California who knows more about poultry than all the men in the state, and this, too, for that matter. Her name is Jean A. Koethen, and she has written a book which is published by the California Cultivator of Los Angeles, and called "Poultry for Profit." It costs a dollar, postpaid, and it ought to be in the hands of every one who is keeping hens. This paper has reprinted a lot of matter written by Mrs. Koethen and, because of its quality, her book is recommended. Climatic conditions in these states are so nearly alike that what is good or bad for fowls there is the same here. The price of three dozen eggs will get the volume and its purchase is a good investment.—Portland Oregonian.

Send in $1.00 for book or $1.75 for book and California Cultivator.

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Do Cultivator readers want the daily reports of the Bureau of Markets of the United States Department of Agriculture? If so fill out and send to the California Cultivator, 115½ North Broadway, Los Angeles, the following blank:

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This board, which is hinged to the wall, is always ready and in place. It may be hooked up against the wall out of the way when not in use. The leg is hinged to the board and falls flat when the board is lifted. With it down and in use, the leg is not in the way, and skirts may be ironed without any lifting or changing. The directions for making follow:

How to Make

Length, 57 inches; rounded at free end. Width, attached end, 15 inches; free end, 10½ inches. Leg, 58½ inches, to be changed to suit height of board; attached to board 11 inches from free end.

Board to be attached by hinges to the wall 33 inches from the floor. For use by a person above average height, the board should be higher, which will necessitate a longer leg. Board to be made of thoroughly seasoned wood one and a half inches in thickness.

Cover

Pad: Any heavy material such as canton flannel or a partially wornout blanket. Cut shape of board, allowing two inches on each side and end. Bring extra two inches to underside of board and tack firmly and smoothly in place.

Ironing sheet: Unbleached muslin (homespun). Cut shape of board, allowing four inches on sides and end and hem all around. Attach tapes on opposite sides about 10 inches apart. Tie the sheet on with these tapes. Make two sheets.

The cover and sheet may be left on when putting the board up by allowing sufficient space when adjusting the button or screw hook and eye which holds the board in place.

USING FLOUR SACKS

I notice in "A Use Everything Idea" contributed by Subscriber, Santa Ana, the various uses to which she puts flour sacks are good and commendable, the most of which I practice. Let me add a few more, which I have found very practical.

We buy 100 pound flour sacks from the bakery, and after bleaching carefully I make my husband's everyday shirts. It takes three for a shirt and they outwear anything in the order of shirts he has ever had. Contrary to general opinion they launder easily with a little care, or if preferred they could be colored a dark shade. Colored, they make excellent everyday dresses for little girls and coveralls for little boys. It is surprising how well they wear. They outlast most materials you could buy for that purpose and at the same time look neat and tidy.

Another way I use them is to cut the sack in two pieces, hem and use for individual towels. They get nice and soft after a few washings. A nice supply can be readily had, and the germ laden family roller towel can be dispensed with for the more convenient way.—Subscriber, Pomona.

* * *

In your issue of January 25, "Subscriber, Santa Ana," tells of many uses for flour and sugar sacks, and asks for further uses. Having used them in almost every way she mentions and some others, I thought I would mention them. Probably because of the almost universal use in place of the regular toweling for tea towels (dish towels) and of "birdseye" linen for babies' napkins, she does not mention these two uses.

A sugar sack, either hemstitched or plain hemmed, and with or without briar stitching (or any fancy stitch) in color, makes a nice plain apron for afternoon wear for sewing or mending, or for wear in the kitchen on baking day.

Not only my children's summer underwear was made from sacks, but also drawers for husband and myself; also nightshirts for him and my son, and night dresses for myself and daughters, two 50 pound sacks sewed together making ample length.

A meal sack, pinned with clothes pins to top of the separator tank strains the milk as it is poured into the tank.

Lastly, when money was lacking, a very good white dress for the small girl to wear to a Sunday school picnic was made from bleached flour sacks. —A Subscriber's Wife.

USEFUL IN THE HOME

A bottle of good vinegar is very useful to the housekeeper, and then many good home remedies can be made with this as an ingredient and at very small cost.

To keep window glass bright, dip a cloth in vinegar, rub over the glass and polish with soft, dry cloths. Soaking new wicks in vinegar 24 hours before placing in lamps insures a clear flame.

To mend tiling and holes in plastered walls mix plaster of Paris with vinegar instead of water, let stand 15 minutes, and it can be nicely smoothed over.

To clean soiled wall paper, dip a whitewash brush into hot vinegar and brush all over quickly. When the paper is dry it will appear fresh and new looking.

Equal parts vinegar, turpentine and linseed oil makes one of the best furniture polishes, but the furniture must be washed with soapsuds before using polish.

Keep a mixture of corn meal and vinegar on the washstand and rub the hands with it after each washing, and it will help to keep them soft and white. This is especially good to use if the hands are chapped and sore.

A saturated solution of boric acid is very useful in any home as it is a splendid first aid remedy for burns, cuts and small hurts of all kinds, and runarounds and various discharging diseases are disinfected and healed by being freely washed with it, and there is no safer or more effective remedy for boils and styes than this boric acid solution. This solution is easily prepared and at almost no expense by adding a heaping teaspoon of granulated boric acid in one pint of either distilled or boiled water. To sterilize your hair brush after washing and drying it, place it in a shallow pan containing enough of the boric solution to cover the bristles, then remove and dry in the usual way. The comb should be sterilized as often as the brush, and they should be washed and disinfected often if there is any disease of the scalp.

One can have the hands in strong soapsuds without injury to the skin if the hands are dipped in vinegar immediately after. Vinegar and cooking soda in solution are said to be a sure cure for warts, but they must be kept moist with it several times a day to obtain the best results.—A. H. H.

SINK MATS OF FRUIT JAR RUBBERS

One should never use rubber jar rings twice for canning, so many good, solid rings seemed to be about the most worthless things in the world until I made a discovery. Now I save them carefully. To my horror, I discovered that my white enameled sink, the pride of my kitchen heart, showed scratches. Something had to be done. Folded paper pads proved mussy; a wooden rack needed lots of care to keep it sweet; a wire mat or rack under the pots and pans became rusty.

At last I evolved a mat made by laying rings flat in rows and tying together securely. The best of the discarded rings are used double to make it heavy and thick enough. That is, one on top of the other, and then tied together with heavy strong cotton cord, weaving over and under several times and tying securely at each joint. The over and under idea is to make the mat lie flat and keep its place. They can be boiled in soap and water like the towels if necessary to keep them sweet. I am now savings rings for a bath tub mat.

SAVORING RICE WITH HAM

Boil a cup of rice in two quarts of salted water for 20 minutes, having the water at a galloping boil when the rice goes in. Drain and add a cup of hot milk, into which you have stirred two raw eggs, two tablespoons of grated cheese, and a tablespoon of butter. Mix well, add half a cup of boiled ham, chopped fine; put into a greased mold and steam for an hour and a half. Turn out on a flat dish and pour over it a sauce made by cooking together a tablespoon each of butter and flour with a cup of milk, and when these are smooth, stirring into it a tablespoon of grated cheese. Salt and pepper to taste.

Potato and onion. What a salad for Saturday night when you don't expect company!

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Use Great Care in Selecting Breeds

By T. E. Quisenberry

YOU should have all your pens selected and mated by this time and be ready to hatch at least a few early chicks. Some of the pullets entered in the American contest at this place (Leavenworth, Kansas) are not mature enough to lay. This is especially true of the American and English breeds. All of these pens will no doubt make good records, but look how much better their showing would have been had they laid well in November and December. The Red, Wyandotte, Orpington and Plymouth Rock pens which were mature have laid well during the past two months. And look at the high priced winter eggs that the owners of late hatched chicks are cheating themselves out of. These early hatched birds also make very good breeders for next year.

More depends upon selection and breeding than any other one thing. When you go into your yards to select your matings, you should go "with fear and trembling." You should try to eliminate disqualifications and serious defects and follow the Standard as closely as possible. You should also give at least equal consideration to the general health, vigor and egg laying qualities of your birds. In selection for egg production you will not go far wrong if you use the Hogan system if you haven't trap nest records to depend upon.

How to Make Selection for Egg Production

The rules that govern selection are as simple as A, B, C to any observing person. For instance, a hen that is slow to feather is lacking in vitality. Anyone ought to know that. You can't stuff her and make her lay eggs. She is by nature a weakling. Hens do not lay eggs because they want to; they lay because they are strong and vigorous and egg laying is a natural result which they cannot avoid. That tendency must be bred in them.

Why, if the average farmer would give half the attention to his poultry that he does to his live stock he'd find the poultry the best investment in many cases. Success comes from being willing to discard.

Before mating your birds for another season, take one more look at them, and keep the following rules in mind when making your selection:

1. Market those which have been slow to feather or seem to lack vitality.
2. Keep the pullets which matured quickly and started laying first. Those which start laying when less than 200 days old will be the best layers if they have the right care.
3. Keep the late moulters.
4. Keep the birds with rather large, plump combs and wattles.
5. Hens with pale vents, pale beaks and pale legs have been good layers.
6. The skin of the best layers should be rather loose and flabby on the abdomen between the vent and breast bone.
7. The pelvic bones must be thin, straight, flexible and wide apart.
8. Market the hens which are baggy behind and which have a heavy, fat, thick abdomen which hangs down below the point of the breast bone.
9. Keep the hustlers and heavy eaters that go to bed late and with full crops.
10. Birds that have long toe nails that show no signs of being workers are usually unprofitable.
11. If a bird meets the above requirements, it should have a broad back, long body, be stoutly built and in good flesh.
12. If a bird is not moulting and still has a small dried up comb covered with a sort of whitish substance, or if a bird has thick or crooked pelvic bones, which will be found on each side of the vent and above the point of the breast bone, these are always money losers.

No man or woman can afford to keep and feed a flock of drones at the present prices of feed, but the good layers will make more profit than in any previous year.

Uses of Corn

By Jean A. Koethen

While corn is perhaps the one grain which can least easily be spared by the poultryman, it has its limitations and cannot be used exclusively nor at all times with all birds. A glance at the table of composition of poultry feeds shows why this is so.

Corn is five per cent crude fat and 4.2 per cent of this is digestible. It is 10.30 per cent crude protein, of which only 8.6 per cent is digestible, while 63 per cent of its 70 per cent of starches and sugars is digestible. Now compare that 4.2 per cent of digestible fat with the 1.14 to 1.8 per cent of digestible fat in wheat, and the .4 per cent in barley, and it is easy to see why corn cannot be fed ad libitum. It is too heating for warm weather, and, what amounts to the same thing, too fattening for laying hens unless balanced by other grains. It is absolutely necessary to the well being of growing chicks, absolutely necessary, in limited amounts, to production in Leghorn hens in winter, the best fattening feed for turkeys and young market stock (except milk), the best feed for sitting hens, since their bodily heat must be maintained under trying circumstances, but it must be used with caution for laying hens, especially of the heavy breeds.

A hen that is fed corn to the exclusion of other grains has not all the material she needs for making eggs. She can make the yolk, for that is largely fat, but she lacks the protein necessary for the white. Being supplied with more fat than she can use in eggs, she does the only thing she can do with it, piles it onto her own body, and the fatter she gets, the less able is she to lay. Sooner or later, if she does not die of liver trouble first, her intestines become so coated with fat that laying is out of the question.

What is true of Indian corn is true in a lesser degree of Milo, Kaffir and Egyptian corn. They are all too fattening for constant and exclusive use, though all excellent feeds when balanced with barley or wheat.

WISE PRECAUTION

Lebanon has sent a delegation to Paris to look after her interests. Wonder if they fear that some one wants to change the name of the cedars of Lebanon to the cedars of some departed statesman.—S. F. Chronicle.

Two Dollars Net in Bad Year

Written for California Cultivator By Jean A. Koethen

WHEN a flock of hens can be made to net an average of $2 each under such conditions as prevailed last year, no little credit is due to both the hens and their owner—to the hens for real bred to lay qualities, to their owner for scientific management and persistent industry. That such a record should have been made by a woman—if it could be made by anyone—was to be expected.

When Mrs. C. Fromm started her poultry operations with a small flock on an acre of ground in Glendale eight years ago, she began with White Wyandottes. She still has some Wyandottes, but she has found that the Single Comb White Leghorn, while it may not lay many more eggs than the Wyandotte, lays them at a smaller cost per dozen than any other breed, so her flock of 300 hens now consists almost entirely of White Leghorns. In the beginning Mrs. Fromm sold hatching eggs and baby chicks, operating several large incubators in one room of her home, but market eggs proved to be her most profitable line, and she finally turned all her energies in that direction, hatching only chicks enough to keep up her flock. Last year, between January 1 and October 1, her 300 hens averaged $2 each net. In the month of October they just broke even, and in November and December the amount received for eggs was about $20 less than cost of feed. Toward the end of January, when I visited her, her yearling hens were averaging 33 per cent and her pullets 60 per cent.



Mrs. Fromm's Sensible Housing System

Mrs. Fromm's system of housing is quite different from that usually seen in Southern California. Instead of the one large house, accommodating several hundred layers, she uses the colony house, designed for not over 50. These houses are nine feet square, covered with tarred paper. A door in one end admits both attendant and hens. The front, which is toward the south, consists of two canvas covered frames, hinged at the top, which may be raised or lowered at will, with a large window sash between them. By this very simple means a maximum of light, air and ventilation is secured.

The houses for pullets and breeders are the same width as the colony houses, but twice as long. Mrs. Fromm has found that a breeding yard of five cockerels mated to 70 hens gives better results than separate pens of one cockerel and a dozen hens. Fertility in her flock this year is from 90 to 95 per cent. That is, out of every hundred eggs set she is hatching from 90 to 95 live chicks.

Mrs. Fromm's hens get no breakfast, except the dry mash which is always accessible in their hoppers, and any grain which may be left over from the night before. At noon they are given all the sprouted oats they will clean up, and at night a scratch mixture composed of milo, Egyptian corn, hulled barley and cracked corn. Every other day 25 cents worth of green cut bone is distributed among them.

All the chicks hatched on this little ranch are hatched in incubators. As soon as they are rested after hatching they are carefully transferred to the brooder house, which is heated by hot water and contains runs and hovers for 300 chicks, 50 chicks to each hover. In this brooder house the chicks get all the sunshine there is through windows at the level of the floor, and on warm, sunny days the window is raised so that they may have free access to the runs outside. On chilly days, when raising the entire window would chill the brooder runs too much, a board with a small door cut in one end is inserted beneath the raised sash, so that the chicks may go in and out without cooling the house. The chicks are fed milk mash and commercial chick feed from the time they are hatched till they are five weeks old, when a gradual change is made to the laying mash and coarser grains.

At about six weeks of age the chicks are removed from the brooder house to small roosting coops, each in its own run, at the rear of the brooder house. These coops are made of dry goods boxes, each two and a half to three feet square, and their inside furnishing consists of a slatted roost with box beneath. When the chicks are put into the coops the boxes are filled with straw, and here the chicks sleep until they are ready to roost. No teaching is required. As soon as they wish to roost they roost, and it is not long till every chick is on the perches. They remain in these little coops till the cockerels are ready to be marketed as broilers, when the pullets are sent to the pullet house, and another lot of chicks from the brooder house comes into the coops.

HELPING THE FOOD ADMINISTRATOR

One industrious war gardener is pictured as working busily and reflecting on the virtue of raising his own food supply.

"If everybody grew his own vegetables and ate less meat," he soliloquized, "we'd put old Bill on the bum in a hurry. This is tough work, but I'll stick to it if it kills me. I'm with Hoover on this."

At this point a fine assortment of earthworms was unearthed. The digger's reflections immediately shifted to a shady stream and the final scene shows him happily fishing.

"Oh, well," he reflects to soothe his conscience, "vegetables or fish; it's all the same to Mr. Hoover."

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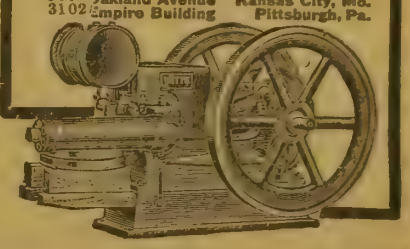
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Grafted Walnut Trees — Placentia Perfection and Eureka. A careful selection of grafting wood from the best groves of Southern California has been used on best black root stock. C. W. Story, Rivera, California.

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Manzanillo and Mission Olive Trees selected stock. Free from scale. One inch and over. Thirty-five cents each at nursery. E. E. Barnes, Highland, Calif.

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Eureka and Placentia Perfection Walnut buds for sale. E. Holve, Fullerton, California.

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Cash Nurseries, Sebastopol, California.

Grafted Feijoas or Pineapple Guava. Large plants $3.00 each, 10 for $25. Wm. Boyes, Lomita, California.

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Largest Herd Swiss Toggenbergs on the Coast. 100 grade does bred to my $1000 Buck, Captain No. 256, A. M. G. R. Association, due to kid in February and March, $40.00 each, lots to suit. Crating $2.00 extra. Stamp. Rae P. Williams, Oakland, California.

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Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale at a Bargain—18-35 Yuba Ball Tread Tractor in first class mechanical shape; plows and double disk harrow included. Apply D. P. Corcoran, Gridley. Phone 33-F. 24.

A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D. Co. California.

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Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

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Wanted—Man or Woman Manager, Every Community, Town and Country, to furnish information, etc. No selling. State your occupation and references. CALIF. DEVELOPMENT LEAGUE, 307-321 West 3rd, Los Angeles.

Wanted—Position as Ranch Manager U. S. or Mexico; experienced executive in general farming, cattle, hogs, irrigation and development work; speak Spanish. References. Address R. G. P., care of California Cultivator.

Wanted—Man With Some Capital For manager of one of our hog ranches now being put into shape for production; excellent opportunity for right man. Call 1013 Hibernian Bldg., Los Angeles.

Wanted—Married Man with Experience to raise Mammoth Bronze Turkeys. Geo. A. Smith & Son, Corcoran, California.

Reliable Man for general farm work. Furnished house, attractive place near San Diego. Box 33, Nestor, California.

Wanted—Job on sheep ranch to learn the sheep business. Address "E," 910 Grattan Street, Los Angeles.

Wanted—Permanent Position by experienced tractor operator, caterpillar preferred. Can do all repair and upkeep work. Box 1, Cultivator.

Wanted—About ¼ to 1 ton of second-hand galvanized barbed wire; state price per pound, your station. Address P. F. Schroeder, Victorville, California.

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For Sale—Used ranch machinery. Guaranteed to do as much work as new machinery you buy which will soon be secondhand but not necessarily worn out. WE SELL FOR LESS. CALL AND SEE. WINDMILLS—8t ft., $29 to $35; 10 ft., $30 to $45; 12 ft., $58 to $68; 16 ft., $135. REDWOOD TANKS—New and used, all sizes, 3 new 1500 gal. $32.50 each; 25,000 gal., $135; 50,000 gal., $250; 100,000 gal., $350. NEW GALV. TANKS—1000 gal., $39; 2000, $53. USED galv. tanks, 4500 gal., heavy galv., with cover, $95; 3000, $75; 6000, $125; 7000, $145; 1000, $29. RANCH TOOLS—10 ft. grain drill, $95; mower, $45; Fresno beet drills, $35; Avery tractor, fine shape, $450; Deere 14 in. riding plow, $35; brand-new P. O. power lift tractor, 4 gang disc plow, $230; 3 gang disc, $85; 4 gang disc plow, $120; double disc harrow with pony truck, $65; potato planter, $75; 12 in. Oliver steel beam plow, $15; single disc harrow, $45; spike harrows, $7 to $18; Planet Jr. new potato digger, $20; slip scraper, $5.50; fine galv. water trough, $7.50; corn cultivator, $28; 2 row bean cultivator, $35; 3 shovel 1 horse weeder, $8.75; Aermotor crab with frame and cable, $12; 4 in. irrigating pipe, 17¾c; 6 in., 25c; 10 in., 45c; bone grinders, cheese cutter, wire stretcher, shears, discs for plows, cable; Kirstin 1-man stump puller, $39; sundries. PUMPS—1-in. centrifugal, 2½ B. & J., $45; 6 hor. Gould, $110; 4 two stage, $150; 7 vert. Krogh, $150; Single Pomona plunger pump, $50; large Bulldozer, $98; small size, $49; many others, 50 brass cylinders. DEMMITT CO., Upstairs, 120 N. Main. Yards, 816 Yale. Also buy first-class used material. Los Angeles.

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For Sale—5-10 Avery tractor used one season. 3 bottom 8 inch vineyard plow. $550.00 takes them both. Liberty Bonds or cash. F. C. Wood, Hughson, California, on the Santa Fe.

Retiring from Dairy Business—Will sell one eight unit Calf-Way milking machine, only been used six months. Address J. Devlin, Box 291, Napa, California.

HOGS

"Billiken" Chester White. Practically sold out. One yearling boar, one bred yearling gilt, due to farrow in April, and five fall boar pigs are all I have now for sale. Sows are bred for March and early April farrows. I have recently added some new blood lines in the way of bred sows. My stock is the best obtainable and there is none better in the West. Will book a limited number of orders for weaned pigs, spring farrow, to be shipped at weaning time. C. B. Cunningham, Mills, Sacramento County, California.

O. I. C. BREEDER'S NOTICE
I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

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Castleview Giant Type Berkshires are the thrifty, typey, quick-growing kind that will make larger profits for you. Prizes and Championship honors are awarded—by the greatest judges in America—only to animals possessing the essential qualities for economical meat production, viz.: heavy bone, good feet, broad strong backs, large hams and easy feeding qualities. Our grand champion herd includes Riverby Princess, grand champion sow of the world; Rookwood Lady 100th, 1917 grand champion of America; Mayfield Laurel 15th, 1917 grand champion of California. Bred sows, bred gilts and fine weaned pigs for sale.
Castleview Ranch, Santa Rosa, Cal.

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We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

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To introduce my world and national grand championship blood to farmers and breeders, I will sell a limited number of boar pigs, 6 to 9 months old, at two cents above the market price. They are by Baron Duke 201st, national grand champion, Winona Lee Champion 6th, first prize junior yearling 1917 State Fair, and from 650 pound prize winning sows. We will sell nothing that we would not use ourselves. Sandercock Land Co., 906 K St., Sacramento, California. In charge Natomas Land Sales.

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GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
A. B. HUMPHREY.
Escalon, San Joaquin County, California.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

For Sale—Poland China — Quality type. Young stock of boars and gilts for sale at all times. At the head of our herd stands some of the best blood—Superba and I. B. A. Wonders, the World and State Champions. Poland China Ranch, C|o H. B. Peake, Mgr., 358 11th Street, San Bernardino, California.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

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Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Masterpiece-Superbus strain Berkshires. Choice stock from prolific breeders. Geo. A. Stingle, San Gabriel. Ranch Garvey Ave., two miles SW. of El Monte.

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Bargains in Poland China Sows. All immune. Good mothers and prolific. Registered stuff. Also boars. Write for details. N. C. Hansen, Coachella, California.

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MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

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Registered Guernseys for Sale—20 head females. Granddaughters King of May. Some fresh, calves by side. Others fresh soon. Heifer calves. Herd bull. All May Rose breeding. Many show animals, never beaten in show ring. Butter records of best. All must be sold at once, priced to sell. Address: Middledale Farms, Creswell, Oregon.

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For Sale—Several Horses, all ages from 3 to 4 years old. Would like to have some one put 150 to 250 stands of bees on my place. Have 400 acres, good part in alfalfa and orchard, neighboring farms similar condition, plenty water, small charges. C. Eichenhofer, Palmdale, California.

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Tennessee Homegrown Red Leaf Tobacco, aged in bulk; best chewing or smoking; 3 pounds $1.75, 6 pounds $3.40, 10 pounds $5.25. Grade 2 smoking, 10 pounds $4.00, postpaid. Address McWherter & Ladd Tobacco Co., Martin, Tenn. Reference, Peoples Bank.

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Pure and unadulterated leaf tobacco. Comes to you exactly as it leaves the farmer's hands. Hand picked 60 cents pound prepaid parcel post, 10 pounds $5.50. Order today. Duke Bros., Dresden, Tennessee.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Los Angeles Market Lettuce Plants 25c per 100, $1.00 per 1000. Roland C. Casad, Covina, California.

For Sale—Chicken manure in car loads. Cheapest and best fertilizer. McDonald Sons, Phone 101, Watsonville.

For Sale Ten Thousand Nursery Stakes, ⅝x¾ inches, 3 feet long. Address 508 West Grove Street, Visalia, California.

RABBITS

SPECIAL.

Intending to travel this summer, I am offering my fine lot of rabbits at a bargain; New Zealand brood does $2.50. Flemish Giant brood does $2.50. 6 fine young does F. G. 6 mo., $2.00 each or $10 for the 6. Some fine F. G. bucks 8 mo., $2.00. 100 young rabbits from a pound and a half to four pounds, 15 cents per lb. live weight. All pure bred stock, clean and healthy. L. J. Dobbins, Monterey, California.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

PIPE

"TESTED" and "GUARANTEED"
Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes, New and used. "Pacific" pipe for all purposes.
PACIFIC PIPE CO.,
Main and Howard Sts., Est. 1906, San Francisco.

For Sale: 5400 feet No. 14 10-inch riveted steel pipe, 2500 ft 11-inch, 2800 ft. 12-inch 2000 ft. 4-inch. L. B. Vollmer, Monrovia, California.

FARM LANDS FOR SALE

30 Acres ½ mile from State Highway, ¾ mile from point where local trains stop, and 3½ miles from Arbuckle. This place partially improved; 11 acres six years old almonds, 1 acre six year old fruit and 5 acres one year old Thompson Seedless; 13 acres to be planted to almonds this spring. Fine location. Will make a dandy home. Write us.
NELSON REALTY COMPANY,
Pioneer Dealers in Almond Land,
ARBUCKLE, CALIFORNIA,
THE HOME OF THE ALMOND.

For Sale — 160 Acres Govt. land near Hinkley Station, school and store. Surrounded on all sides by deeded land. Some just over the line is producing very heavy crops alfalfa and is held at $300 per acre. Water everywhere under this land at moderate depth. Very level; $1500 improvements; altitude 2300 feet. Remarkably healthy. Were no cases of influenza. Catarrh, bronchial and pulmonary affections rapidly disappear. Price $4000. Address Owner, Box 106, Arlington, California.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

For Sale—1 acre near Sacramento; 10c jitney, street car; small building, garage; leveled well; nice location for chickens and pigs; price $1200; $500 cash, balance in payments, $15 per month, interest 6 per cent. Mrs. C. O. Young, R. F. D. No. 3, Box 10, Sacramento, California. No trade.

For Sale—The famous Bane Almond orchard at Orland. On account of labor conditions, as well as physical condition, I have concluded to sell my almond orchard, either in subdivisions of 10 acres, or as a whole. For particulars address P. D. Bane, Orland, Glenn County, California.

For Sale—40 acre ranch in good condition, 18½ acres bearing prunes, 5 acres almonds, 5 acres alfalfa, balance in other crops. Cement, piping for irrigating. Electric pumping plant; abundance of water. Close to town. Good location. Address, Owner, Box 346, McFarland, California.

What Do You Know About Orland? No alkali, no hardpan, no malaria. Best soil, best water, best location, best bargain, best terms. Alfalfa, Almonds, Olives Govt. irrigation. 10-20-40 acres. Avoid the sharks. Address the owner, Hall T. Brown, Orland, California.

Ideal Location for Almonds and Deciduous Fruits. Will sell 40 acres with gravity water at $250 per acre, in Banning, Riverside County. Elevation 2600 feet; 300 miles from malaria. Hugh Montgomery, San Gorgonio Ranch, Banning, California.

100 Acres Adjoining Shafter, partly improved, good well, pumping plant, small house and barn; at $60 per acre is cheaper than any unimproved land in same locality. G. W. Squire, Box 102, Angiola, California, owner.

For Sale—Fine Cattle Range Proposition, 100 miles L. A. 320 acre Homestead with only water in many thousand acres of fine grazing country, $1000.00 cash or Liberty Bonds. 921 S. Hope. Farrow, Los Angeles.

For Sale—77 acre alfalfa ranch, good buildings, good electric pumping plant, 1¼ mile from Escondido, San Diego County, California. Might exchange for Wasco or Shafter land. Address Box 635, Wasco, California.

10 Acres Good Land, fenced, near Galt, California. $800 loan. Would exchange for smaller place, clear or small loan. Also lot on High Street, Melrose. Price $325. Address Route A, Box 245 A, Acampo, California.

160 Acre Foothill Ranch, 30 in cultivation, 70 will cultivate, balance pasture. Implements and stock, all for $3000. Write for particulars. R. A. Winsor, Hornbrook, California.

Wanted to Sell, trade or exchange 80 acres of alfalfa land in Imperial Valley for a dairy having 40 to 100 cows with lease on place to keep them. Address Frank C. Dias, Holtville, California.

For Sale—$2000 cash, 20 acres good land near railroads and highways. Write or call. J. C. McClaskey, R. B., Oroville, California.

For Sale—60 acres Kings County delta land; good for alfalfa, corn, cotton, grain. H. M. Nelson, Armona, California.

SEEDS AND PLANTS

Positively Thornless Mammoth Blackberry, found native at Mountain Pass Ranch, Jamestown; prolific bearing, ripens early. Berries mammoth in size, practically seedless, sweet, needs little sugar. Bound to supersede all other kinds of blackberries fast as it becomes known, as it has size and quality minus seeds and thorns. Rooted plants ½ dozen $1.50. G. S. Wills, Box 125, Jamestown, California.

Send 10c for pkt. of fine fresh home selected seeds—Heaths arly sweet corn, tip top, pineapple and Burrels Gem musk melons, Hubbard squash, chilean and angeleno water melons, also stone and earliana tomatoes. Roland C. Casad, Covina, California.

Will Have One or Two Tons of Sorghum seed, especially selected for syrup making qualities for sale as long as it lasts. Send for list of different varieties, with description, prices and instructions for planting to get best results. Can send seed by parcel post. MARION GRABER, Hawthorne, California.

Dwarf Milo Seed for Sale—This seed was grown in the San Jacinto Valley and is the best from 400 sacks that was raised on 10 acres of land which is an average of a little over two and one-half tons per acre. This seed is large plump grain and well matured. Price $6.00 per hundred, f. o. b. San Jacinto. W. L. Helwig.

Rhubarb Plants — Wagner's Giant Crimson Rhubarb plants, extra clean, 50 cents per dozen, $3.00 per hundred. Custer Bulb Co., Seabright, California.

Burbank's Thornless Blackberry—Plants 2 for 50c; 5 for $1.00, postpaid. William Glas, Madera, California.

SEEDS AND PLANTS

Your Garden Will Not Be Complete unless you have a few hills of the world's finest muskmelon, "Casad's Special," a heavy yielder, vigorous grower, long season, grows where others won't. Send for seed package, 25c. Roland C. Casad, originator and grower, Covina, California.

Choice "Early Stone" tomato seed at $2.50 per pound; choice "Italian Pear" tomato seed at 50c per ounce. H. Luther, Cucamonga, California.

Fresh Seed—Golden Tankard Giant half Sugar Rose, Mammoth Long Red Stock Beet—70c per pound, postpaid. Western Seed Co., 116 E. 7th Street, Los Angeles, California.

Strawberry Plants—Try our strong rooted everbearers. Americus, Progressive, Superb. Americus, $1.50 per 100; $3.00 per 250. Send for catalog. F. I. Moffet, Ellensburg, Washington.

For Sale—Cleaned Lady Washington Seed Beans. E. F. Siegmund, Vineland Avenue, Baldwin Park, San Gabriel Valley, California.

Peruvian Alfalfa, Amber Cane, Milo Maize, Sudan Thousand-headed Kale, Artichokes, Seeds. Write for circular Box 501, Fowler, California.

For Sale—Sudan Seed, government tested for Johnson grass, 18c per pound or $15 per hundred. G. A. Spencer, Jamacha, California.

Cabbage Cutter, six knives, slices vegetables rapidly, excellent for potato chips. Prepaid $1.00. Three for $2.00. Lusher Brothers, Elkhart, Indiana.

For Sale—Florida Sour orange seed and California sweet seedling orange seed Order early. Milo Hunt, Whittier. Phone 250.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees, Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

CAPON SPECIALIST

Every Farmer can make money by caponizing his cockerels. Instruments $4.50. Caponizing cockerels 25c each. Send stamps for reply. Mrs. H. Ament, 423 Kerckhoff Building, 6th and Main, Los Angeles.

FOR RENT

For Rent—Near Redlands, Calif, three acres of irrigated land. Address I. H. Behymer, 9 East Lenox Street, Chevy Chase, Md.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

LIST OF PUBLICATIONS OF U. S. D. A.

A complete list of the publications that have been issued by the United States department of agriculture and those now available for distribution has been revised to July 1, 1918, and published in circular form by the department. Farmers' bulletins, department bulletins, circulars, separate reprints from yearbooks, and reports are listed together in alphabetical order. The circular states that no publications are sold by the department of agriculture, but copies will be sent free upon application to the Chief, Division of Publications, Department of Agriculture, Washington, D. C., as long as the supply lasts. When the department supply is exhausted publications can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., by purchase only. The list of publications includes those that can be obtained free from the department as well as those which can be purchased from the superintendent of documents.

EGGS WITH WHITE YOLKS

One of the features of the University of Missouri college of agriculture exhibit at the St. Louis Poultry Show was a number of eggs with white yolks. These were produced in experiments conducted by the poultry experiment station at Columbia upon the effects of different colored feeds in producing the yellow color in plumage and shanks of birds and the deep color in yolks of eggs. It has been found that the yellow pigment which gives the color to the shanks of birds makes yellow yolks and causes creaminess in white plumage, is a substance known as xanthophyll. This is the principal pigment of yellow corn and is also found in green food and most other feed stuffs. By feeding a ration free from xanthophyll, Professor Kempster has been able to produce Leghorn pullets and cockerels with perfectly white shanks, beaks, earlobes and plumage. These pullets fed on the white ration lay eggs without any color in the yolks.

After seeing this exhibit poultry fanciers will realize the importance of reducing the amount of pigments in the rations fed to white birds intended for the show. Egg producers will see the advantage of feeding yellow corn and other feeds rich in color to laying hens to produce the deep colored yolks desired in market eggs.



YOU can't help getting jimmy pipe or cigarette makin's happy every time you fire up with Prince Albert—it pleases you so fair and square. You just can't get enough hours in the days and nights to put to smoking purposes. That's the situation!

It's never too late to hop the fence into the Prince Albert pleasure-pasture! For, P. A. is ready to give you more tobacco fun than you ever had before. *That's because it has the quality, the flavor and the fragrance!*

Soon as you know Prince Albert you'll say that P. A. *did not* bite your tongue or parch your throat. *And, it never will!* For, our exclusive patented process cuts out bite and parch and lets the man with the touchiest tongue simply smoke his fill all the time.



Toppy red bags, tidy red tins, handsome pound and half pound tin humidors—and—that clever, practical pound crystal glass humidor with sponge moistener top that keeps the tobacco in such perfect condition.

R. J. Reynolds Tobacco Company, Winston-Salem, N. C.



I Want to Send My New Book FREE—POSTPAID!

If you have stumps, send postal for my big, new Land Clearing Book FREE. Read how *one man alone* with a Kirstin handles biggest STUMPS—QUICK! EASY! CHEAP! Pulls big, little, green, rotten, low-cut, tap-rooted stumps—trees, hedges or brush! Why Government Officials, University Experts, Land Clearing Contractors and thousands of Farmers prefer the Kirstin. And why it **saves labor, time, money!** WRITE for the Book TODAY!



My Free Book

One Man Alone Handles Biggest Stumps

No horses or extra help required! Nodigging, chopping or other expense! Stubborn stumps pulled in few minutes at low cost. The Kirstin quickly pays its cost in BIGGER CROPS—and goes on *making money* for years. Write for FREE BOOK! TODAY!

Kirstin ONE MAN Stump Puller

Works anywhere—steep hillsides, swamps, rough, boggy ground or in thick timber! One man alone handles and operates. Weighs less, costs less—yet has greater speed, power, strength and *lasts much longer*. With Kirstin wonderful leverage principle, a few *pounds* pull or push on handle exerts *tons* on stump. Several speeds! Loosen 'em on low; finish job quick on high. Patented quick "take up" for slack cable. Easily moved around field. My big new book tells how you can TRY ANY Kirstin 30 days FREE, on your own Stumps. *Send no money!* If satisfied, keep puller. If not pleased, return at my expense. *You don't risk a penny.* Four easy ways to pay. Write for FREE Book and Special Agent's Proposition. Shipment from nearest distributing point saves time and freight. Address—



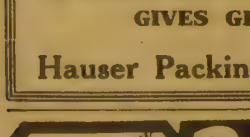
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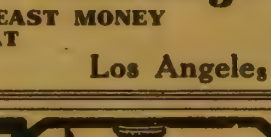
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Hauser's Digester Tankage
GIVES GREATEST VALUE FOR LEAST MONEY
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We have nine distinct styles of Disc Harrows. A Harrow for every use. 3 feet to 12 feet in width of cut. 14 to 20 inch discs, solid or cutaway. No assortment so complete. Call and see them or write for catalogue. We are headquarters.

ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

When writing advertisers, mention The Cultivator.

A "Superstition" Becomes a Scienc

YOU have heard them say—the old farmers in the neighborhood in which you were brought up—that when the little, late, stunted cocklebur weeds, an inch or two high, began to mature their burs, it was time to get the late crops under cover because frost would be along in a few nights. The catkins on the maple trees had something to do with early gardening. The women used to watch for blackberry blossoms—had something to do with planting beans, didn't it? And either the opening of the elder flowers or the ripening of the elder berries fixed the time for some summer operation—maybe it was sowing turnip seed, or it may have been harvesting the early onions. And there was a great deal more of the same kind. Nearly every field and garden operation depended on some tree or flower—a mass of misinformation, interesting as folk lore and all that, but utterly useless as aids to productive farming.

That is what you thought, perhaps. It is what a great many thousands of people have thought. All those "superstitions" did not fit in with the little bit of cocksure science that every boy and girl learned in school. It was merely something for well meaning old fogies to putter around with and for well informed people to smile at.

Not Mythical, Says Science

Comes, now, the United States department of agriculture and says that such lore is not superstition and never was, that it is not useless and never was, but that, on the other hand, it is, and has always been, one of the most accurate aids possible to the right sort of agriculture. Here is the opinion in the language of one of the department's scientists:

"Properly recorded and correctly interpreted, there is nothing perhaps to equal the records of the dates or periodical events in plants as indices to the bioclimatic character of a place or local area, because such events are in direct response, not to one or a few, but to all the complex elements and factors of the environment which no artificial instrument or set of instruments yet available will record."

What that means, in plain language, is that there is a best time for every farm and garden operation, and that some tree or shrub or plant indicates that best time more accurately than all the scientific instruments can possibly register it.

The only restriction is that this nature lore with relation to crops, be "properly recorded and correctly interpreted". The "superstitions" that you smiled at were, all the while, the basis of a very useful and very exact science—only nobody had ever systematized it.

Phenology Can Help Agriculture

"Very little specific study," says the same scientist of the department of agriculture, "has been made in this country of the subject of index plants do determine their relation to different periodical events in farm and garden practice, especially with reference to the relative value of different species and varieties as to the constancy of their periodical responses to seasonal influences year after year. Therefore, it is apparent that among the subjects requiring thorough systematic investigation that of the relation of phenology to agriculture is among the most important."

You see, this system that the old fogies followed was the science of phenology—only it was not scientifically got together. "Phenology" means the science of phenomena. No human being has ever yet known it in its completeness. Many hundreds of years ago a wise man, though probably an unlettered one, picked up a bit of it here and there and practiced it and told it to his children, and they practiced it and in turn told it to their children. So it came down by word of mouth through many generations, with accretions here and there, every generation adding a little, but each generation likely to confuse and wrongly apply what it had inherited from the preceding generation. Some of its results may have been wrong, because men failed to remember accurately or to apply properly what their grandfathers had told them or what they had learned for themselv but, on the whole, it doubtless h worked beneficially, and now a begi ning is made toward converting it in an exact science.

You can have no idea of just ho scientific the thing is. It is all full such terms as "phenological meri ians", "bioclimatic law", "isophanes "theoretical time constant". It aboun in such equations as "isophane 4 minus 34b equal 10 isophanes times equal 40 days later'. It involves pla ted curves, graduated diagrams a world maps with zig-zag lines runni through them. It is the most math matical, geographical and biologic "superstition" you could imagine.

Practical with Hessian Fly

The Hessian fly may be said to ha started it all. Its depredations we such that it was necessary to so wheat so late that the Hessian f would not ruin it and yet early enou that it would get a start before ve cold weather. The department of a riculture undertook to establish a sy tem of planting dates for every se tion of the United States in whi wheat is grown. It was not possib to make investigations in every fie to determine the right time for pla ing. What had to be done was establish one correct time and wo out the others from it. The rule w laid down that the season, in gener varies four days for each one degr of latitude, five degrees of longit and 400 feet of altitude. That perfectly good, workable rule. A di calendar and other mechanical devic have been got out to aid the farm in applying it. By it, any farmer a determine about what time he shou sow his wheat. But he cannot de mine by it exactly what time should sow his wheat. And it wou work out the same way for planti any other crop. No two seasons a just the same. The date that is rig this year may not be right next ye

But if, on the day that was right planting cotton this year, the locu trees were just coming into bloom, t probability is that the right day n year will be the day on which locust trees are beginning to bloo though it may be ten days later ten days earlier than the year befo If, for five or ten or any number years, it is determined that the b day for planting cotton seed is day on which the locust trees are ginning to bloom, the blooming comes a pretty reliable index as when to begin planting. That, course, is a suppositious case. cust blooms are not known to ha any relation to cotton planting t But the time for sowing winter wh has been determined upon as period between the time when the late goldenrod is in full bloom the time when the white common J anese clematis flowers are nearly gone or the leaves are distinctly ored on the dogwood and hickor At least, that is the verdict of Dr. D. Hopkins, the scientist of the partment of Agriculture who has be quoted several times before.

Applying the New Science

And that is what the application the science of phenology to agric ture will be when it is worked ou a definite something in nature will indicate the right time for do a definite thing in the farm operatio It will be rather a slow process. Hopkins has worked out forms gathering index material on pra cally all trees, shrubs and plants, nual and perennial, wild and cultiv ed, with regard to the various cro In the course of years, qualified a cultural experts will gather and s tematize the data.

In the meantime—well, any indiv ual farmer may have some of his r ural phenomena indices wrong, but is likely to have a good many of th right. If he will use his own pow of observation and his own judgme he can correct them for himself fr time to time. Any intelligent farm who will take the trouble can w out a pretty good system for hims And the Department of Agricult will be able to give him more more aid from year to year.

Dr. Hopkins has recorded the sults of his work in a Weather Bur publication entitled "Periodical Eve and Natural Law as Guides to A

ultural Research and Practice," but t is too technical for the average eader—in fact it is not meant for the verage reader. At the present stage f the investigations, reports of prog- ess are for scientific workers. As he research develops workable, re- iable indicators they will be an- ounced. After all, the successful ractice of phenology is individual ap- lication of observation and common ense to the common things around he individual.

ROADS AS DIVIDEND PAYERS

If a farmer saves an hour a week by being enabled to use good roads as opposed to bad roads, it would mean 52 hours a year; estimating the use of man and team as being worth $6.00 a day, this means a saving of $31.20 a year.

Suppose his farm is assessed at $10,000, and the additional tax levy due to the issue of road bonds by the county runs to $1.00 per thousand, which would mean $10.00 a year additional taxes as against a saving of $31.20 on time alone. This means that he is investing $10.00 and drawing dividends of $31.20, an interest rate of 312 per cent.

The farmer doesn't need to stand for this. Collectively he is the political power in his community. What he wants he gets. His vote assures that.

Isn't the answer this, Friend Farmer: Impress on the law-making and bond-issuing authorities that you demand good roads; that it costs you money not to have them. Won't you get them? Most assuredly you will.

SEEKS OUTLET FOR BREWERS' RICE

Rice mills and other large holders of brewers' rice have appealed to the bureau of markets of the United States department of agriculture to find an outlet or new uses, through investigations, for their stocks which are accumulating because of the approach of national prohibition. Although such rice might be made into rice flour, dealers and mills report a decreased demand for rice flour since the restrictions on the use of wheat flour were removed by the food administration, and doubt whether the making of additional rice flour would be profitable. In addition to the stocks of brewers' rice there are also large holdings of low-grade rice and screenings which are at present unmarketable. The department is giving attention to the problem.

THE AIRPLANE IN AGRICULTURE

In connection with scouting and other survey work in Texas, the United States Department of Agriculture is putting the airplane to its first practical application in agriculture. A tryout of this method of survey was made last year along the Trinity River and resulted in the discovery of several outlaw cotton fields in heavy timber, which had previously escaped detection. This year the airplane is to be used more extensively. It has been found a valuable aid in pink bollworm work, as it makes possible the easy mapping, by means of photographs, of the quarantined territory, and facilitates the inspection work in forested areas, especially in such long stretches of country as the valley of the Rio Grande and its tributaries.

KELP POTASH SOLD TO NEW YORK FARMERS

A carload of kelp potash, produced at the United States department of agriculture's experimental plant at Summerland, California, was recently sold by the department to the Nassau (New York) County farm bureau, and has been delivered to the president of the association, Elwood B. Titus, at Mineola, Long Island. The car contained about 74,000 pounds of 33½ per cent material and was sold at $4.25 per unit, or $142 a ton. Nassau County is one of the large truck-growing counties of Long Island, and the farm bureau will probably take another carload of potash from the Summerland plant.

The Woman's Club of Three Rivers, Tulare County, protests against changing the name from Sequoia to Roosevelt National Park, and say that the change is one which "Roosevelt when living would not have approved." This is a very reasonable deduction from Roosevelt's devotion to nature worship.—S. F. Chronicle.

MARKET NOTES

Cabbage in San Fernando district was somewhat benefited by the rainfall of last week. Inspection shows a big percentage of the plants have been cleaned of aphis. A few acres will be ready to harvest next week, but not enough to justify loading straight cars.

Height of cauliflower shipping season reached the past week. Effect of the rains is seen in variable quality of stock. Heads running larger than in January. Shipments probably average close to 12 heads per pony crate. In central section black broccoli varieties not yet moving freely. Prices to growers are not yet down to Southern California levels.

The celery crop is clearing up rapidly.

Lettuce shipments this winter have not been up to the usual standard of size, firmness or volume, but reports indicate that the quantity is increasing, and the quality improving in both Imperial and Los Angeles Counties. Los Angeles County shipments have been light, but an increase is expected this coming week.

Cantaloupes, string beans, squash and corn are being planted in the Indio district.

Peas are looking very fine in Brawley district. Earlier fields are forming pods. The first express shipments will probably be out in ten days.

Peas are farther advanced in the Hayward and Half Moon districts than last year.

Acreage of Garnet potatoes in San Francisco, Colma, Half Moon Bay district, to be 2250 acres. Planting is almost finished, but plants are not yet up. The prospects are favorable.

Spinach shipped from Imperial and Coachella sections has been of fine quality and some growers secured as much as a car per acre. Four or five cars per day are being shipped from Brawley.

Honey exports, January 1-10, 1919, total 37,218 pounds, including Canada and Newfoundland 34,074 pounds, China 6000 pounds. Corresponding 10 day period, 1918, 560,808 pounds. January 10-20, 1919, total 87,860 pounds, including Canada and Newfoundland 83,887 pounds, United Kingdom and France none, Norway 1920 pounds, China 1148 pounds. Corresponding period 1918, 873,597 pounds. Total since July 1, 1918, 4,208,668 pounds, including Canada and Newfoundland 694,622 pounds, United Kingdom 2,986,856 pounds, France 492,301 pounds Norway 1920 pounds, China 6375 pounds.

Peanuts from Japan and Formosa commanded in 1918 prices double those received in 1916. The 1918 output was three and a half million bushels. Present price 7½c per pound.

California is shipping around 15 carloads daily of cabbage and cauliflower to Chicago, the heaviest buying center for these vegetables. Other eastern markets total about the same daily shipment.

Practically all stocks of dried fruit in the state are sold off.

NO BOLLWORM ADMITTED

Fumigation houses, erected on the Mexican border by the United States Department of Agriculture to help prevent further introductions of the pink bollworm of cotton from Mexico, are substantially completed and will be placed in operation in a short time. These fumigation houses, some of which will take 15 railway freight cars at one time, probably represent the largest fumigation operations ever undertaken. They are established at five different points from Brownsville to El Paso.

ON GUARD AT CROSSROADS OF THE WORLD

H. F. Dietz, an entomologist of the United States Department of Agriculture has for some time been assigned to duty in the Panama Canal Zone. The canal is the crossroads of the world and the possibility is always imminent of new and injurious insects gaining a foothold there and coming thence to the United States.

It ain't the guns nor armament, nor funds that they can pay,
But the close cooperation that makes them win the day;
It ain't the individual nor the army as a whole,
But the everlasting team work of every blooming soul.

—Kipling.

SMILO GRASS

A hardy, evergreen, perennial, drouth-resistant bunch grass, recommended by Prof. Kennedy of the Department of Forage Grass Production, University of California, who says, "Smilo Grass should not be confused with Indian or Sand Mille. Smilo Grass seed originally came from the Mediterranean district, where it is a valuable forage grass."

Prof. Kennedy also says Smilo Grass should become one of the most important forage grasses of this state, and that the seed should be scattered, or plants set, over our extensive areas of barren hills, and that Smilo Grass cannot become a pest, owing to its fibrous root system. It is easily cultivated out.

Send addressed and stamped envelope and we will mail you a free bulletin by Prof. Kennedy.

Early Fall is the best time to plant Smilo seed on the ranges of Southern California, where it can be sown broadcast, or on burnt over brush land, without cultivation, if done before Fall rains. Seed can be planted any time, providing it gets sufficient moisture to establish a root system.

When well rooted it will stand drouth.

Seed is very fine (40,000 to the ounce) and must be planted shallow, in fact, be barely covered. Do not sow thick, or you will make a failure. We find the best results sixteen inches each way, as the bunches grow very large.

Do not turn stock on Smilo the first season. Let it get a good root.

To get quick results, and to test its values, it would be well to send for a few roots. Now is the time to plant roots.

We will send one dozen for fifty cents (50c), 100 for $2.50, and 1000 for $9.00 postpaid.

Ask your dealer for Smilo seed. If he cannot supply you, send fifty cents for one ounce, or three dollars for one pound, and we will send it postpaid.

Smilo Grass has been growing on this ranch for over thirty years.

Do not write asking questions about Smilo Grass without enclosing an addressed and stamped envelope.

G. D. STEAD

Spring Valley **California**

Your Tractor Question

"Will It Do MY KIND OF WORK?"

Answered in Tractor Book

THIS Tractor Book tells all about *special abilities* of Bean TrackPULL Tractor in *orchards* and *vineyards*.

This great little 6-H.P. machine, designed by builders of special orchard and vineyard machinery for 34 years, combines a wealth of experience in one most efficient design to meet definite orchard and vineyard needs.

Don't buy tractor built for *general* use which may prove merely an expense, no matter what the purchase price.

Tractor designed to *do your kind of work* is the cheapest by far in *service-costs* per year.

Bean TrackPULL turns about-face in 10-foot circle with *full* power—tools deep in soil. You turn right back in same row.

Built low to go under lowest branches. Great traction permits



light weight, low fuel expense, and best work in soft soil.

Bean TrackPULL Tractor will be as famous as noted Bean Power Sprayer when as many are in use.

BEAN TrackPULL Tractor

New "After-the-War" Proposition

We have a new "After-the-War" proposition which includes a bond covering a liberal guarantee on one season's work of 90 days, without expense for repair parts. This guarantee bond is furnished each purchaser of a BEAN. A reduction in price is also effective at once, and guaranteed up until June 30, 1919.

Also manufacturers of famous Bean Power Sprayers



See this Tractor at either of our Branch Houses 131 N. Los Angeles Street Los Angeles, Cal. or Fresno, Cal.

Bean Spray Pump Co. 229 W. Julian St. San Jose, Cal

Name _____

Street _____

City _____

County _____ State _____

No. of Acres _____ Kind of Crops Grown _____

Los Angeles Market

Los Angeles, Feb., 26, 1919.

BUTTER

Produce Exc. Quotations.
Prices to trade 1½ to 2½c higher.
Cal. Extra Creamery 55

Dairy exchange prices last week on extras:

Feb.	19	20	21	22	24	25
'19 ...	55	55	55	..	55	55

CHEESE

Brokers' prices:
California fresh, lb. 29½

EGGS

Exchange quotations. Price to retailers 2 to 3 cents higher.
Fresh extras 37
Case Count 35
Pullets 34

Dairy exchange prices last week on extras:

Feb.	19	20	21	22	24	25
'19 ...	37	37	38	..	37	37

POULTRY

Prices to producers: Hens, light 30; heavy, 30@32; colored, 32; broilers, 42@45; fryers, 37; roasters, 30; old roosters, 20; ducks, 30; ducklings, 31; geese, 28; turkeys, 34@37; squabs, 40@43.
Belgian hares, 16.

LIVE STOCK

By F. P. Allen, Bureau of Markets, Los Angeles

Local buyers are paying $12 to $12.50 f. o. b. country shipping point for good steers and don't seem to be very anxious for them at those prices. In some rare cases $13 is paid when the quality and other circumstances justify that figure. These country point prices bring the cost f. o. b. Los Angeles from $13.50 to $14.50, the difference representing freight, shrink and other incidental charges. While dressed steers are quoted at $22.50 for a top, only a few head in each carload of steers received here qualify for that figure.

The same rule in a smaller way applies to live hogs. Country point prices range from $15.25 to $15.75 for No. 1 hogs, which means $16 to $16.50 in Los Angeles. All the hogs in carload lots received here are not No. 1 hogs. The receipts have been fully adequate and prices rule steady.

The quality of lambs in the receipts are a little below normal. Those of top quality find a ready market but other grades are weak on a dull market.

Yearlings and choice wethers are in good demand at firm prices but ewes are badly neglected. The sale for them is very slow and the market weak .

Live stock prices February 26:

Good steers	$13.50@14.50
Medium steers	11.00@12.00
Common steers	9.00@10.00
Good cows	11.00@12.00
Medium cows	9.00@10.50
Common cows	6.00@ 7.50
Hogs—No. 1, 175-225 lbs	16.00@16.50
Hogs—No. 2, 250-400 lbs	14.50@15.50
Lambs—No. 1	16.00@16.50
Wethers—No. 1	11.00@12.00
Ewes	8.50@10.50

POTATOES AND ONIONS

These are the actual prices obtained February 25 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.

Demand and movement moderate, prices slightly lower. Closing prices Monday carlot sales to jobbers: Stockton Burbanks sacked per 100 pounds, extra fancy, $2.15; fancy, 1.80@1.90; choice, no sales reported. Idaho Russets sacked per 100 pounds best, 1.45@1.55.

Sweets, lug, 90@1.00.

Onions: Demand and movement slow. Little change in prices. Stockton, sacked per 100 pounds. Browns, best 2.00@2.10; resorted, 2.25; White Globes, 7.50@8.00; Homegrown Green Onions, 1.50 per dozen bunches.

VEGETABLES

These are the actual prices obtained February 25 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz. .....1.25@1.40
Brussels Sprouts, best, lb. .....12@14

Cabbage: Cool, clear. Demand moderate, no change in prices. Quality and condition generally good. Carloads f. o. b. cash track. Early Winningstadt, California crates, 22.00@25.00 per ton, crates extra.

Carrots, doz. 50

Cauliflower: Best in cabbage crates, 1.00@1.40.

Celery: Little change in prices, quality and condition ordinary, mostly short, carloads f. o. b. usual terms, Northern and Southern districts. Golden Hearts in California crates, 5@7 dozen bunches, No. 1, mostly 85; No. 2, 75 per dozen bunches, crates extra. Homegrowns, best 3.00@3.50; poorer, 5.00 per crate.

Lettuce: Demand good, prices advancing. Quality and condition good. Carloads f. o. b. cash track—Iceberg, California crates, Los Angeles district mostly 2.05@2.75, Imperial Valley ,district 5s 3.50, 6s mostly 3.00@3.25.

Parsley, doz. 20
Peas, Tel. lb. .....12@15
Peppers, Chili, lb., best .....22@25
Bell, lb., best .....25@30
Pumpkins, lb., best 1¼
Radishes .....15@20
Rhubarb, Strawberry, bx. .....2.25@2.50
Spinach, doz. 25
Squash—Hubbard, best, lb. 2

Tomatoes, Mexico, condition generally good; best, 3.25@3.50 lug bx.
ity and condition poor, 1.75@1.85.
Turnips, doz. 25

FRUITS

These are the actual prices obtained February 25 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Bellefleurs, fy. best, medium size 2.00@2.25; loose, 5@6 lb. Yellow Newtons, fy. medium size, 3.00@3.25; loose 6@6½ lb. Oak Glen, Rome Beauties, large 3.00@3.50; Yucaipa, Delicious, fy. large size 3.00@3.50; medium and small size, 2.50; King Davids, small, 2.25@2.50; Winesaps, 3.00.

Pears: Winter Nellis, lb., 5@6.

CITRUS

Lemons: Fy. packed, 4.00@4.25; local pack, 3.00@4.00; loose, some tree ripe, 2.00.

Oranges: Navels, medium and large size, fy., 3.50@4.50; local packed, 2.50@3.25; loose, 3.00@3.50; Tangerines, 5@6 lb.

Grapefruit: Local fy., 2.50@2.75 bx.; Imperial Valley, 3.00@3.25; Tulare County, 2.25@2.50.

HONEY

No demand. Practically no movement. No sales reported. Probably 10 to 15 cars still in the state. Beeswax: Few sales, cash to producer on farm 38 lb.

BEANS

The general tone continues slow and weak with declines in all sections. Sacked recleaned Limas declined 50c to 7.00@7.50 per hundred weight to growers in the Los Angeles section, declining also in larger consuming markets to 9.75@10.50 with tops of 11.25@11.50 in Boston, New Orleans and several smaller cities. California sacked Small Whites declined to 8.60@10.00 in Eastern market moving very slow at that. Eastern pea beans moved very slowly at 6.50@8.00 in nearby distributing centers. Shipments were much lighter. The government has placed order for 350 cars of California beans.

GRAIN

Prices on local grain exchange.
Corn, Yellow, 2.65; White 2.60
Wheat 39.50
Milo 2.32
Egyptian corn 2.60
Barley .....1.81¼@1.82½
Egyptian corn 2.60
Feterita 2.45

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....20.00@25.00
Barley .....18.00@23.00
Alfalfa .....16.00@20.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:

Market active, buyers numerous, and offerings light.
Choice dairy hay .....27.00@28.00
No. 1 dairy .....25.00@26.00
Choice Alfalfa .....24.00@25.00
Standard dairy .....21.00@22.00
Standard Alfalfa .....20.00@21.00

San Francisco Markets

San Francisco, Feb. 25, 1919.

BUTTER

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½c to 2½c; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:
Extras 54
Prime Firsts 52

Prices extras past week and year ago:

Feb.	18	19	20	21	22	24
'19 ...	55	55	55	54½	..	54
'18 ...	53	52	52	52	..	..

Rcts. wk. ending Feb. 24, 363,300 lbs.

CHEESE

Dairy exch. quotations:
Cal. Flats .....29@30½
Ore. Triplets 38½
Jack, full cream .....25@27

EGGS

Dairy Exchange quotations:
Extras 40
Extra Pullets 36

Prices extras past week and year ago:

Feb.	18	19	20	21	22	24
'19 ...	38½	39	39½	40	..	40
'18 ...	65	44	46½	46¼	..	..

Rcts. wk. ending Feb. 24, 13,335 cases.

POULTRY

We quote to producers, lb.:
Hens, 35@40; broilers, 58@60; fryers, 40@45; old roosters, 20@22; young roosters, 37@40; turkeys live, 33@35; dressed, 41@43.
Ducks, 29@35; geese, 29@35.
Belgian hares, live, 18@20.
Squabs, 3.00@4.00.
Jack Rabbits, 3.00@3.25 doz.

LIVE STOCK

Prices gross weight:

Cattle: The following prices are for grass fed stock. Hay fed brings ½ to ¾ cent more.

No. 1 steers, weighing 950 to 1100 lbs. alive, 12¾@13; 1200 to 1400 lbs., 13@13¼; second quality, 11¼@12; thin steers, 9@10. Cows and heifers, No. 1, 9@10; second quality, 8@9; common to thin, 6@7; calves, 8@12.

Sheep — Lb. gross weight: Wethers, 11½@12; ewes, 8½@9¼; lambs, 14@14½; yearlings, 12@12½.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 16; 150 to 250 lbs., 16½; 250 to 300 lbs., 16; 300 to 400, 15½.

POTATOES

Wholesale selling prices at wharf, cwt.

Supplies liberal. Demand and movement moderate, quality and condition good, no change in prices, sales to jobbers: California, Oregon, Washington, and Idaho, Long and Round Whites per cwt., sacked, fy., 1.85@2.00; U. S. Grade No. 1, 1.50@1.80; U. S. Grade No. 2, 1.25@1.35.

ONIONS

Wholesale selling price on wharf, cwt
Australian, Brown .....1.50@2.25

VEGETABLES

Wholesale selling price:
Artichokes, doz. .....50@1.00
Asparagus, lb. 50
Beans, String, lb., local .....10@20
Beets .....1.50@1.75
Brussels Sprouts, lb. .....6@8

Cabbage: Supplies liberal. Demand and movement moderate, no change in prices. Quality and condition generally good. Street sales. Early Flat Dutch, bulk per 100 pounds 75.

Carrots, sk. .....1.00@1.25

Celery: Supplies moderate. Demand and movement moderate, quality and condition wide range, street sales, Golden Hearts in California crates best, 6.00; ordinary 5.00@5.50; poor, 3.00.

Cauliflower.: Supplies liberal. Demand and movement good, quality and condition generally good, no change in prices. Black Broccoli 75c per dozen.
letin released 10:35 a. m. H. H. Warner, assistant in market surveys.
Cucumbers, hothouses, bx. of 30.3.25@3.50
Egg Plant, lb., local, ...5@10

Lettuce: Supplies liberal. Demand and movement moderate. Quality and condition wide range. Street sales: Los Angeles and Imperial Iceberg, California crates, 3.00@3.25.

Mushrooms, bx. .....15@50
Peppers, Southern .....12@15
Peas .....10@17½
Pumpkins, sk. .....1.00@1.10
Rhubarb, bx. .....2.00@3.25
Squash—Cream .....75@1.00
Marrowfat .....1.00@1.25
Hubbard, sk. .....1.25@1.75
Spinach, lb. .....3½@6
Tomatoes, Mex., cr. .....3.00@3.50
Turnips, bag .....1.25@1.50

FRESH FRUITS

Wholesale selling price:
Apples—Newton Pippins .....2.50@2.75
Pearmain .....1.25@1.65
Bananas .....6½@7½
Olives, lb. .....10@12½
Pears—Winter Nellis .....3.00@3.50

CITRUS

Box: Lemons, 2.50@4.00; Lemonettes, 2.00@3.00; grapefruit, 2.00@3.50; Mandarins, 1.75@3.00 cr.; tangerines, half orange bx, 3.00@3.50; Navel, 3.50@4.50.

DRIED FRUITS AND RAISINS

Prunes—Bulk basis: 30-40s, 10; 40-50s, 9½; 70-80s, 8½; 80-90s, 8; 90-100s, 8; in 25-lb. bx., 20-30s, 18½; in 50-lb. bx., 100-120s; 5¾; 120s up, 5¾.

Peaches — Bulk basis: Standard yellows, 11¼; ch., 11¾; fy., 12½; extra fy., 13¼; slabs, 10¼; standard Muirs, 11¾; ch., 11⅞; extra fy., 14; slabs, 10¼.

Raisins—Muscats, pkg. seeded: Fy., 36 16s, 9¾; fy., 54 12s, 7¾; ch., 36 10s, 9¼; ch. 45 12s, 7¼. Bulk seeded in 25-lb. bx.: Bakers, 8; loose in 25-lb. bx., recleaned and floated, 1-cr., 7½; 2-cr., 7½; 3-cr., 8; 4-cr., 8¾; layers, ordinary pack, 20-lb. bx., 3-cr., 1.85; 4-cr., 2.10; 6-cr., 2.95; 10-lb. bx., 3-cr., 1.05; 4-cr., 1.20; 6-cr., 1.65; 5-lb., bx., 3-cr., 65; 4-cr., 70; 6-cr., 90; vineyard run layer raisins, 50 lbs., 3.00; 100 lbs., 7.50.

Figs—Bulk basis: White Adriatic, extra fy., 17½ fy., 15¾; ch., 14; Calimyrna, extra fy., 25; fy., 23½; pkgs. ch. to fy., 12 10s, 1.75@1.80; 24 8s, 2.90@2.95; 50 6s, 3.40@4.40; 70 4s, 4.40@4.50.

Pears—Bulk basis: Fy., 19½; extra ch., 17; ch., 15½; standard, 12@14.

Apples—Lb.: Extra ch., to the evaporator, 13½ jobbing price, 14½.

Apricots—Standards, 9½; ch., 13; extra ch., 14½; fy., 16; extra, 17½; Moorparks, 19; slabs, 11.

BEANS

San Francisco and common rate points: Practically no demand or movement. Quality and condition wide range, prices lower, warehouse cash to growers, few early sales. Choice recleaned sacked per 100 pounds free from rain damage, Limas 7.50@8.00; Red Kidneys, 8.50@10.00; Small Whites 6.50@7.75; Large Whites, 5.00@6.25; Bayos, 6.00@6.50; Cranberrys, 5.00@5.50; Red Mexicans, 5.00@5.75; Pinks, 4.50@5.50; Blackeyes, 3.50@4.00; Teparies 2.00@4.00. Imports: Oriental beans December, 16,749 sacks: January none, February to date 34,948 sacks.

HONEY

Supplies liberal. Practically no demand or movement. Buyers holding off. Cash to producer at country loading points, Water White, 18@19; Sage White, 18; Light Amber, 17; Dark Amber, 14@15 lb., Beeswax, 36@38.

RICE

1918 crop, per 100 lbs: Paddy rice, Nos. 1 and 2, 4.32; 3d and 4th grades, 4.16; clean, fy. Japan, 7½ per lb; choice Japan, 7¾ per lb; screenings, 5¾ per lb; brewers, 5¼ per lb; rice polish, 50.00 per ton, car lots; rice bran, 30.00 per ton, car lots; early prolific, 4.47. All other grades are to be sold on proportional basic value and proper differentials are to be added for the cost of double pockets.

SEEDS

Flax .....8@8½
Millet .....5@5½
Rape .....2½@5

HAY

Fancy Wheat Hay (light 5-wire bale) .....24.00@26.00
No. 1 Wheat or Wheat and Oat hay .....22.00@24.00
No. 2 Wheat or Wheat and Oat hay .....16.00@20.00
Choice Tame Oat Hay .....21.00@23.50
Other Tame Oat hay .....16.00@19.00
Wild Oat Hay .....16.00@18.00
Barley Hay .....16.00@18.00
Alfalfa .....16.00@19.00
Stock hay (in order) .....14.00@17.00
No. 1 Barley straw, bale .....50@80
Damaged hay (all kinds), according to condition.

GRAIN

Barley—Feed, 1.97½@2.00 per cental; shipping, nominal at 2.00@2.05.

Oats—Red feed, 2.10@2.15 per cental; seed do, 2.60@2.75, with recleaned at 3.00@3.10.

Corn—California yellow, 2.75@2.85 per cental; Egyptian, 2.90@3.25 for dry and 2.50@2.75 for rain damaged; Milo maize, 2.70@2.90 for dry and 2.50@2.60 for rain damaged.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Ba and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Cent
No. 1	2.20	$3.62 2
No. 2	2.17	3.61 2
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1
No. 2	2.15	3.58½
No. 3	2.11	3.51 2
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.09	3.48½

For sacked grain add nine cents p bushel of 60 pounds to above price. D duction of three-fourths of a pound made for weight of standard grain bag Wheat grading under No. 3 and mixed c smutty wheat will be purchased accord ing to merit.

Citrus Fruit Market

Los Angeles, Cal., February 26, 1919

Trade is reassured as to Californ quality and prices have advanced ar general market condition is steadi strengthening. Regular sized fancy stu is readily commanding between $5.00 ar $6.00. Tangerines, bloods and Navele cias are all commanding exception prices. Reports from Florida show h stock to be commanding from 3.75-4. f. o. b. shipping points. Florida shipmen are also increasing at this momen this moment, though this can be but f a short time.

Lemons are not in as high a favor though this can be but for a short tim generally good.

Shipments

Shipments of citrus fruits to date sin November 1, 1918: Southern Californi oranges 7130 cars, lemons 2171, total 930 to same date last season, oranges 41 lemons 2047, total 61.97. Central Califo nia this season, oranges 2943, lemons 3 total 3279; last season to same date, o anges 1892, lemons 106, total 1998. Nort ern California, oranges 244, lemons 2; la year same date, 202.

AT THE AUCTIONS

February 20

New York: 17 oranges, 8 lem. Na 3.90-5.40, tangerines, 3.70, lem. 2.95-4. Boston: 6 oranges, 4 lem. Nav. 4.2 5.35, bloods, 4.80, lem. 3.50-4.10.

Philadelphia: 2 oranges, 1 lem. Na 5.00-5.15; lem. 3.40-4.00.

Pittsburg: 2 oranges, 1 lem. Nav. 4. 4.60, lem. 2.20-3.80.

Feb. 22

New York: 13 oranges, 4 lem. Orang higher, Nav. 4.35-5.25, tang. 3.40, le 3.15-4.45.

Cincinnati: 1 orange, 2 lemons; Na 4.10-4.15, lem. 2.50-3.95.

Cleveland: 2 cars. Nav. 5.00-6.00.

Philadelphia: 2 oranges, 2 lem. Na 4.75-5.75, lem. 3.15-3.80.

St. Louis: 4 oranges, 1 lem. Nav. 4. 5.35, lem. 3.80-3.95.

Boston: 4 oranges, 1 lem. Orang higher. Nav. 4.70-5.50, lem. 3.25-3.75.

Feb. 24

New York: 25 oranges, 13 lem. C anges higher. Nav. 2.80-5.85, lem. 4.25, tang. halves, 3.30-3.80.

Cleveland: 5 oranges, 1 lem. Nav. 6.00, bloods, 5.35, lem. 4.65-5:20.

Philadelphia: 5 cars. Nav. 4.15-5. lem. 2.85-3.70.

Boston: 9 oranges, 5 lem. Nav. 465-5. tang. halves, 3.00, lem. 2.60-3.75.

St. Louis: 5 oranges, 2 lem. Nav. 5. 5.75, Navelencias 5.35, tang. halves, 4. lem. 2.85-3.55.

Pittsburg: 12 oranges, 3 lem. Nav. 4. 5.90, lem. 2.85-4.15.

Feb. 25

New York: 18 oranges, 6 lem. High on oranges. Nav. 4.40-6.25, tang. halv 3.60, lem. 2.65-4.45.

Philadelphia: 3 oranges, 1 lem. Na 5.25-6.00, lem. 3.60-4.15.

Pittsburg: 1 orange, 1 lem. Nav. 4. 4.80, lem. 2.10-3.50.

Boston: 4 oranges, 2 lem. Nav. 4. 5.65, Navelencias 5.70, bloods 5.00, le 3.20-4.00.

MARKET NOTES

The increased production of hogs du ing 1918 has been reflected at market ce ters during the past several months an augmented volume of receipts at pra tically all points. Figures have be compiled by the bureau of markets sho ing hog receipts at 15 markets during O tober, November and December, 1918, a January, 1919, with comparative figur for the corresponding period a year ag The receipts for the four months peri at these markets: Buffalo, Chicago, Ci cinnati, Cleveland, East St. Louis, In anapolis, Kansas City, Louisville, M waukee, Nashville, Omaha, Pittsburg St. Joseph, St. Paul and Sioux City, t taled 15,404,855, compared with 11,640,0 a year ago, an increase of 32 per cent t past four months. The numerical i crease was almost 4,000,000 head, or average of practically 1,000,000 a mont The Chicago market alone showed an i crease of more than 1,000,000 head du ing the above period, a gain of 39 p cent, but there were greater relati gains in marketing at some of the oth points. Of the markets mentioned, t following show increases of more than per cent during the four months perio Kansas City, 76 per cent; St. Joseph, per cent; Milwaukee, 57 per cent; Omah 52 per cent; Chicago, 39 per cent; E St. Louis, 37 per cent; Nashville, 33 p cent, and Cincinnati, 31 per cent. Pitt burgh alone showed a decrease, the lo at that market being about 16,000 head.

As to cheese there is a continued firm ing of the market. Scarcity of Californ cheese because of late increased co sumption and demand is reported. Or gon Young Americas sold at 36½ cer but the demand is reported as limited.

According to R. G. Risser of the bure

crop estimates the present outlook is the largest acreage of cantaloupes er grown in the San Joaquin Valley. ntracts are not all signed, and planting il not start until next month, but con- nsus of opinion is that 7000 acres will put in. The planted acreage may ex- d this figure, but is subject to later duction by abandonment. The Turlock d Ripon districts will show a marked crease. There will be new districts in anislaus, San Joaquin and Kern Coun- s. In common with other Western dis- cts, growers and shippers have been mulated by the prices of last season. Texas onions have had unfavorable ather, too cool, and thrips are show- g up. Slow growth account of weather. Florida potato acreage estimated at 610 acres against 32,730 acres in 1918. A car of Western box apples recently ld at the highest price ever recorded in iladelphia. Delicious, choice sizes, ought up to $5.15, and averaged $4.85 box. Winesaps, choice, brought up to .85 and averaged $4.28 per box. The ult was of medium size and the car ossed over $3400.

Commission men and others who have en connected with the stock yards at icago for many years, state that never fore to their recollection have the stock rds, as a whole, been in such clean con- tion for this time of the year, as they e at the present time. On account of e many complaints that were coming the bureau of markets late last fall d early this winter, one of the bureau's sistant supervisors has given most of s time to this work, and favorable prog- ss has been made. With the labor situ- ion somewhat relieved, more men have en hired by the stock yards company, d every available wagon or cart has en pressed into service, and the work s been so systematized as to produce e best possible results. The most ur-



ent needs have received first attention, ut every complaint has been investigat- d and conditions corrected where need- d; favorable weather, which prevailed ractically throughout January, was also helpful factor in bringing about the sat- sfactory results that have been obtained nd in point of total number of carloads f manure and refuse hauled from the ards, the month was a record breaker ith 335 carloads.

Wood for fuel should be sold by weight stead of by cord measure, for the heat- g value depends not upon the bulk of he wood but upon its weight, say forest- rs of the United States department of griculture in Bulletin 753, recently pub- shed. A pound of dry wood of one spe- ies has about as much heating value as pound of any other species, but two ords may vary 100 per cent in their alue for heating.

All of the special regulations governing ealers in eggs and cold storage ware- ousemen have now been lifted by the nited States food administration.

Latest reports from the tomato section n Mexico indicate that the crop will be onsiderably shorter than was first ex- ected, due mostly to weather conditions. Estimates at the present time indicate hat there will be about 125 cars from he Presidio or southern district of Sina- oa and about 500 cars from the Mochis istrict. This total is about 250 cars less han first estimates. The market con- inues strong and the demand is exceed- ng the supply at the present time. Ship- ents during the past week amount to bout 15 cars. The height of the season s not expected until April 1.—Pacific oast Packer.

FIRST CARE OF BABY CHICKS

The first requirement of young hicks is warmth, a temperature com- ortable for them. Chicks hatch in a emperature of 102 degrees to 105 de- grees Fahrenheit. When brooded by ens they remain under the mothers nearly all the time for two or three days. Chicks shipped in small boxes are kept warm by the heat of their odies so long as the boxes are not ex- posed to near freezing temperatures, ut this natural heat is not sufficient when they are given more liberty.

Have Brooder Ready

Buyers of chicks should have a brooder such as is required for the number of chicks bought ready, warm- ed and regulated when the chicks ar- rive.

If, for any reason, the brooder is not ready, take the chicks from the ship- ping box in a warm room; feed, and return to the box; repeat at intervals of three hours until the brooder is ready.

For the first few days give very close attention to regulating the brooder for the comfort of the chicks. This is the most troublesome stage in the operation of a brooder, and the most critical period in the life of the chick.

Emergency Brooder

Delay in delivery of a brooder some- times puts a novice in a quandary as to what to do with chicks. A brooder for temporary use may be made as follows:

Take a box, without cover, about 18 to 24 inches square and 10 inches high. In one side, next the bottom, cut an opening three inches high by ten inches long for the chicks to pass through. Protect this opening with a strip of cloth, tacked at the upper edge, having perpendicular slits from the lower edge to within half an inch of the top to give the chicks passage.

This box, covered on top with a piece of old blanket or quilt, may be used without heat when the outside temperature is 70 degrees Fahrenheit or over. For lower temperature a jug or a large bottle of hot water should be placed in the box and refilled as often as necessary to keep the chicks comfortable.

Feed Little and Often

Young chicks should not be fed for from 24 to 36 hours after hatching, and will not suffer if given no feed until the third day. The yolk of the egg, which is absorbed by the chick, furnishes all the nourishment required during this time. It is this provision of nature for the first sustenance of the chick that makes it possible to ship newly hatched chicks consider- able distances.

At the start it is advisable to feed five times a day, dividing the day into equal periods, and alternating a mash or soft feed, such as johnnycake, with a hard grain or scratch feed.

Scratch mixture: Cracked corn, 5 pounds; cracked wheat, 3 pounds; pin- head oatmeal, hulled or rolled oats, 2 pounds. The mixture makes an ideal ration. In the absence of corn, crack- ed kaffir corn, rolled or hulled barley may be substituted. Feed morning, noon, and night, scattered in chaff litter.

Johnnycake: Corn meal, 5 pounds; eggs (infertile), 6; baking soda, 1 tablespoon. Mix with milk to make a stiff batter. Bake well. Or a mixture of dried bread crumbs with hard boil- ed infertile eggs making about one- quarter of the mixture of infertile eggs. Rolled oats may be used in place of the bread crumbs. Feed in middle of forenoon and afternoon for the first ten days or two weeks.

When infertile eggs are not avail- able use double the quantity of baking soda, and add one-half pound of sifted beef scrap. Infertile eggs are those which have been tested out from sit- tings or from an incubator.

Green Feed

Any tender green stuff may be fed to baby chicks. When a regular sup- ply in quantity is needed, it is usually most convenient to use sprouted oats.

Water

Little chicks should be supplied con- stantly with fresh water, in either shallow pans or small drinking foun- tains.

Much frost damaged fruit was saved by immediate use in by-products man- ufacture.

SIMPLE RATION THAT DOUBLES EGG PRODUCTION

That laying hens will increase their production if fed a properly propor- tioned ration has been demonstrated in Missouri this winter. And the ra- tion costs no more than some of the carelessly compounded rations many farm flocks receive. Here is the ra- tion expressed in quantities sufficient to feed 100 hens one day:

Scratch feed: Ten pounds shelled corn or kaffir, and five pounds thresh- ed oats or barley. Feed in deep litter morning and evening.

Dry mash: Three pounds bran or three pounds cornmeal, three pounds shorts or three pounds ground oats, and one and a half pounds beefscrap or one pound tankage. Three gallons of milk may be substituted for the beefscrap or tankage. Keep this mash before the birds at all times.

In addition to this feed supply green feed in some form, plenty of fresh water and grit and shell.

The use of the foregoing ration has been advocated by the extension serv- ice of the University of Missouri col- lege of agriculture. Ten communities have reported results for the last thir- ty days which shows a percentage in- crease of 173. This means that all communities reporting are receiving a double return in number of eggs laid and one community reports that the yield has been increased sevenfold. This is conclusive evidence that the ration is practical, and that a laying hen, well fed, will respond to good feed.

REVISION OF POTATO GRADES

The following information on the re- vision of United States potato grades has been received from Washington and is intended for general distribu- tion among potato growers and the trade. The potato grades recommend- ed by the department of agriculture and the United States food adminis- tration have been changed slightly since September 10, 1917. The revis- ed grade specifications are stated be low:

United States Grade No. 1

This grade shall consist of sound potatoes of similar varietal character- istics, which are practically free (a) from dirt or other foreign matter, frost injury, sunburn, second growth, growth cracks, cuts, scab, blight, soft rot, dry rot and damage caused by dis- ease, insects or mechanical or other means.

The diameter (b) of potatoes of the round varieties shall be not less than one and seven-eighths inches, and of potatoes of the long varieties one and three-fourths inches.

In order to allow for variations in- cident to commercial grading and han- dling, five per centum by weight of any lot may be under the prescribed size, and in addition, six per centum by weight of any such lot may be be- low the remaining requirements of this grade, but not more than one- third of such six per centum, that is to say not more than two per centum by weight of the entire lot, may have the flesh injured by soft rot (d).

United States Grade No. 2

This grade shall consist of potatoes of similar varietal characteristics, which are practically free from frost injury and soft rot and which are free from serious damage (c) caused by sunburn, cuts, scab, blight, dry rot, or other diseases, insects, or mechanical or other means.

The diameter (b) of potatoes in this grade shall not be less than one and one half inches.

In order to allow for variations in- cident to commercial grading and handling five per centum by weight of any lot may be under the prescribed size, and in addition six per centum by weight of any such lot may be be- low the remaining requirements of this grade; but not more than one- third of such six per centum, that is to say not more than two per centum by weight of the entire lot, may have the flesh injured by a soft rot (d).

Explanation of Grade Requirements

(a) "Practically free" means that the appearance shall not be injured to an extent readily apparent upon casual examination of the lot, and that any damage from the causes mention- ed can be removed by the ordinary processes of paring without appreci- able increase in waste over that which would occur if the potato were per- fect. Loss of the outer skin (epider- mis) only shall not be considered as an injury to the appearance.

(b) "Diameter" means the greatest dimension at right angles to the lon- gitudinal axis.

(c) "Free from serious damage" means that any damage from the causes mentioned can be removed by the ordinary processes of paring without increase in waste of more than ten per centum by weight over that which would occur if the potato were perfect.

(d) "Soft rot" means a soft, mushy condition of the tissues, from what- ever cause.

PRUNE BY-PRODUCTS TO MAKE MONEY

Prune marmalade, or a cross be- tween marmalade and jam is soon to be put on the market by the California Prune and Apricot Growers. The as- sociation is experimenting with other by-products, such as a "mince meat" made of apricots and prunes. A dry pack of prunes, French process, is also to be put on the market. These by- products will offer an outlet to the prunes which are not perfect in ap- pearance, of profitable size, etc.

FLORIDA GROWERS FIGHTING REFRIGERATION RATES

Florida citrus fruit growers through their marketing exchange are making a determined fight on the proposed in- crease in refrigeration charges. The increase has been put off until the growers can have a chance to state their case.

ORANGE EXPORTS LAST YEAR

Orange exports for the year ending June 30, 1918, amounted to 1,240,477 boxes. This was less than exports of either 1916-17 or 1915-16. Imports for the year 1917-18 amounted to 62,- 906 boxes.

WEATHER CONDITIONS

San Francisco, Cal., Feb. 22, 1919.

Stations	Rainfall Wk.	Rainfall Season.	Rainfall Norm.	Temp. Max.	Temp. Min
Eureka	2.14	26.09	30.06	54	38
Red Bluff	1.06	21.65	16.85	58	34
Sacramento	.40	13.65	13.42	56	38
San Francisco	.52	20.29	15.69	60	44
San Jose	.44	14.62	11.24	60	36
Fresno	.36	5.25	6.21	62	38
San Luis Obispo	.21	13.24	13.23	66	38
Los Angeles	.00	5.67	10.48	72	46
San Diego	.02	5.80	6.78	68	44
Winnemucca	.08	4.87	...	...	...
Reno	..	7.76	....	..	..
Tonopah	..	..	....	..	..



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There are five different types for passenger cars as well as both pneu matic and solid tires for trucks.

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Once you discover what they mean to your car—their wonderful de pendability, their real goodness—you'll stick to United States Tires jus as tens of thousands of other farmers are doing right now.

Try it and see. Ask our Sales and Service Depot to help you.

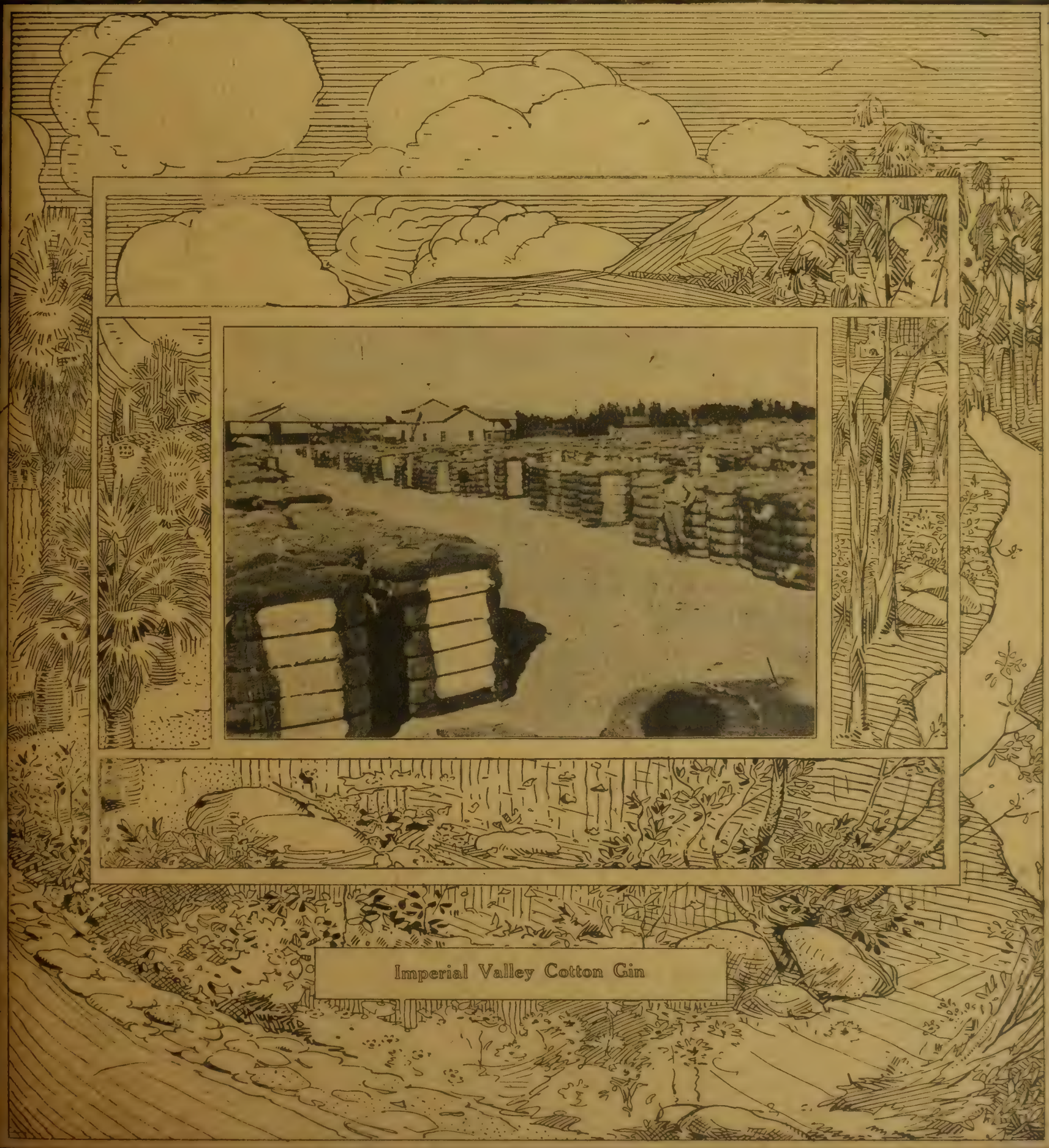
United States Tires are Good Tires

CALIFORNIA CULTIVATOR

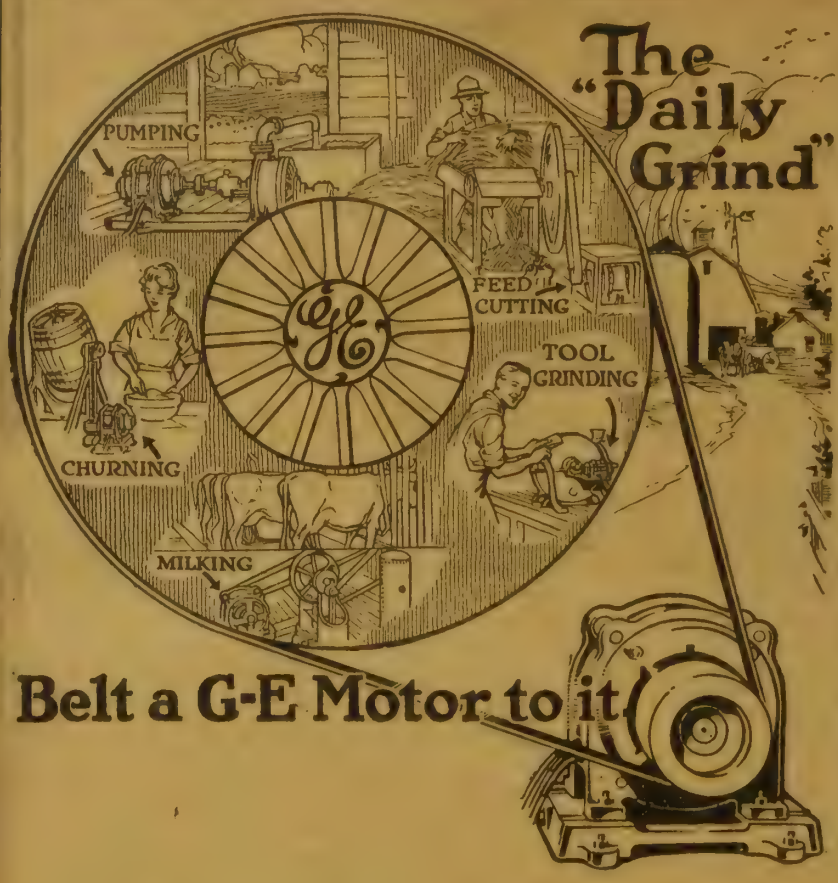
and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — March 8, 1919 — No. 10



Imperial Valley Cotton Gin



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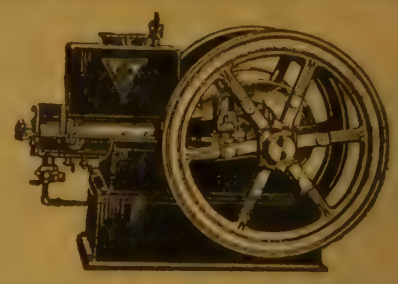
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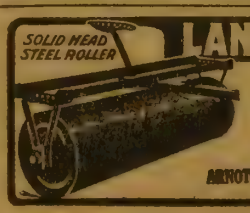
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ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

California Cultivator

Vol. LII, No. 10 Los Angeles: March 8, 1919 One Dollar Yearly

Growing Long Staple Cotton

By M. E. Bemis

IT HAS been my privilege to interview recently a number of growers of what is now known as American Egyptian Long Staple cotton, who have produced more than a bale to the acre. As the average production is just about a half bale, the experiences of these growers who have produced more than twice the average are of no little importance and interest. The growing of Long Staple differs from almost any other crop in that no general rules can be applied. The most experienced growers will make such remarks as this in regard to the growing of the crop: "These methods have proved successful for my soil and conditions but may not do at all for someone else."

Type of soil and moisture conditions are prominent factors in determining successful methods. There are some types of soil where the growing of cotton would not be advisable. It is questionable if the extremely heavy or the very light soils are adapted to the growing of American Egyptian cotton. It is now pretty generally recognized that the raw desert lands will not usually produce paying crops the first season and many growers who have land of this type will put a considerable portion of it in alfalfa or some other leguminous crop as a preparation for producing cotton on a profitable scale.

Among cotton growers the most discussed questions are those which have to do with time of planting, distance apart in rows, as well as distance apart of the rows, and last and most important of all, the amount of water which the plants should have. With the exception of the extremely heavy or the extremely light soils, I have found that growers have been successful on soils from a gravelly loam to a rather heavy loam. More than one-half of those interviewed who have produced over one bale to the acre to a bale and a half or more, so far as I have been able to learn, planted their crop on land that had previously been in alfalfa. With one exception, the very largest crops have been produced on alfalfa and Bermuda grass sod. This is an important argument in favor of the rotation of crops and it is a source of considerable gratification to me to learn in interviewing these progressive farmers that they are looking forward to the working out of a rotation.

As a general thing most cotton growers are in favor of rather deep plowing, say about eight inches. As is well known, a shallow plowing of alfalfa which cuts off every alfalfa root, followed later by a deeper plowing, results in a better seed bed and with less trouble from alfalfa sprouts and undecayed roots. One of the best yields was obtained upon an alfalfa field plowed early in the fall of 1917, quite deep. It was seeded to barley, which was pastured until about the middle of February, then plowed shallow and planted to cotton. The largest yield was 11 bales of cotton on a little less than seven acres of land. This was land which had been in alfalfa and the previous year in grain and corn. In other words, it had produced one crop of corn and one crop of grain in 1917. It was then plowed eight inches deep in December.

Without exception, the successful growers agree that it is absolutely necessary to allow the soil to absorb as much water as possible before planting and to have the top soil in a fine dust mulch condition. These results are obtained in several different ways. As just mentioned, one successful grower accomplished this by plowing his green barley stubble (this had been closely pastured until the time of plowing) very shallow, after a thorough irrigation. This left the soil in a firm, moist condition for the roots of the young plants. At the same time the top soil was loose and easily worked into a perfect dust mulch. Planting under these conditions, the seed is brought in close contact with the firm, moist soil and germination is rapid and sure. Another successful grower accomplished very nearly the same thing by plowing deep, dragging, irrigating, disking and then rolling, following with a disk harrow set so as to cut very shallow. Another method which has been successful and is practiced by the well known grower E. W. Hudson, under whose direction the American Long Staple cotton was developed at the Sacaton, Arizona, experiment station, is after plowing and harrowing, to run a lister the same distance that the rows are to be planted apart, throwing the earth up into ridges. Water is then run into the furrows, preferably in a small stream so that the soil absorbs every drop of moisture which it will hold. Some growers are able to so adjust the head of water as to make the flow constant for a period of 48 hours. Then when the soil condition will permit these ridges are dragged down level, or very nearly so. By this method the desired condition of the seed bed is obtained—that is a light dust mulch on the surface and a firm moist soil underneath.

Now, as to the time of planting, older cotton growers as a rule prefer to plant early in March, but the fact that some of the largest yields have been obtained where the cotton is not planted until well into April would seem to indicate that the question of time to plant is not of so much moment as a thorough preparation of the seed bed and the saturation of the soil with moisture. Most of the cotton is planted in rows, three feet, six inches to three feet, eight inches. The usual type of two-row planter is not readily adjustable to other widths; however, I find that there are some very successful growers who have planted as far apart as four feet and have advocated the wide planting. This is particularly true upon land which has previously been in alfalfa and therefore capable of producing a large, strong plant and forcing the growth rapidly.

The usual amount of delinted seed planted is 25 to 30 pounds per acre, and the depth to plant varies from one inch to three inches, though the majority of growers prefer to plant not over two inches and usually under two. As to the time of planting, the temperature of the soil should be considered rather than the calendar, for unless the soil is warm enough to germinate the seed the growth will be slow and the results are apt to be a poor stand. Almost all growers begin cultivating their soil after planting; some harrow the field with a light drag harrow before the plants appear; others cultivate as soon as the plants can be seen in the rows. Usually the first cultivation is "barring off" or breaking the earth near to the plants, following this with throwing the earth back towards the plants.

Most growers thin when the plants are three to four inches high; some preferring to let the plants go as long as possible, believing that this has a tendency to check the growth of vegetative branches. Most growers thin by chopping with a hoe to the desired distance apart. A few pull the plants to a stand. This seems to be a little more expensive than chopping but does not result in injury to the plants left standing, which is sometimes caused by inexperienced, careless choppers.

The distance apart that these plants should be left in the row is one of the disputed questions. It is considered that where moisture conditions are absolutely under the control of the grower and he has had sufficient experience to determine the exact time when water should be applied and has the water immediately available, the plants may be left very close together in the row, say six to eight inches apart. Under ordinary conditions, however, it is not always possible to get water at a moment's notice, and if it were, it would be impracticable to apply it over a large acreage. Therefore, it becomes a question whether the wider spacing which permits of a wider range of moisture conditions is not advisable. In this connection, as well as in the matter of time to plant, experiments conducted at the Salt River Valley experiment farm under the direction of E. J. Woods are of no little importance.

The soil on this farm is rather heavy, although it would not be classed as adobe, but somewhat difficult to work nevertheless. Plantings were made on acre plots, the land being as nearly uniform and all other conditions as nearly equal as possible. The land was plowed in December, eight or nine inches deep, the cotton planted in rows 3½ feet apart, the plants being thinned 8 to 12 inches apart. From the plantings of March 5th, 1,806 pounds were harvested; from that of March 15th, 1,548 pounds of seed cotton was harvested; from that of April 1st, 1,824 pounds; from that of May 5th, 1,463 pounds; from that of May 15th, 988 pounds. The experiment to determine best results from narrow or close spacings resulted as follows: This was land under similar conditions to that of the experiment noted above and was planted March 15th to 20th.

(Continued on Page 345)



Spacing Cotton Plants

The hat is thrown in the foreground of the illustration to show spacing in the row advocated by many growers.



Where the Ginning Is Done

In the Salt River Valley of Arizona long staple, or to use the local name, Pima, cotton is almost exclusively grown. These gins handle the long staple varieties only.

Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916.

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Saturday, March 8, 1919

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We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

California can hardly class itself as one of the great cotton states. It has, however, the makin's. The crops already produced have been sufficient to show the Southwest to be a great cotton producer from the standpoint of quality, and we believ a few years' time will establish the state's reputation as to total output. The cover illustration is from a photo taken with the Cultivator camera in the Imperial Valley. This is of the upland, or short staple, or sometimes called Durango cotton, but we believe California's reputation will be made by the high quality of her long staple cotton, of which perhaps the finest grade is usually called Pima, a type developed in Arizona. It is found to do exceptionally well in the San Joaquin Valley.

OLEOMARGARINE

The California Dairy Association recently held a series of mass meetings and is making an effort to organize a more efficient state association. The specific fight now on hand is to discourage the extension of the gospel of margarine. This Chicago made "dairy" butter seems to be winning with even state and federa' officials. It is to be hoped that the dairymen can at least prevent the officials from making state purchases of this Eastern manufactured product. There is no reason why clean, wholesome California produced butter may not be supplied to our state institutions.

LOTS OF BUZZING

From all the racket the beekeepers must be swarming. There are some four bills before the state legislature, and some beekeepers want them, or a portion of them at least, made into laws. Other beekeepers are doing their best to secure their defeat. They say that the present laws are sufficient if enforced, and the expense of a new commission is entirely uncalled for. The honey producing interests of the state are becoming a great factor in its prosperity, and the beekeepers should be considerate enough of the state's welfare and their own to get their heads together and make more honey and less noise.

HAPPY ECONOMY

In urging all the people to continue the habit of thrift and economy which was formed during the few months of strenuous preparation for war a recent publication urged that we make thrift a happy national habit. We think the word "happy" was exceptionally well chosen. We often hear: "We have economized until we are heartily tired and sick of the word." Too often economy and stinginess are considered synonymous. Quite the reverse. Economy is simply thrifty or careful administration, management without loss or waste, or, to use a more homely expression, making a little go a long way, or, again, the choosing of those things which will give the greatest happiness and denying those of lesser importance, or getting what best suits your needs without regard to what somebody else has. Hence, the formation of a happy habit should not only be desired but easy of accomplishment.

GIVE TREES WATER

The orchardist who is sometimes a bit careless in the matter of fall irrigation of deciduous trees—especially if that sometime happened to be last fall—should have a care at this moment in giving the best spring attention to his orchard. After removing all the crop in midsummer it is easy to consider that the needs of the tree for that particular season have been met and no further irrigation or care is given. This results in the production of buds of such low vitality that the season's crop is seriously injured, and sometimes the life of the tree is threatened. This may be overcome to a degree at least by irrigation and fertilization with a quick acting commercial fertilizer.

The southern end of the state at least has been somewhat shy of rainfall and in those districts especially should this spring irrigation be attended to.

In the matter of using nitrate of soda the Ohio experiment station has reported that apple trees treated with nitrate of soda just before the blossoming period give blooms and young fruit more resistant to frosts and also assist in holding the young apples on the trees. The same station recommends midsummer application of nitrate to encourage better fall development of the buds of the following year's crop.

CHAMBER OF AGRICULTURE

A large number of Middle West farmers recently met at Omaha in what they called a Trans-Mississippi Readjustment Congress. By "Trans Mississippi" we take it they mean—in this case—on this side of the Mississippi.

One of their strongest recommendations urged the formation of an international chamber of agriculture to look after the best interests of the farmers of the country in the same way in which the international chamber of commerce looks after manufacturing and commercial interests.

There have been efforts during the past year to organize a great central association, or rather associations, for there have been two quite ambitious plans formulated, each along its own line and with some little antagonism. Besides, the Grange has established in Washington this year a gathering place for all concerned with agricultural interests of this country. None of these has seemed strong enough to pull all classes interested in agriculture into one body.

The present movement is endorsed and supported by Secretary Houston, Governor McKelvie of Nebraska, Lieutenant Governor Huffman of Kansas and other believers in a better and bigger agriculture. Governor McKelvie says.

"The idea of forming such a chamber has been discussed quite a little of late and will undoubtedly receive further impetus as a result of this endorsement. It arises from the feeling that there is need of a national organization which will furnish a point for the centralization of the ideas of the country's great agricultural interests and a convenient means of their expression."

INCOME TAX RETURNS

Every reader of the Cultivator whose income during 1918 aggregated $1000 if unmarried, or $2000 if married, should keep the date of March 15 in mind, for on or before that time returns must be made to the officers of the department of the interior as to items of that income. If income in excess of the figures given has been received payment must be made of at least one-fourth of the tax due to the government. This tax is compounded at the rate of six per cent on all income in excess of $1000 or $2000, that is, unless the income is over $4000, when 12 per cent is the rate.

There are many exceptions and rules and regulations which make it almost necessary to employ an expert to direct us through the mazes of these reports, but the farmer who has a clear record of his business and a clear idea of the depreciation and other items which he is entitled to take advantage of can soon make out his report.

He will find little opportunity to secure advice or assistance at any of the central offices of the department. There are literally hundreds jamming in one of these rooms and the halls approaching them, and this will continue until after the 15th. Officers of the department are, however, to be found in county seats and are sent out to other centers throughout the counties to aid in making out the reports.

We are assured by the collectors that if report is made out as completely as possible and filed, after making oath as to its correctness, if accompanied by check, any addition or correction may be made later when the rush is ended.

RURAL CREDIT

In his address of welcome to the American Bankers Association Assistant Secretary of Agriculture Clarence Ousley said:

"The only hope of a reinforced and abundant agriculture is a profitable agriculture which young men will seek as they seek other vocations that promise substantial reward, and, as the day of cheap land has passed the prime necessity for multiplying farm home ownership is financial accommodation and sound business practice for worthy young men in order that they may acquire the initial capital for farm purchases.

"While our new system of farm credit is affording much relief to those who have farm property to improve and those who have some capital with which to buy, it should be understood that the great class of tenant producers are without property or capital. Their need is operating credit in order that they may produce economically, and in order that they may acquire something with which to purchase farms. As every boy is a potential man and will be a strong man or a weak man according as he is nurtured, so every tenant is a potential owner and he will become a substantial success or a derelict accordingly as opportunties are provided."

Yet the time was when the farmer who borrowed money was hardly in good form in rural society, and to have a mortgage on the farm was evidence of lack of financial soundness. But the power for good of credit has been realized and the lack of proper conditions in handling rural credit is one reason why there have been so many failures amongst farmers. The manufactures and commerce have enjoyed vastly better financial resources and have enjoyed privileges unknown to the producing class. This is not all because of the unwisdom of the bankers but is in part due to the method of some farmers. Both the farmer and the bankers are doing some thinking which may bring them closer together and result in a more satisfactory rural credit system.

Again there is cooperation. Cooperative or massed credit is building up other countries; it will also work in the United States.

GARDENITORIAL

This is the period of the year when drivers of automobiles are warning each other to use care in driving through the country for unless reasonable care is observed one may run down a pedestrian loaded with rakes and things which are sure to puncture tires. During the past two or three years a great many have learned that the hoe and rake cost less than golf sticks and give much more satisfaction. Better than all, California farmers have learned the excellence of home made garden sass. We say "learned" for unfortunately the most attractive of all farming operations has been left to Chinamen or, more recently, to the Japanese. There is no reason why war gardens may not become peace gardens and thrift and happiness both be secured.

SAVE THE SHEEP

Man's best friend is the dog. But there are dogs and dogs. Some are as destructive as a coyote. Hence senate bill 641, introduced by Senator Rush: "An Act to impose a tax on dogs for the protection of horses, cattle, sheep, swine, other live stock and domestic fowls, defining the duty of owners of dogs with reference thereto; providing penalty for the violation of this act, etc."

This bill, intended to encourage the sheep industry, is meeting strenuous opposition from hunters and sports who have more interest in their own pleasure than in the welfare of the state. Impulsive members of humane societies are also working against food production.

The untrained large dog at liberty hears the call of the wild and dozens of fine sheep are often killed as the result of a single night's depredations.

There will be public hearing on this bill at Sacramento next Monday, and friends of the state's advancement will be given opportunity to stiffen the back and knees of certain legislators. Besides letters from Cultivator readers to assemblymen and senators at Sacramento will prove helpful.

The Prettiest Back-Lot Poultry Plant in Los Angeles

By Jean A. Koethen

"PRETTY" is not a word usually applied to chicken houses. Indeed there are those so unkind as to intimate that no chicken house nor chicken yard can be otherwise than unsightly and detrimental in a residence district. And yet I found in the swell Wilshire district of Los Angeles, right on Hobart boulevard and surrounded by elegant homes, a poultry equipment so thoroughly in keeping with its surroundings that even the swellest swells must admire. As for the cock, which fashionable Los Angeles views askance because of his unseasonable vociferation, Mr. Ruess, the owner and architect of this up-to-date poultry establishment, has him "swatted" for keeps. Every night his lordship is confined in a box, the entrance to which is pushed tight against the back-yard fence. If he crows, as he probably does, at five o'clock in the morning, nobody hears him, and the Wilshirites sleep on, peacefully oblivious of the proximity of so vulgar a noise.



Chick Coop and Yard
Fig. 1. Note canvas covering, also convenient little feeders on ground.

It is Mr. William R. Ruess, owner of "Perfection," the Dark Cornish cock that won sweepstakes at Sacramento and Fresno, and first at the midwinter show, graduate engineer, fancier and poultry enthusiast, who has succeeded in designing something so unique and complete in the way of brood coops and breeding houses that they recommend themselves instantly to any backlotter who is handy with tools and anxious to have his equipment beautiful as well as convenient.

Figure 1 shows something less than half of Mr. Ruess' brooding yard, which is about 25 feet square, and covered by a canvas roof sloping up to a peak in the middle exactly like a large tent, and reaching down to the rear or the coops at either side. This yard is entirely surrounded by fine wire which effectually prevents the entry of any bird, cat, dog or other "varmint." The canvas keeps out rain and fog so that the chicks have always dry ground under their feet. In front of the coop, crossing the yard in both directions and running along the wire fence, can be seen the brick walk on which fountains and feeders stand. Between the walks is soft dirt for dusting.

The coop, which occupies the center of the picture, has its duplicate on the opposite side of the yard, both facing toward the nursery coop and run, part of which can be seen in the foreground. This nursery coop looks more like a doll house than a chicken coop, with its neat, tar-paper covered gable roof, smooth floor and tightly fitting door. It is 20 inches square on the ground, one foot high to the eaves and 20 inches to the gable. The little run in front of it is about three feet long and one foot high. As soon as a brood is hatched it is put in this little run with the mother, and here it stays till the chicks can jump over the side of the run. At about three weeks of age, chicks and mother are transferred to one of the long coops, which are each 3½ feet deep, 13 feet long and four feet high in front and three feet in the back. A foot-wide strip of wire along the front provides ventilation, and the front, which is fastened in with a wooden button, is easily removed for cleaning and disinfecting. The roosts also are portable. These coops have dirt floors, for Mr. Ruess believes young chicks should be as close to Mother Earth as possible.

In Figure 2 is shown one of Mr. Ruess' breeding houses, with "Perfection" posed on a box in front of it. These houses are 11½ x 10½, six feet high in front and five feet at the rear, and, like the chick coops, are made of tongue and groove lumber. An important feature of these houses, of which there are two, is the three swinging doors which can be closed entirely or partly or opened wide. In this figure they are shown in a horizontal position. In Fgure 3 they are raised to a vertical position. Their height is controlled by two wooden props which hold them at any angle. In stormy weather the lower door, which in the cut is swung back under the windows, can be closed and the birds kept in the scratching pen. If the weather is very stormy all the upper doors may be closed and there will still be sufficient ventilation through the wire, which separates this house from the one adjoining, and through a window at the other end of the house.



Proud Aristocracy
Fig. 2. "Perfection" posed in front of breeding house.



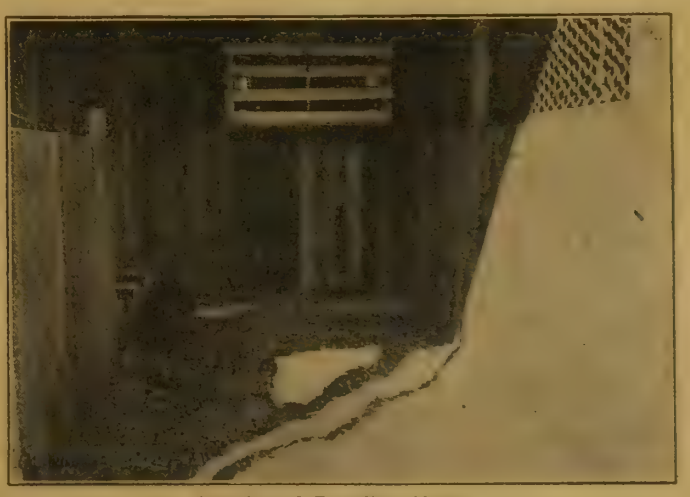
Best of Ventilation
Fig. 3. Breeding house with doors raised.

Figure 4 shows a portion of the interior of the breeding house. At the rear of the scratching pen, which is four feet wide, hangs the broody coop or "jail" equipped with fountain and cans for feed. The floor is covered with a thick layer of alfalfa hay, in which Mr. Ruess' birds have to scratch for every bit of their grain. A four-foot partition separates the scratching pen from the laying room, where trap-nests are installed, but the ends of the roosts may be seen at the rear of the scratching pen, back of the partition. These roosts are near the ground, but not too near, and the droppings board arrangement is one of the best things on the place. Instead of a solid floor under the roosts each roost is attached to its own particular droppings board, and roost and board together may be easily and quickly carried out for cleaning and disinfecting. Speaking of disinfecting reminds me that no bug of any sort is allowed in these houses. This is one purpose of the three doors. From time to time they are tightly closed and the house fumigated with sulphur. While the sulphur is burned in the old-fashioned way, a basin of water is boiling on an oil stove, and the combination of smoke and steam is death to the most incorrigible microbe.

The chick yard and breeding yards occupy a strip about 25 feet wide, reaching across the rear of the lot. Still back of this strip, however, is another yard in which a dozen R. I. Red hens, the mothers for Mr. Ruess' high-bred Cornish, are housed. These hens are of no particular breeding, yet in October they laid 116 eggs and in November 124 eggs, while in January the eight which had not yet gone broody laid 144 eggs, and the first 12 days of February nine of them had laid 82 eggs. In this Red house, which is an old barn made over, ammunition boxes are used for nests, their advantage being that they are so easily removed for cleaning.

All the grain used for both chicks and adult stock is ground and mixed on the place. Mr. Ruess believes that the secret of chick feeding is to give them all they will eat, whenever they will eat, and as great a variety as possible of the most nutritious feeds. His chick scratch feed consists of eight parts wheat, nine parts milo and

Continued on Page 343



Interior of Breeding House
Fig. 4. Note adjustable roof with droppings board attached.

Agricultural News Notes of the Pacific Coast

Northern California

A movement has been started to build a highway from Hopland to Lakeport.

Experiments are being made in growing cotton on the red lands about Oroville.

Paul J. Davis has been engaged as farm bureau salesman of Glenn County; he has opened offices in Willows.

The annual tour of representatives of the farm bureaus of the state will start March 26 from Berkeley, finishing April 2 at Riverside.

There will be farm bureau meetings in Glenn County at Codora Center, March 10; Orland, 12; Jacinto, 14. These meetings will be held at eight p. m.

The Durham farm bureau of Butte County has presented a petition to the county supervisors for the formation of a mosquito abatement district.

The spring sale of the California Shorthorn Breeders' Association will be held at Davis, April 8; the sale of the Pacific Coast Breeders the following day.

Twenty-four cattlemen of Solano County have formed a Solano County branch of the California Cattlemen's Association. B. F. Rush was elected president.

Experiments are being made in Alameda County in grafting over wine grapes to other varieties. Especial success has been found with grafting to the so-called Zante currant.

The spring sale of the California Shorthorn Breeders is to be held at the University Farm at Davis, April 8. The sale of the Pacific Coast Hereford Breeders will be held at the same place April 9.

Here is the anti-knocker pledge which Chico Chamber of Commerce boosters have taken: "I do hereby solemnly swear and promise that from this moment on I will bury the hammer and blow a horn."

An effort will be made before the present legislature to repeal the law under which the state market director is operating and to re-enact the commission market law which he was instrumental in putting off the statutes.

A petition has been presented to the board of supervisors of Yuba County for the formation of an irrigation district which will include the property of the Yuba Land Company, California Mission Olive Growers, Dudley Ranch and Orchards Company.

Foresters in the federal service held their annual meeting at the University Farm last week. Grazing regulations received a good deal of attention. It was indicated that the stockman who does not supply sufficient winter feed for his cattle will receive people, the theory being that he is taking more than his share of the range feed, since his cattle or sheep are in poor condition in spring.

The Glenn County Live Stock and Agricultural Association held its annual meeting on February 18 at Orland, electing the following board of directors: John J. Flaherty, H. M. Kingwill, A. E. Morey, Allen T. Moore, W. G. Gurnett, Chris Myhre, W. E. Scearce, C. A. Whitsett, W. S. Guilford, George E. Nygaard, E. A. Kirk, Dr. W. H. Walker, S. W. Baugher, L. E. Brownell, W. A. Greenwood.

Central California

Modesto claims a rainfall of 7.61 inches, as against 3.5 to same date last season.

Washington's birthday, February 22, was Community day at Kerman, Fresno County.

Poultrymen along the coast are reported to be using chopped green kelp for poultry feed.

Watsonville has shipped practically her entire apple crop. Good returns have been general.

The sugar beet factory at Visalia will not operate this year. The beets will be sent over to Corcoran.

The sugar plant at Betteravia has turned out 12,700 tons of beet sugar in its seven months' run just ended.

A fat livestock auction was held at Kearney vineyards, February 28, under direction of the county farm bureau.

Livermore Valley ranchers who are finding a surplus of hay on their hands this year are planning for another season to raise grain.

Members of the farm bureau of Stanislaus County formed a wool pool and sold to the government 30,000 pounds at 67¾ cents in Boston.

A tractor demonstration will be held on the Mordecai ranch in Madera County, midway between Madera and Fresno, from April 24 to 29.

The annual meeting of the Kerman farm bureau was held at the Union high school February 14. Officers were elected for the coming year.

Growers of berries on 200 acres at Gilroy, San Juan and Betabel, in Santa Cruz County, have signed up with a factory to be established at Gilroy May 1.

The Strathmore farm bureau has elected officers for the coming year: President, R. L. Longacre; vice president, Don Kurney; secretary-treasurer, C. R. Lamb.

The Turlock plant of the Associated Raisin Company packed this season 1,210,000 pounds of Thompson Seedless raisins, 32,000 pounds of Sultanas and 30,000 pounds of Malagas.

The grand jury in San Mateo County is investigating why part of the $500 appropriated monthly by the board of supervisors for squirrel eradication by the U. S. public health service is not being recovered through liens.

The initial order for 2,000,000 wasteballs being exhausted, another 500,000 have been ordered by the rodent control division from the state prison at San Quentin. Orders for over 1,000,000 wasteballs were received last week. Commissioner Ladd of San Joaquin reports using 100,000 per day at present.

That more than 3000 acres of raisin grapes will be planted in Kern County this year is the belief of Horticultural Commissioner Norman H. Buhn. Farmers in Lerdo district will plant several hundred acres, while the Palm ranch now has planted 140 acres of grapes. Delano, Wasco and Rosedale districts will also add to their vineyard holdings.

The Stanislaus County farm bureau, in cooperation with the Stanislaus County Swine Breeders' Association, will hold an auction sale of hogs at Modesto, March 1. The farm bureau has held several such auctions at Tegner. The committee in charge of the coming Modesto auction are Elmer Lamb, Ceres, William Way and H. I. Marsh of Modesto.

Southern California

J. W. Reed of Imperial is planning to build a grapefruit packing house.

The annual Imperial County farm assembly was held in El Centro last Saturday.

Los Angeles County's quarantine against citrus fruits from Tulare has been removed.

Farm bureau centers of Imperial County are competing in a membership campaign.

The Riverside County farm bureau is planning a campaign against the ground squirrel.

Much planting of new orchards is reported from the Yucaipa section of San Bernardino County.

The annual conference tour of the farm bureaus of the state will reach Riverside County April 2.

The Covina Heights Groves Association is enlarging its packing house, adding 2000 feet floor space.

The San Antonio Fruit Exchange has just sold a carload of Pomona Valley oranges in London for $8.00 a box.

Imperial Valley shipped East 81 cars of live stock on Thursday, February 27. Two trainloads carried the stock.

Large citrus plantings are reported being made in the Valencia Heights district south of Covina in Los Angeles County.

The California Peach Growers and the Prune and Apricot Growers have been signing up members in the San Fernando Valley.

The Brawley News is calling attention of poultry raisers of the valley to the necessity of organizing in a marketing association.

The movement started by bean growers at Oxnard to form a 300,000 bag pool of Limas has spread and signers are being found in other sections of the county.

The Arlington Chamber of Commerce at its annual meeting last week elected N. S. Elder president; Robert Webber, vice-president; J. W. Wells, secretary; J. B. Smith, treasurer.

The lettuce acreage of Imperial County is estimated at 2650 acres, compared with 2500 last season and 960 the preceding season. Shipments will reach their highest point this month.

The Southern California Traction Engine and Implement Dealers Association has elected H. L. Marsh president, succeeding the late C. H. Stevens. R. M. O'Neil was reelected secretary and manager.

At the recent meeting of the farm center at San Juan Capistrano, Orange County, a committee was appointed to confer with the Santa Fe railroad to bring back the old freight rates on beans to the northern warehouses.

The new report of the state board of equalization shows a decrease in the fruit tree acreage in Los Angeles County. This is attributed to the more accurate reports now being made compared to the large-handed estimates of former years.

One of the largest gatherings of farmers in the Garden Grove section met at the farm center Monday evening to protest the raise of telephone rates. Considerable heated discussion continued for over two hours, and 90 per cent of the 200 present were in favor of removing their phones immediately upon the enforcement of the new advanced rates.

The Coast and General

Wages for farm labor have increased 53 per cent since 1916.

Condon, Oregon, expects to ship one million and a quarter pounds of wool.

One evaporating plant at Yakima, Washington, dried last season 3000 tons of cull apples.

Experiments will be conducted on the university farm at Tucson and on the Salt River Valley experiments farms at Mesa, in the growing of flax. This work will be under the direction of a representative of the United States department of agriculture.

The Arizona state fair for 1919 will be held November 3 to 8. Charles Price is secretary of the state fair commission. No fair was held in 1918 owing to the prevalence of the influenza, and a special effort will be made to make the fair of 1919 better than any other held in the state.

Honorable Andrew Kimball, Arizona representative of the land settlement division, federal railroad administration, is working on a plan for the building of seven reservoirs for the storage of water to irrigate nearly a half million acres of Arizona land, to become available for returned soldiers and sailors.

The question of whether the proposed storage dam on the Verde river in Arizona should be used to irrigate lands within the boundaries of the Salt River project which are not already supplied with water or applied to lands to the north of the project in the Paradise Valley is being submitted to secretary of the interior, Franklin K. Lane.

Professor Homer Derr, a graduate of the Kansas State Agricultural College, has been appointed supervisor of agricultural education and itinerant teacher of the Arizona college of agriculture. Captain F. R. Kenney, a graduate of the Michigan agricultural college, has been appointed an assistant professor of poultry husbandry of the Arizona agricultural extension service.

Contending that restrictions on the free sale of fruit juices will kill the fruit juice industry, now becoming fairly well established in the Northwest states, the Eugene, Oregon, chamber of commerce has protested to the congressional committee framing the 1918 tax bill against the proposed 10 per cent tax on the sale price of all fruit juices.

The annual meeting of the Arizona Cattle Growers held recently in Phoenix was an unqualified success. More than 500 delegates were in attendance. Charles P. Mullen of Skull Valley was reelected president. The Phoenix chamber of commerce gave a barbecue at which 40 quarters of beef, and two ostriches were barbecued and served to the guests. Two hundred and fifty gallons of coffee were also served. A street dance was held the last night of the convention.

Governor Campbell has inspected the highway betwen Phoenix and Yuma. This, on the maps appears as part of the Borderland route but on account of the almost impassable condition over a portion of the route in Arizona and also from Yuma to El Centro in California, there is very little travel. There is a strong sentiment in both states to make this part of the transcontinental route. Governor Campbell estimates that the cost of putting this road in good condition will be approximately $400,00

The Care of Walnut Scions

Written for California Cultivator
By J. B. Neff

AFTER walnut scions on top grafted trees have made a growth of 12 inches they should have a support to start them in the direction they should grow and to keep them from breaking in the wind or from their own weight. This can best be done by nailing strong laths one inch by two inches by eight feet long to the trees. These can be cut from good pine fencing and the nailing may be done with eight penny nails without any damage to tree or scion if care is taken when driving the nail nearest the scion that the scion is not loosened. Let all the scions that will grow remain the first year and keep them tied loosely to the laths, examining frequently to see that the strings do not cut the young growth.

Do not head back any scion growth the first summer as the shock is likely to dwarf the growth and sometimes kills the scion, neither will branches formed by such heading be well united to the main stem.

An abundance of suckers will start all over the body and stubs of the grafted tree, often before the scions put forth leaves. Leave all of these at first except those which are within a few inches of the scions and keep all the suckers shortened back so they will not interfere with the scions. After the scions are well established part of the suckers on the north and east sides of the trunk should be cut off smooth and those on the south and west headed back to two feet in length. This prevents sunburn and also keeps the roots in good condition. When the scions have made a growth of two or more feet further thinning of the suckers on the body and stubs should be done at intervals of a week or ten days until all are taken off by September first. If two or more scions have been placed in one stub it may be necessary to cut out all but one the following winter. Any necessary shortening of the growth can also be done at this time. However do not take off the lath supports until the second summer has passed.

All cuts made where branches of two or more inches in diameter have been removed should be covered with heavy metallic paint and this should be renewed once a year until the wound has closed, otherwise a dangerous decay may begin.

CENTRAL CALIFORNIA PEACHES

By Ernest Braunton

Mr. Fred Drew, superintendent of the Schuke & Co. cannery at Niles, was interviewed regarding canning peaches for that district and stated that the demand for good peaches far exceeds the supply and promises to do so for many years to come.

Regarding varieties he stated that the Lovell is the best for canning as it has a small pit easily removed and and leaving a large solid meat which holds up after being in the water. The greater part of the extra fancies come in the Lovell, and as it brings the best price it is most profitable for the grower. Fosters and Crawfords are not much in demand locally, but are used to fill in some seasons. They are, however, quite generally harvested when partially ripe, almost green, and shipped to Eastern markets. The Muir is not a favorite with canneries, but is best of all for drying, so that all in that district are advised to plant Lovell as by far the best freestone.

As to the clings, the Tuscan is by far the best. It is the earliest and is the one generally used to start the canning season with. The grades in this peach are universally higher than in the others, and as the trees yield heavily and command good prices it should be the favored clingstone in planting new orchards. The Orange Cling is a large fruit. It does not grade as high as the Tuscan, but the yield is enormous. The Phillips Cling is the favorite late peach, coming in just after the Orange Cling, and is in quite strong demand by canneries, for the percentage of extras in this variety is welcomed by them. A few other varieties reach them in but small amounts. Mr. Drew's advice is to plant more peaches, but of those sorts proven to be the best in local territory.

Glenn County has fixed dates for her county fair, September 29 to October 4.

BEDROOM, WITH WINDOWS CLOSED, BECOMES HOME DRYING PLANT

Just because you have no money to invest in a commercial drier is no reason for going without one, is the opinion of a woman in Jefferson County, Florida.

The home demonstration agent who supervises the work in that county has been giving demonstrations on drying vegetables to the women of the various neighborhoods.

Going one step farther than drying around the stove, one woman thought out a practical arrangement in her own home for drying vegetables on a large scale with practically no expense.

She removed all the furniture from a small bedroom except an iron bedstead and its springs. This bedstead was placed in front of the fireplace, wherein a big fire was built. On the bedstead she arranged large trays in tiers. With the windows closed the whole room was a drying oven, and a temperature of 108 could be maintained easily. Everything from corn to figs has been dried by tnis novel arrangement.

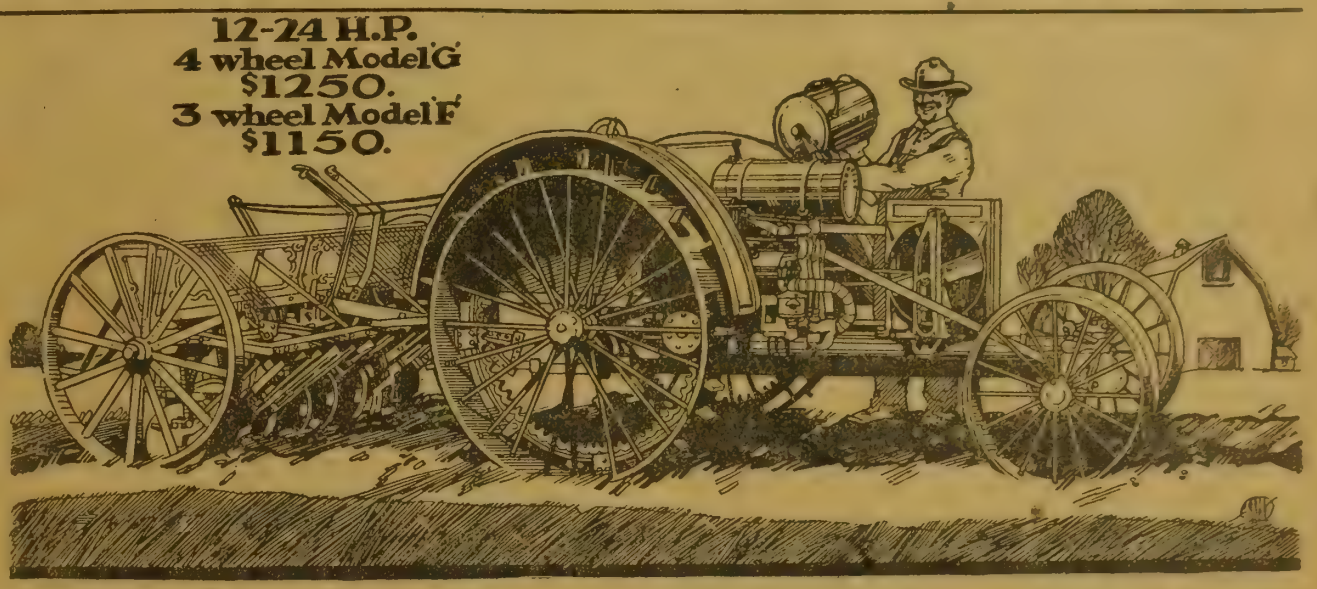
CANNING APRICOTS

In the coastal districts of Central California the Blenheim leads both for canning and drying and is most extensively grown in the Santa Clara Valley. The Royal is always a favorite. Of 'cots shipped to this district from the San Joaquin Valley the Tilton is the leader. Moorpark is large but is better for drying than canning. One marked peculiarity of this variety is that it ripens from the pit outward, much more so than any other, being often clear green on outside while ripe and soft at pit.

EGYPT SEEKS TO MAINTAIN COTTON PREEMINENCE

The success attending growing of Egyptian cotton in Arizona is spurring on the growers in Egypt to special effort to control degeneracy of their cotton by mixing with other strains. Cotton growers in India are also having considerable success with Egyptian long staple.

Much planting of fruit trees is reported in Nevada County.



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It is only natural that the La Crosse should be the perfect kerosene burning tractor. Made as it is by the great La Crosse organization, it is the work of the most experienced, practical engineers in the tractor industry today. As the tractor which is designed to be the leader of the field, it has the best of mechanical construction in every detail.

The La Crosse Tractor is the ideal machine for average use. With its light weight and wide tread it can plow early in the season. It is the convenient easy-to-operate tractor for disking, harrowing, seeding, harvesting, threshing, filling silos, grading or dragging roads.

You can handle the La Crosse Tractor together with the implements single-handed. As you sit in the driver's seat every working part of the engine is within easy reach. The La Crosse Tractor turns in its own tracks within a space of less than nine feet. It is self-guiding in the furrow. When you are plowing on side hills, a special footbrake holds it snug up against the landside and prevents slipping. These are only a few of the many exclusive features which are responsible for the well-known saying, "A La Crosse Tractor means a Happy Farmer"..

You can secure a La Crosse Tractor now for $1,250. It offers you 12-24 horse power—or an average of one drawbar horsepower for every $100 invested with considerable extra power in reserve.

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La Crosse Tractor Implements are as practical and convenient as the La Crosse Tractor. They are the implements which can be handled entirely from the tractor seat. Ask your dealer to show you La Crosse Tractor Plows, both moldboard and disk, La Crosse Disk Harrows and the La Crosse Power Lift, Power Pressure Grain Drill.

See The La Crosse Demonstrated

The actual work a tractor does in the field is the only real test of its efficiency. An outdoor demonstration of the La Crosse Tractor will be held near you soon. Be sure to see it.

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SURFACE IRRIGATION

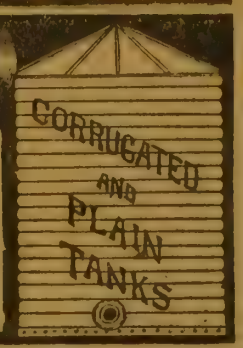
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Long Staple Cotton in Egypt

Addressing the cotton growers of Egypt, the consulting agriculturist of the ministry of agriculture of Egypt has written an article for the Bulletin of the Imperial Institute touching upon the unique advantages offered in Egypt to cotton growers, especially with respect to production of particular kinds of cotton. But in the same article he gives warning that certain portions of the southwest of the United States are a strong competitor. From the summary of his article we quote:

"Egypt has so far as at present determined, unique advantages for the production of a special kind of cotton of high value. Attempts are being made in India and Arizona to emulate Egypt's success in this respect, and attention is drawn to the progress made in America, to be regarded as a warning of what may happen if steps be not taken to maintain the purity of the existing Egyptian commercial varieties in this country.

"The period of life of an Egyptian commercial variety is not long, owing to the fact that the characteristic qualities which constitute its value, are usually rapidly broken down by cross-fertilization in the field, and by careless mixture of seed in the ginneries.

"The origin of all Egyptian commercial varieties appears to have been a single plant in each case. These plants may be assumed to have been 'mutant' strains, the nature of which, so long as they are each inbred, is to breed true to the parent type. The theory of the commercial varieties being ever-splitting hybrids is therefore apparently untenable. The assumption of the mutational origin of Egyptian commercial varieties is supported by what has been found to occur in experimental breeding from Egyptian seed in Arizona.

"The inducement for certain cultivators to select single and remarkable plants, in order to propagate new varieties, has arisen from a desire for money-making, but this advantage is only coincident with the retention of a monoply of the seed. Impracticability of keeping this has resulted in the deterioration of the variety as soon as control was lost. The government's attempts to fix and maintain the purity of existing types are faced with the same fate when the purified seed becomes widely distributed. The necessity of cultivators asking for the cooperation of the government in prolonging the life of pure commercial types should be brought to public notice. The measures which the government would have to enforce, if control were to be exercised in this matter, are stated.

"Examples are given of the introduction of locally undesirable types of cotton into areas otherwise confined to the cultivation of one special kind; and of the injurious irregularity introduced into the seed for sowing by the fraudulent admixture of two totally different varieties of cotton in the operation of ginning. A statement is made of the success which has attended the efforts of the ministry of agriculture in the isolation of a purified type of cotton, which has yielded from six and one-half to nine and one-half kantars per feddan (620-906 pounds of ginned cotton per acre) in the last year, and of which samples have been pronounced by buying experts in Alexandria to be of excellent quality. Attention is drawn to the fact that, in the process of the dissemination of the seed descendant from the purified type, it must, under present circumstances, become impure, necessitating the incessant selection each year of a new nucleus in order to overcome the establishment of the inevitably deteriorated descendants. This difficulty would disappear if the majority of cultivators, as well as the ginners, could be brought to understand the position thoroughly, and combine in an appeal to the government to assist them."



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such as these are grown only on our foot-hill locations.—Note the good roots—for hardiness they have no equal.

We have a fine lot of Mission and Manzanillo trees, both on Picholine roots and grown from cuttings. We have had splendid success on all Olive plantings—a most important assurance to you.

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LOS ANGELES

WALNUT CODLIN MOTH IDENTIFIED

It will be remembered that the walnut growers during the season of 1918 were greatly concerned over the spread of the walnut codlin moth. At that time the identity of the insect had not been finally established and a doubt existed whether the walnut codlin moth was identical with that of the apple. The fear that this insect attacking the walnuts was a different species was so acute in some quarters as to lead to strong recommendations to the state commissioner of horticulture for restriction on the movement of walnuts and walnut containers from infested sections into or through sections which had not yet showed signs of infestation. Larvae of the insect in question were sent to Dr. A. L. Quaintance, entomologist in charge, deciduous fruit insect investigations, bureau of entomology, of the U. S. department of agriculture. The state commissioner of horticulture has just received a letter from Dr. Quaintance stating that the adults have recently emerged and have been determined to be the codlin moth, Laspeyresia (Carpocapsa) pomonella, Linn.



BOTH ARE GOODYEAR TUBES

GOODYEAR'S ability to build tubes that last long and hold air unfailingly is dramatically related to the fact that Goodyear is also a successful manufacturer of balloons and dirigibles.

There is sound basis for such assertion. Both tubes and gas bags present problems of inflation.

For nine years, Goodyear has pioneered the furthering of aeronautics in this country.

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But it has been conclusively established that stout, light fabric, impregnated with rubber and *built up layer-upon-layer*, forms the most practical container for this elusive gas.

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Goodyear Heavy Tourist Tubes are built on this principle and their valve-patch is *vulcanized-in*. Built up as they are with several plies of pure gum, they are the best air containers we know of.

There are thousands of passenger-car owners who use Heavy Tourist Tubes exclusively, gladly paying the slightly added cost in the firm belief that they thus protect and get more mileage from their tires.

More Goodyear Tubes are used than any other kind.

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Low Price on Asparagus Roots. Fine Florist Business for Sale on Terms.
MODESTO TURLOCK

The Mulched Basin System as a Citrus Grove Method

From an Address by C. A. Jensen at Citrus Institute, San Bernardino

WHEN the surface soil has been disked loose, the basin is made simply by moving enough dirt out from under the tree top with a broad hoe to make a circular or rectangular dike around the tree. The dike should be about eight inches high and broad and firm enough to retain the water run into the basin. If the ground is quite sloping it is necessary to make two basins by each tree, one on the upper side and one on the lower side of the tree, to avoid digging out too much soil on the upper side of the basin, as the bottom of the finished basin must be approximately level. This leaves the tree standing on the dike between the two basins. If the ground is level the basin is usually made so the tree stands in the center of the basin, the soil around the tree trunk being either left undisturbed or so arranged that the bud union is not likely to be surrounded by wet soil when water is run into the basin. Otherwise gummosis may result.

Size of Basins

With trees planted 20 or 22 feet apart, and on level ground, it seems best from the standpoint of team work to have the basins meet half way between the trees in the tree row, and to extend them four or five feet on each side of the tree in the furrow row which will make the basin about eight or ten feet wide and about 18 feet long, with the tree in the center of the basin. If preferred the basin can be made circular. This arrangement leaves a strip of unbasined soil nine to eleven feet wide in the previous furrow, which can be used for team work, and this strip ought to be irrigated frequently enough to keep the tree roots in this area growing. If desired a winter cover crop can be grown in these strips.

Irrigation

The basins are irrigated from a furrow running the full length of the basined row and just outside the basins, each tree being irrigated individually. It is not good practice to irrigate many basins by overflow from one basin to another as too much water is lost in the deep subsoil and the soluble plant food from fertilizers is carried from the upper basins to the lower ones to some extent.

Mulching

As soon as practicable after the basins are formed the organic mulching material should be put in. Enough must be made to make an effective mulch over the entire basin area, as otherwise the exposed ground will become very hard and unsuitable for root growth. For a basin about 8x20 feet, the amount of mulching material necessary will be the equivalent of about one to one and a half bales of alfalfa hay or bean straw, or about 20 feet of manure. This amount applied in the fall, which seems to be the best time to install the system, will last about a year. Somewhat less material will be needed the second year, as there will be some cellulose debris left at the end of the first year.

Mulching Material to Use

In all my experiments, carried on mostly on the groves of the National Orange Company, L. V. W. Brown, and the Corona Lemon Company, to whom I am deeply indebted for cooperation, I have found alfalfa hay to be the best material of all, so far as fruit production is concerned, the second best being Lima bean straw, third best manure. The increase in orange production by using alfalfa over manure has ranged from 20 per cent to 170 per cent where individual tree records were known for several years previous to the experiments. The National Orange Company have carried out quite a number of experiments under comparable conditions with alfalfa hay, bean straw, manure, and barley; the beneficial effects of these substances on citrus trees were always in the order named. Any material composed largely of cellulose, such as barley straw, corn stalks, sawdust, etc., has been found detrimental to citrus trees, at least when used in basins. Such substances used alone produce unthrifty yellow leaf growth and small amount of fruit of poor quality. It is therefore advisable to use either alfalfa hay, bean straw, or manure. Alfalfa hay or bean straw that has been spoiled to the extent of being useless for stock feeding is apparently as good as sound material for mulching purposes, provided of course that it has not lost its fertility by too extensive decomposition.

Limitations of the System

Some soil types are not suitable for the mulched basin system. A lemon grove on heavy adobe soil near Whittier was basined and thoroughly mulched with a good quality of bean straw. In a few months the trees began to take on an unthrifty appearance and in about a year the trees looked considerably worse than those furrow irrigated and cultivated in the usual manner. Lemon groves on soil near Chula Vista composed of one to two feet of adobe overlying a lighter soil have not responded favorably enough to the mulched basin system in about one and a half years to warrant extensive use of it on that soil type.

The soil types on which the mulched basin system has given the best results have been loam or heavy loam soil in granitic areas where the soil is shallow—two to four feet. Also on the same kinds of soil on rolling topography where proper irrigation is difficult.

Advantages and Disadvantages

The mulched basin system has some important advantages and some important disadvantages, where the soil type is itself suitable for its use. As the favorable side we have the benefit of bringing into functional activity during the entire year the root system between the trees in the tree row. This root area is not generally irrigated and fertilized in the summer time in the interior citrus belt. The basin thus brings into activity an additional root feeding area during the summer at least. The advantage of the basin system when using concentrated and expensive fertilizers is obvious as the material comes into contact with the feeding root system as soon as made soluble by the water run into the basin. More uniform irrigation is assured as each tree can be given any amount of water deemed necessary, and trees at the lower end of the grove can be given as much water as those at the upper end. There is also a smaller waste of water in the deep subsoil at the upper end of the grove in porous soils.

Whether the organic matter used as mulching material, and which also acts as a fertilizer, is used more economically in basins than in the usual way of disking or plowing it under has never been determined by properly controlled experiments so far as I know. The organic mulch in the basin serves the two-fold purpose of a fertilizer and a conserver of soil moisture, and it would be very difficult to determine whether the surface organic mulch in the basin is more or less valuable, everything considered, than when plowed under. When plowed under much of it remains in the dry soil mulch, where it becomes very inefficient both as a fertilizer and as a conserver of soil moisture.

Some of the disadvantages of the mulched basin system are also obvious. In the course of time grasses and weeds of various kinds form a dense growth in the basins and these use up a great deal of moisture, perhaps as much as the tree itself. It is commercially impracticable to keep the weeds down as this necessitates considerable hand labor. In some cases where the mulching material contained little or no weed seeds, the weed problem was not serious for the first year, but sooner or later this trouble must be reckoned with. The basin system is more expensive in irrigation labor though more economical in the use of water. It does not lend itself satisfactorily to night irrigation.

As the mulched basin system produces a very dense feeding root system in the top two or three inches of soil, the organic material must be supplied in sufficient quantities to maintain a moist soil under the mulch. This naturally requires a greater expenditure for orgagnic material than would sometimes be made where the furrow system of irrigation is in use. This point can be considered either as an advantage or a disadvantage, depending on the point of view of the grower and the state of fertility of the grove.

Permanency of Mulched Basin System

I am of the opinion that in the interior citrus belt of California there is no permanent single system of citriculture, so far as cultural methods are concerned. Continuous shallow plowing or disking almost invariably produces a troublesome so-called plowsole, which interferes with both irrigation and free root penetration. In this system much of the fertilizer finds itself in the surface soil mulch where it does very little good. On the other hand it does not appear that entire cessation of surface cultivation is good either, such as is the case in the mulched basin system. In some cases after two or three years the soil surface in the basin has become hard and somewhat impervious to water, though this has probably been due to some extent to letting the basins become too dry before irrigation.

Even in some of the places where the system has produced the most marked response in foliage and fruit growth during the first year or two, the improvement has not continued, and in some cases there was actually a marked decline after the second or third year. In some of the citrus areas in the interior region where a shallow soil overlies granitic rock, or where plowsole and topography interfere with proper irrigation and fertilization, the system certainly merits consideration. In a number of cases under such conditions it has transformed non-bearing citrus trees with yellow and sparse foliage into trees loaded with fruit and filled with a dark mass of healthy thrifty foliage, all in less than a year. On some of the soil types where it has been installed there has resulted neither injury nor benefit. It would probably not be advisable to install the mulched basin system in a grove where the soil is deep and already in a favorable condition both as to mechanical condition and fertility. As the system does not produce the same results on all soil types the soil of the particular grove in question should be studied before installing the system.

To return to the furrow system from the mulched basin system it is only necessary to disk down the dikes and the surface feeding root system in the basin need not be seriously disturbed.

GRAPEFRUIT IN ISLE OF PINES

Grapefruit, at present the principal product cultivated by American fruit growers on the Isle of Pines, ripened somewhat sooner than usual and is of fine quality, but the crop, in comparison with former years, is a very unimportant one as regards quantity.

The damage to the trees by the hurricane of last September, coupled with a lack of chemical fertilizers, has resulted in a yield of fruit far below the normal. It is expected that about 20,000 cases will constitute this year's crop, whereas the normal crop runs between 50,000 and 55,000 cases.

While the quantity of grapefruit harvested this year is discouraging to the growers, it is expected that their losses will be somewhat offset by higher prices obtained in the United States for the early fruit.

REPELLENT FOR PEACH ROOT BORER

The use of "crude oil whitewash" against the peach root borer is being advocated by L. R. Cody, county horticultural commissioner of Santa Clara. In his investigations Cody has found distinct sunburn injury resulting from the use of asphaltum, and to offset this condition he has adopted the "white" oil wash, which it appears has the effect of reflecting sun rays and preventing sun scald.

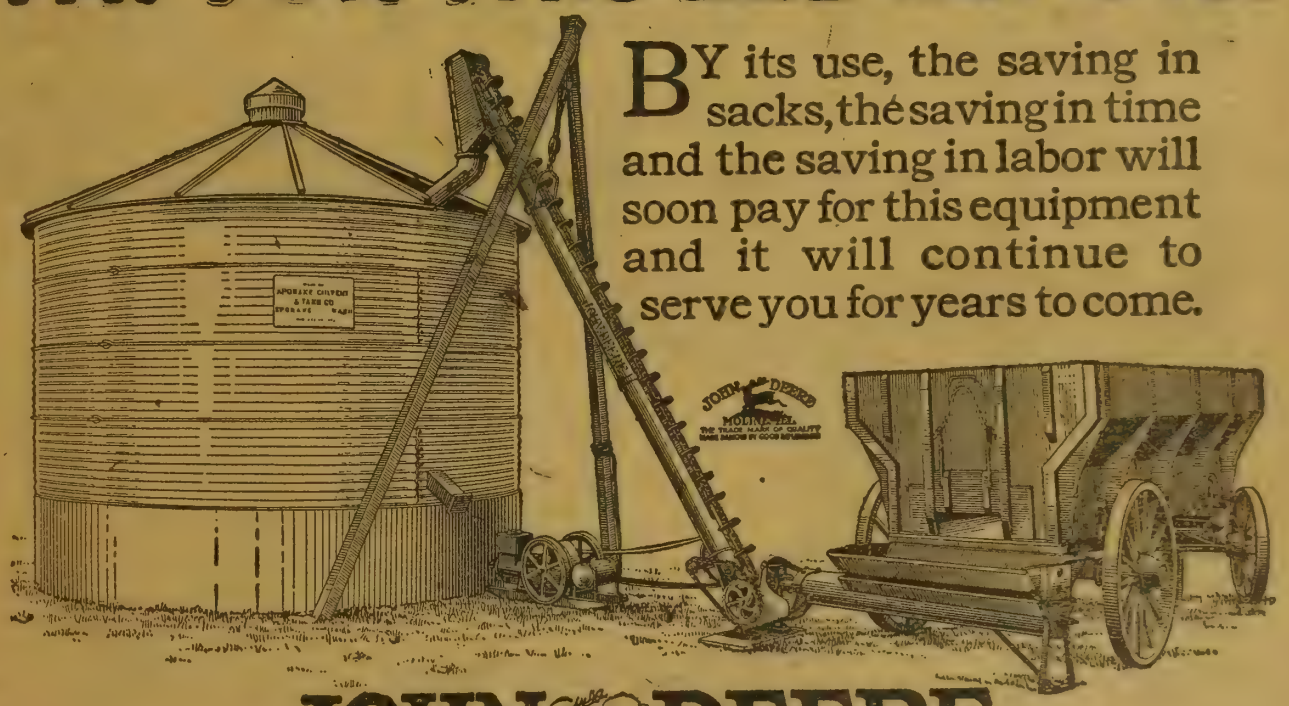
The formula used by Commissioner Cody is known as the government formula No. 1 and is as follows: Fifty pounds of stone lime (in a barrel), slaked with from 10 to 15 gallons of warm water. While the lime is boiling, slowly pour in six gallons of heavy crude oil. Stir and add water to make a heavy paste. This must be used the same day as it is mixed and not used if kept over. Mr. Cody says the cost of borer work in the orchards—that is, the safeguarding work and elimination—does not exceed $1.50 per acre.

A bill to enlarge the Horticultural and Agricultural Commission of Arizona from three to five members is before the legislature. The purpose of this bill is to obtain a wider representation. The Horticultural and Agricultural Commission, when first organized, was for the benefit of the fruit growers. The rapid increase in the acreage of cotton and the necessity of rigid laws to prevent the introduction of dangerous insects has gradually widened the scope of the commission and cotton growers and fruit growers are demanding wider representation.

At the Salt River Valley experiment station at Mesa, Arizona, a ten acre orchard of fruit trees is being set out this spring. This orchard will be composed of all the new varieties of all kinds of fruit, totaling about 400 different kinds. Pecans and walnuts will be included in the orchard.

The state highway department of Arizona expects to have 600 men employed on the road work within the next 60 days.

LET THE MONEY IT SAVES PAY FOR THIS ELEVATOR.



BY its use, the saving in sacks, the saving in time and the saving in labor will soon pay for this equipment and it will continue to serve you for years to come.

JOHN DEERE

TUBULAR STEEL ELEVATOR

It handles all small grains—wheat, oats, rye, barley, shelled corn, flax, rice. It has big capacity—it elevates 15 to 20 bushels per minute—handles the biggest load in six to eight minutes time. This big capacity is secured at comparatively low elevator speed.

It serves you when marketing your grain, as well as when harvesting it—elevates from the wagon into tanks, granaries or cars—elevates from tanks or storage bins into wagons. Operated by either engine or horses, its purchase ordinarily does not result in extra expense for power. A team of horses or a 2½ H. P. engine or larger will operate it.

The hopper, of big capacity, can be folded up out of the way when the load is driven up. Lower the hopper and the elevator is ready for duty. Backing the wagon is unnecessary. Hopper is provided with an adjustable feed by which the volume of grain being elevated is accurately controlled—you can quickly adapt the elevator to the power you apply.

Built of steel almost entirely, it will not warp or decay. The elevator proper is made of ⅜ in. steel well-casing, 6½ in. in diameter. It will never wear out. Round steel flights run smoothly inside of casing. The heavy elevating chain is fastened to center of flight. Grain cannot get under chain or into sprockets—no grinding, cracking or spilling of grain.

Shafts which operate in self-aligning bearing cannot get out of line and cause heavy draft and breakage.

Portable outfit furnished for big ranches where quick transportation is required.

Because of the many years it will serve you and its extremely low maintenance cost, the John Deere is decidely the most economical elevator to purchase. It is a real solution of your grain handling problem.

Don't wait until too late to get a John Deere Elevator—see your John Deere dealer at once—get extra value by getting the best—the John Deere.

John Deere elevators are carried in stock by John Deere Houses at Portland, Spokane Seattle, Boise and San Francisco.

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JOHN DEERE PLOWS Make Better Seed Beds

Pruning Blackberries

Written for California Cultivator By H. Culbertson

WHY should they be pruned? First, because they will bloom so full and set about three times as much fruit as they can properly mature. Unpruned vines or canes have a lot of fruit that is small and dries up before it ripens. Many of the berries that may be considered worth picking have hard cores. Second, well pruned they produce large fine berries that are very desirable and sell well on the market.

Blackberries have a main cane and a number of branches. Some of the side branches, if they have been well cared for, may be four to six feet long. The height of the main cane may be only three feet or it may be ten or 12. It depends much on whether they grow very scattering or in thickets. Thus the branches may begin only a few inches from the ground or as high as six feet. If in thickets, generally about half of the canes should be taken out to begin with. They may be pruned very short and get two crops, one in June and one in August. Usually there is so much other fruit on the market at the latter time that it is not desirable. The pruning should be done so as to get all the fruit in the one crop and get it large and fine.

The pruning then, in a few words, is to cut off the main cane just above the top sound branch and cut off one-half to two-thirds of the length of the side branches. This is the whole thing in one sentence. For convenience in getting the berries the old canes should be cut out. After they are cut off at the surface of the ground a long handle should be used with a hook on it.

Even the side branches need such a tool. Very often a pair of pinchers helps much in getting the brush out. In the pruning and care of the blackberry it should be borne in mind that the plant is making its last effort in producing the crop and dies after the effort. If not pruned or well cared for it begins to die before it has completed the job, and hence many of the berries dry up before maturing. Hence the importance of good pruning, that the vitality of the plant be kept up until it has performed its work.

This can be aided much by the other care and irrigation. As soon as the berries show the first reddish color they need a good irrigation every week on naturally well drained soil. Th stand a remarkable amount of irri tion and bring results in proporti Heavy manuring and mulching ma a great difference in results. In f it does not pay to grow them witho good care. With the best of care t results are almost too large to put print, providing there is good sale them.



GOOD MARKER

Here is a hint for nurserymen, for truck farmers, or any one else who has occasion to mark out ground in regularly spaced rows. These three wheels are from an old time cast-off auto, and the idea of using the wheels with the connecting gas pipe w evolved from the head of R. Teague, the San Dimas nurseryma who is holding the marker. The ma er speaks for itself and almost wor for itself excepting that it has to ha a bit of push.

QUARANTINE FOREIGN CEREA

Prohibition or restriction of mo ments of wheat, rye, barley, oats, a rice to continental United States fr Australia, Japan, India, Italy, Fran Germany, Belgium, Great Britain, I land, and Brazil is believed by t United States department of agric ture to be necessary on account of t prevalence in those countries of flag smut and take-all diseases. T former affects wheat alone, and latter wheat, rye, barley, oats, rice. A hearing to determine whet or not a quarantine is necessary, w be held at 10 o'clock, March 25, in t office of the federal horticultu board, Washington, at which perso interested in the proposed quar tine may be heard, either in person by attorney.

Both of the diseases are very structive. Flag smut affects the l blades, leaf sheaths, stems and so times the spikes of wheat. Usua every shoot is affected, the lea wither and the spike is frequently placed by a mass of twisted leav The spores are carried on the se and live over in the soil. In portio of Australia losses from this dise run from one-tenth to one-half of crop.

The take-all disease, known also whitehead and footrot, attacks roots and base of the plants, rott the roots and blackening the base the stems. Young wheat plants spe ily wither and die. Older ones m survive, but rarely produce gra Heavy losses have been sustained all countries where this disease curs.

WHY?

Those five W's—who, what, w when and where—are sure to be u by all who have two good eyes. T persistent asker is sure to secure world of information and no little s isfaction.

A Santa Paula reader has been a ing "why" and has an answer. writes:

"I was interested in the article Ernest Braunton in the February 1 number of the Cultivator. He a why does the hop twine with the

RACINE TIRES



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To Yield Your Money's Worth in Miles

THERE is only one right way to buy tires—on the strict basis of character. Then you run no risk. You are sure to get your money's worth in miles.

By the thousands, farmers are turning to Racine Extra Tested Tires. More and more they realize that "Extra Tested" is the assurance of true tire character. They know that the extra care in Racine Rubber Company factories gives them extra wear, whether they choose the "Country Road" or the "Multi-Mile Cord."

Racine Country Road Tires

Racine Tires are carefully extra tested, step by step through every stage in manufacture. Fabrics and selected rubber are painstakingly selected, inspected, then given all the Racine Extra Tests. Imperfections simply can't slip by.

Racine "Country Road" Tires are specially constructed, as the name implies, for country road service. They have the extra endurance that hard usage demands. It will pay you to do businsss with the dealers who sell these quality tires.



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RACINE "Country Road" 5000-Mile Guarantee

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Write for the Informative Book—Extra Tests and Extra Miles

and morning glory in the opposite direction? I have found that most vines twine same as the morning glory, that is opposite from the sun, but when he states that "all vines of one kind or another turn the same way and cannot be made to grow around in the opposite direction" he is mistaken, for the smilax will twine in either direction and seems to have no choice. I have a smilax plant on my front porch, two vines from it climbing a wire, one twining with the sun and the other twining over it in the opposite direction. It is the only plant that I know of that is so careless in its habits, but there may be others.

But why confine our whys to the vegetable world? Just now we have a scourge of those little ground sparrows that stand ready to eat up everything in our gardens as soon as it appears above ground. Why do they come in the winter and leave in the spring like the tourist, and a thousand and one other whys that can have but one answer, and that is that God in his infinite wisdom saw fit to make them so."—G. W. Faulkener, Santa Paula.

REGARDING THE FENCING OF STOCK

I notice in your valuable paper a number of correspondents ask information regarding fences and trespass of cattle.

The trouble is that the laws about fences are indefinite and not precise and that a number of cases, as reviewed by different courts, reveal different verdicts.

Now I should say that if one neighbor has a lot of wild steers and not enough feed provided for them that the unfortunate animals will break any fence to get into neighboring property where they find something to eat. The law says adjoining neighbors are responsible (both of them) for keeping up their coterminous fences.

Now is this just? The second neighbor does not keep any stock at all and still he should bear a burden of expense most unjust. Therefore it behooves the farm associations to see that the law is properly amended. And the farmers can do it.

From what I can make out a bill introduced at Sacramento by Mr. Kasch of Mendocino would improve matters some if passed.

Now, Mr. Editor, sound the tocsin and see that something will be done to improve matters.—F. H.

TRACTOR COURSE AT CONCORD

A free tractor training course will be given, under the auspices of the state board of education, at the Mt. Diablo Union High school, Concord, March 10-29.

The first part of the work will deal with the study of the gas engine, with practical work in repairing and assembling engines of the tractor type. The remainder of the course will be devoted to instruction and practice in the handling of tractors and to actual practice in driving tractors in the field. At least six types of tractors will be used for demonstration.

The committee in charge is J. C. Beswick, L. C. Kellog, Carl Nichols, A. Sherlock, J. Boyd, Bertha Romaine, G. A. Ohlsson, E. E. La Barr.

A two dollar registration fee is required. Men or women who desire to take this course should send their names and addresses and the two dollar fee to Bertha Romaine, Principal, Mt. Diablo High School.

"FACING" OF BERRY PACK DISAPPROVED

The meeting held in the office of the state commissioner of horticulture on February 24 to discuss standard berry baskets was attended by representatives of the Central California Berry Growers' Association, Sebastopol Berry Growers' Association, Florin Berry Growers' Association and the United States bureau of markets, and the superintendent of weights and measures.

The question of deceptive packs was also discussed at length and it was pointed out that all facing of berries is more or less of a deception, that facing is injurious to the berries, requires additional handling, adds to the expense and subtracts from the keeping qualities of the fruit, that in the straight side, dry pints, as recommended, berries will carry much better if loosely packed unfaced, and that the demand by the consuming public is practically as great for the unfaced commodity as for the faced commodity. Mr. Grimes, therefore, proposed a resolution that the berry growers' associations represented at this meeting go on record as favoring the adoption of a loose pack and recommending the discontinuance of facing. The motion was seconded and passed unanimously.

At the recent annual meeting of the Yuba County farm bureau George Carr of Hammonton was elected president; Cline Bull of Marysville, vice-president.

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IN J. I. Case Tractor Plows the "drag" of furrow bottom and land slide pressure has been eliminated. All the weight of the frame is carried on J. I. Case dust-proof, easy lubricating, long-distance wheels.

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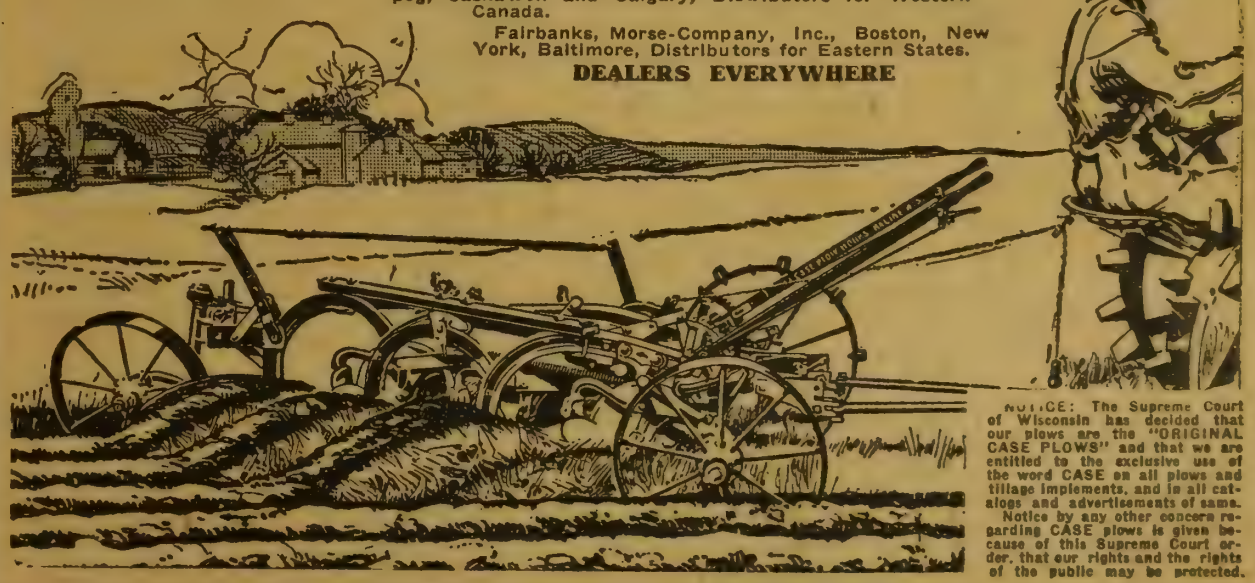
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American Egyptian Cotton

THE Southwest is becoming a producer of some of the finest long staple cotton the world has seen. The bureau of markets has been making an investigation as to some of the results and some of the work which has been done in seed improvement. In a recent Service and Regulatory Announcement No. 41 is given a history of the experiments which resulted in the production of the Pima variety. The bulletin says:

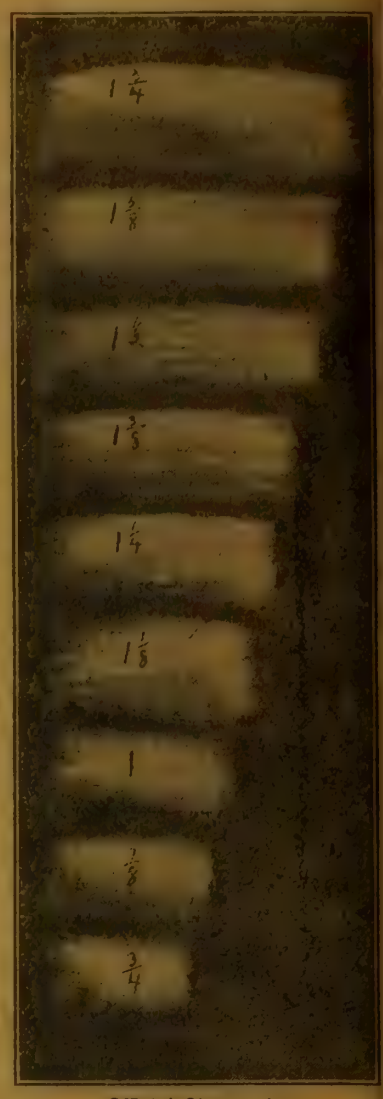
There has been a great deal of information written and printed in bulletin form from time to time, relating to the introduction of Egyptian cotton in this country and its development in the Salt River Valley. The department of agriculture began experimenting with imported seed at Yuma, Arizona, in 1901. This stock, after several years of experimental breeding, produced a plant which had an improved character and greater strength of fiber. This plant gave rise to a new variety which was given the name Yuma. In 1913 commercial production of Yuma cotton had assumed such proportions as to warrant the preparation of standards so that in handling, grading and marketing it the commodity could be referred to by grade names and staple lengths. The United States department of agriculture then undertook the work of assembling types of grades and lengths of staple in the form of standards for permissive use, which, since their introduction, have largely formed the basis of such cotton in transactions between cotton mills and producers.

In 1910 a single plant of distinct type was found growing in a field of the Yuma variety, at Sacaton, Arizona. From the seed of this new plant a progeny row was grown in 1911 and more extensive plantings were made in 1912 and 1913. The most careful examinations failed to reveal any noteworthy departure from the original plant found in 1910. This variety was named Pima.

The important differences between the Pima and the Yuma varieties are that the Pima variety has a whiter color and a longer staple. The Yuma variety has a staple from 1 7/16 to 1 ½ inches in length, and the Pima a staple from 1⅝ to 1¾ inches, or an increase of from 3/16 to ¼ of an inch.

During the season of 1916 there were grown 253 bales of the Pima variety, the seed of which was saved for planting purposes, and the yield from the 1917 crop of Pima amounted to 2,966 bales. Of these, 2,260 bales were grown under the supervision of the United States department of agriculture (as were all previous productions of Pima cotton) on virgin soil, as far as cotton was concerned, and in no instance on any land where the Yuma variety had been grown previously. The ginning of practically all of these bales was done in one gin. No other variety was ginned there and the seed was carefully sacked. From this seed almost the entire crop of 1918 was planted, on an area of between 70,000 and 80,000 acres in the Salt River Valley and sections of California.

The grading and stapling of 2,100 bales of the 1917 crop were done b a representative of the bureau of markets of the United States department of agriculture, and material was collected for types. It was then decided to replace the tentative standards fo Yuma cotton with the official cotto



Official Standards

A photographic representation of th official cotton standards of the Unite States of those lengths of staple for whic types are available for distribution, eac respective length as shown being obtaine from the original type bale.—From Bu letin No. 41, Service and Regulatory An nouncements, U. S. D. A.

standards of the United States fo American Egyptian cotton, made u of types of the Pima variety.

Heretofore the grades of Pima cot ton have been designated by th names Fancy, Extra, Choice, Standard and Medium. In the official cotto standards for American Egyptian cot ton numbers are substituted for th grade names—No. 1 for Fancy; No. for Extra; No. 3 for Choice; No. 4 fo Standard; and No. 5 for Medium.

Furthermore, American Egyptia cotton which in grade is between an two adjoining grades represented b types in the standards, is designate by the grade number of the highe grade, followed by "½"; for example cotton between grades No. 1 and No 2 is grade 1½. Also cotton inferio to grade No. 5 is designated "Below grade 5." For these and other rule applicable in grading American Egyp tian cotton, the order establishing the standards should be carefully exam ined.

The lengths of staple formerly known by numbers are designated by their actual measurements, determined in the manner set forth in the order establishing the standards for length of staple and in the explanatory matter relating thereto.

Considerable spring wheat is grown in Coconino County in Northern Arizona. Some recent tests show that the new Marquis wheat grown there exceeds the best Kansas hard wheat in many qualities. An effort will be made to establish a mill in the vicinity of Williams.

Mohawks *and* Rocky Roads

Less than 222,311 miles of our total of 2,223,117 miles of highways are improved.

We could improve this percentage immensely by spending money on good roads, rather than on new tires that bad roads wear out.

Think it over. Boost good roads.



There's a rocky road, a bumpy road, or a bad strip of roadway of some sort, between you and your market. It's punishing your tires—putting a terrific strain upon them.

Many tires which may give good mileage under easy conditions won't stand up long under this abuse.

The strain may not show on their treads. For those bumps and strains don't hurt the rubber. They pound away at the fabric, sometime breaking one or two plies down underneath. The break may not show for weeks. But it is there. It spreads. Other plies give way. Suddenly, you have a blowout. You wonder why.

Mohawk tires don't give way even under such severe service as this. Most sizes have *one more ply of fabric than other makers think it necessary to use.* And this extra ply makes all the difference in the world in the strength of the tire.

Of course, Mohawks would give good mileage without this extra ply if they were always used on smooth roads and pavements.

But the Mohawk Company believes that Mohawk users cannot always pick and choose their roads. They have to go where they want to, when they want to.

Because of this we haven't skimped on a single feature. We pay more money for our rubber and fabric than most makers so that we can secure the best.

We use a generous quantity of these materials. *Mohawk Tires actually weigh more than other tires because there is more good rubber in them.* For example, the Mohawk Cord Tire weighs 8 to 10 pounds more than most other cord tires on the market.

We hire the most experienced workmen we can find and give them plenty of time to put the best they know into every tire.

There is nothing mysterious or secret about such methods. Just a reasonable logical policy of building honest tires so that every tire produced will give the buyer a good big value in mileage.

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Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Budding Grapefruit

Will you please tell me the best time to bud orange, lemon and grapefruit successfully on orange trees?—Subscriber.

Yes, grapefruit are usually budded on sour orange stocks. The spring budding is usually performed in March or May and the fall budding late in September or October. Of course the budding is affected by the season. It must be done when there is full flow of sap, when the bark will readily lift as the bud is pushed into the stock.

Income Tax on Crop of Hay

Hay grown in 1917 was stored. Borrowed on this hay, $1,000. Sold hay January, 1918, for $1,200. In making return on this 1917 crop must we report the $200 or any other amount?—Subscriber, Los Angeles.

You should surely make return of the $200, likewise of the $1,000 borrowed unless that was treated as cash in your report for 1917. If not reported in 1917, then the entire $1,200 was a part of your 1918 income. The only exemption which you can claim is on any interest which you may have paid on the amount borrowed. This interest may be considered a part of the deductible expense.

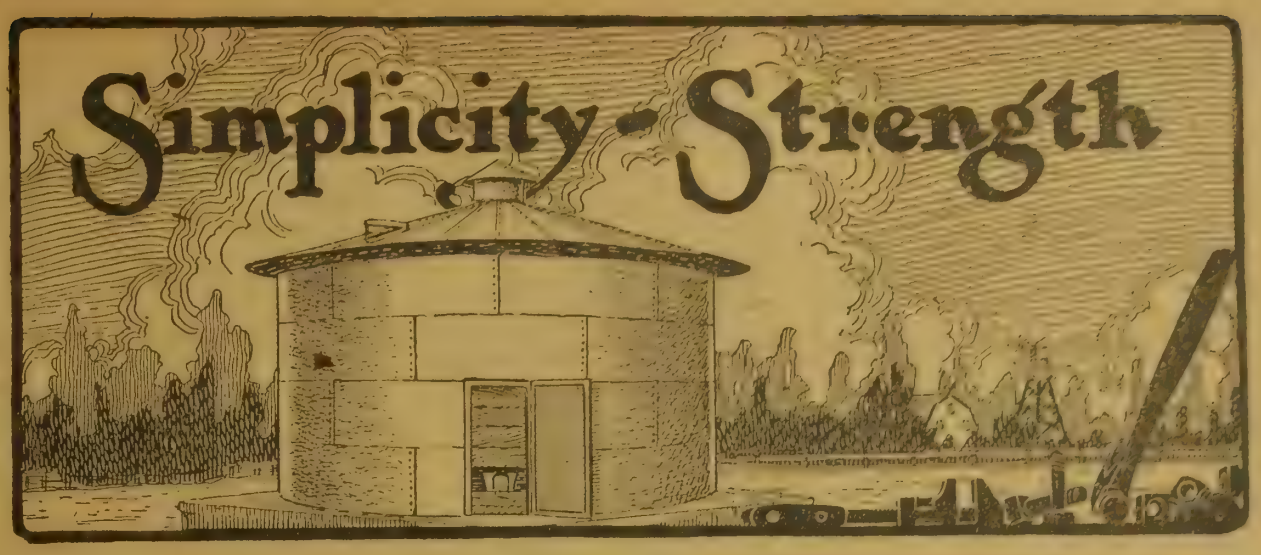
Borers and Root Knot

In pruning trees I find insects have eaten under the bark of several of the trees. Some, I fear, will die from the effect. Can you tell any way to prevent that? Is there anything to use now to keep them from further destroying the trees? There are a few trees which have some false growth on the roots, some kind of a decay in the form of a bunch as large as walnuts and to twice that size. Last year I lost two trees from this. What can I do? My soil is quite sandy and I have to irrigate. Will you please let me know what treatment I can give the trees to save them?—Subscriber, Porterville.

We take it this is one of the borers, though with no knowledge of the kind of tree or insect, it is hard to prescribe. There is the California peach borer, flat-headed apple borer, twig borers, shot hole borers, and, in fact, many others. The ordinary borer which affects the trunks of apple, peach and other trees is best handled by digging out the larva with a knife or using a flexible wire, to prod them in their tunnels. When the trunks of the tree are thoroughly clean they should be whitewashed, or coated with asphaltum or the tree whitewash, formula for which was given on Page 246 of the Cultivator of February 22. Root knots may be nematode galls, but more likely it is a case of the fungus form, or crown gall. In such a case, removal of the large knots, or excrescences, is necessary, after which the fresh cut surface should be painted with Bordeaux paste. The treatment is not always satisfactory. The best control is through prevention by closest inspection of nursery trees and continual watch and instant removal of any manifestation of the trouble.

Broom Corn

The question of production of broom corn in California often comes to the Cultivator and seems to be an exceptionally hard one to answer. We recently took the matter up with one of the larger broom factories of the state and learned that the California



YOU and one of your hired men can erect a Calco Grain Bin—easily and quickly. No need to go to town and hire an "expert."

If you can hit where you look and hold a monkey wrench in place, and if you understand how a stove bolt works—you are quite expert enough to put up your Calco Bin.

Calco Grain Bins are made of Armco galvanized iron—strength. Engineers designed them to be simple in construction. In simplicity there is added strength.

Interchangeable sections are shaped and punched to fit—they lap right into each other. The door fits exactly. The manhole fits exactly. The roof fits exactly. The ventilator cap fits exactly.

It's this "fitting exactly," a good piece of designing, that makes the Calco Bin so simple to erect and so sure in strength. It's a hold-together-and-stay-on-the-job bin.

Calco Bins are made in capacities of from 600 to 5450 bushels—a size for every farm. Write for the free booklet, "Calco Grain Bins." It tells how to cut your harvesting expense.



MODEL 161

Armco Iron Irrigation Gates

An inexpensive, reliable metal gate. Diameters from 8 inches to 15 inches. Furnished with or without bulkhead. Write for price list.



MODEL 150



MODEL 153

Armco Iron Lateral Headgates

Easily operated, durable metal gates; diameters 8 to 36 inches. Hand or screw lift supplied with either type of bulkhead. For use under varying heads of water to a maximum of 6 feet. Details on price list—ask for one.

Gates are supplied in connection with rust-resisting Armco Iron corrugated pipe in any length required.

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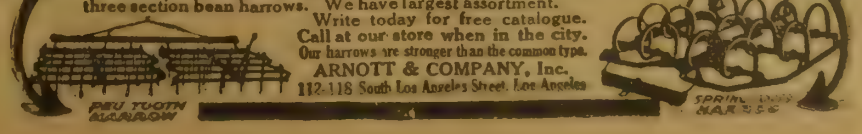
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Soil and Other Factors in Relation to Crop Production

Limiting Factor in Crop Production The economic production of the many food crops is governed directly by soil fertility. In itself, soil fertility is affected by so many factors and conditions that the greatest care should be exercised in attempting to apply too generally results secured locally or merely in one or two seasons. The limiting factors in soil fertility are many. Crop production may be directly influenced by the amount and distribution of rainfall; by the range of atmospheric and soil temperature; by adequate or inadequate aeration of the soil; by the texture as affecting root distribution; by the soil reaction; by the amounts and proportions of different salts, as well as the amount of total and available plant food.

Dominant Factors Vary From Season to Season Moreover, the limiting factor may not be the same from season to season. Soil reaction may be a limiting factor at one time; lack of moisture at another time; lack of available phosphorus at still another time and so on indefinitely, for the soil is a populous community of living things.

Temporary Results and Permanent Results Hence, in drawing conclusions as to the value of any method of soil treatment a distinction should be made between results which may be temporary in character and those that would be of a permanent nature. This fact may be best illustrated by the attitude of practical farmers in different countries toward the use of lime or of land plaster or of acid phosphate or of other soil amendments or of fertilizers.

Rational and Irrational Use of Lime In the case of lime, the excessive use of this material created a prejudice against it in many places in Europe and in North America. The injurious effect of over-liming may have been due to excessive oxidation of the organic matter in the soil or due to the toxic effect of magnesia in burned and slaked lime. As time went on the injuries or undesirable effects of over-liming disappeared and farmers in the given locality again came to feel that liming was necessary and desirable.

Rational and Irrational Use of Land Plaster One may trace, therefore, a constantly changing attitude toward the use and value of lime from one generation of farmers to another in any locality in the old world and in the new. It is well known that land plaster was regarded as a valuable fertilizer toward the end of the eighteenth century and in the early part of the nineteenth century. Later on its use was given up because it failed to give uniformly satisfactory results.

Prejudice Against Use of Phosphates There is a prejudice in certain localities against the use of acid phosphate, as there is a prejudice in certain localities against the use of other commercial fertilizers. The prejudice against any single fertilizer is readily understood by persons who are familiar with the principles of soil fertility.

Use and Abuse of Phosphates The practical farmer who secures profitable returns from the use of any material frequently attempts to continue the application of this material until it ceases to be profitable. The use and abuse of acid phosphate is an excellent illustration of this fact. It is well known that in general farming phosphoric acid is likely to be the limiting factor in production in so far as plant food is concerned. Hence, acid phosphate or other phosphatic fertilizers will for a time increase crop production by supplying a larger quantity of the plant food constituent present in least amounts, but as time goes on the use of available phosphorus merely hastens the depletion of the supply of available nitrogen or of available potassium, and the productive power of the soil begins to decline. In time, therefore, farmers begin to feel that acid phosphate has injured their soil. Low grade commercial fertilizers, containing small amounts of nitrogen and potash, will produce practically the same undesirable results.

It is evident, however, that such undesirable results are not due to the rational use of available phosphoric acid, but to the unbalanced, single use of this constituent. The use of nitrogenous or potassic fertilizers alone is certain, sooner or later, to cause a lowering of crop production, if care be not taken to provide all of the plant food constituents in adequate amounts, for such use is irrational.

Acid and Basic Residues In a similar way it is recognized by students of soils that fertilizer materials which may leave acid or basic residues in the soil might produce results that are desirable or undesirable from the farmers' standpoint. In so far as the results obtained are permanent or extending over a long period of time they are desirable wherever or whenever they are co-ordinated with larger yields and larger profits to the land owners. If, on the other hand, larger yields and profits may be obtained for one or two seasons, or for a few years only, at the cost of more or less permanent soil deterioration, they may not be so desirable after all.

Physiologically Acid Salts In a case of certain excessively basic soils, applications of certain mineral forms of Commercial Nitrogen, for instance—if losses of Ammonia as gas could be avoided at the time of application to such soils—might seem temporarily the most desirable source of nitrogen, since these salts are physiologically acid and their use might lessen afterward the accumulation of carbonates or bicarbonates. Were the use of such physiological acid salts to be continued for some years, undesirable results might appear.

Aside from the possibility of the soil actually becoming acid, there remains the danger of creating an excessive proportion of sulphates among the soil compounds.

If, on the other hand, basic materials like certain forms of commercial lime or Nitrate of Soda or Lime Nitrogen are used, basic residues might accumulate in the soil to an undesirable extent, but when such substances are used rationally and with common sense no such undesirable accumulation need occur.

One should, therefore, be extremely cautious in advocating any fertilizer practice not founded on the broad understanding of the principles of soil fertility. Especial care should be taken not to advise growers to adopt any one-sided method of fertilizing in great excess with salts physiologically acid in nature which might give profitable returns for a short time, but might ultimately entail serious injury to the crop producing power of the soil.

DR. WM. S. MYERS
Chilean Nitrate Committee
25 Madison Avenue, New York

grown broom is of high quality, and we were assured that good prices would be paid for broom corn properly cured. The curing calls for shade for best results and the straw must be kept free from rains or heavy fogs while curing. Moisture at this time rusts and stains badly.

Under best of conditions 60 days is sufficient for production of a crop. Prepare ground and seed exactly as with milo or the other sorghums. Plant last of April or first of May. Good seed costs around ten cents per pound and about three pounds per acre is required. At present there is a wide range in prices for the corn, the price ranging from $100 to $200 per ton, this for corn after the seed is threshed out. The seed is an excellent stock feed and the residue after the tops are cut off makes fair silage. The wide range in prices is caused by the negligence in growing and curing. Long panicles, or "brush," are secured by proper cultural methods and bright color by proper curing. There are two kinds of broom corn, the dwarf and standard. The standard grows from 10 to 15 feet in height, with brush 18 to 30 inches long; the dwarf grows four to six feet with brush one to two feet long. The production per acre varies from a half ton to a ton and a half, the latter only under exceptional conditions.

Spray to Kill Stumps

The question was recently asked as to any spray which could be applied to sprouts from willow and other stumps to kill. This question was referred to the state university. Prof. Woodbridge Metcalf of the division of forestry writes:

"The cheapest and easiest method of disposing of willow and alder stumps is to blast them out with dynamite or pull them out with a stump puller. There are various chemical substances which will kill such trees but these are too expensive to make their use feasible on any considerable scale. Stumps of trees can be killed by placing a liberal application of rock salt about the roots, by boring several holes in the stump with an auger and filling these with salt or potassium nitrate, or commercial nitric or sulphuric acids. We have succeeded at the Santa Monica station in preventing sprouting from the stumps of several species of eucalyptus by boring holes in them and filling with salt. Several of them have been killed by liberal applications of kerosene oil applied with a brush directly to the stump. Peeling the stump to the ground will aid in killing it. You will recognize, I am sure, that while these methods of eradication may be feasible they are too expensive to be practicable in the removal of these trees, and the better course is to use dynamite or the better class of stump pullers."

Poor Walnuts

I have a walnut tree that has bad nuts. When the nuts begin to harden they shrivel and turn black till there is nothing left but the shell. Will it be necessary to dig up the tree or can it be grafted? I have put lime and ashes around it and fertilized it and it is a fine looking tree.—Subscriber, Hemet.

We occasionally find trees like the one described in all kinds of fruits. We have orange trees which produce only cull fruit and walnut trees which have nuts with imperfect shells, and this seems to be a variation in another direction. If this tree is vigorous and not more than eight to ten years old it can be grafted and will produce good fruit of the variety from which the scions were cut.—J. B. N.

Beans for Stock Feed

Are Lima beans good for feeding to hogs? Will soaking do any good or will they have to be cooked?—Subscriber, Downey.

Henry's "Feeds and Feeding" says: "Cull beans are fed whole in large quantities to sheep, producing a solid flesh of good quality. For swine, beans should be cooked in salted water and fed in combination with corn, barley, etc.; fed alone they produce soft pork and lard with a low melting point." "All these leguminous seeds should be ground, and on account of their protein-rich nature should not be fed as the sole concentrate. Lavalard states that when beans replace oats only half the quantity should be used." "Cull table beans are satisfactory for swine when thoroughly cooked and fed with carbonaceous feeds. At the Michigan station in three trials of from 56 to 70 days with 26 pigs, averaging 160 pounds, Shaw and Anderson found that pigs fed equal parts of cooked cull beans and corn meal made average gains of 1.5 pounds per head daily, requiring 406 pounds of feed for 100 pounds of grain. Salt should always be added to the water in which the beans are cooked. When beans are fed alone or in excess they produce a soft pork lacking in quality."

Woll's "Productive Feeding of Farm Animals" says: "These grains have a high digestibility and contain two or three times as much digestible protein as the cereal grains."

Productiveness of Cow

Could you give any rule of progression by which to judge of the amount of milk a cow will probably give upon coming to her best when you know the amount she gives with her first calf?—Subscriber, Hemet.

There is no such rule. If there were it would be broken with the second or third calf by some freak of nature which oftentimes upsets calculations. However, like breeds like, and if the mother of the cow was a great producer and the heifer is sired by a bull also from a great producer the chances are that a great producer will result. But to name the production in pounds and ounces is impossible.

Fodder Values

I find that my cows eat up very readily the "corn" fodder that I did not have room for in my silo when I filled the same in the late fall. The corn is one of the sweet sorghums. The question is, of how great additional value is the ensilage over the corn that was shocked and stowed away for winter feeding? I am surprised to see with what relish the

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Whether or not he has made good crops with Nitrate. Why speculate with Non-Nitrated forms of Nitrogen when, by using Nitrate, you can insure crops against adverse conditions? With the rational use of Acid Phosphate, always recommended by us, there will be no interference with normal soil conditions, either in one year or in one hundred.

Dr. William S. Myers
Chilean Nitrate Committee
25 Madison Ave. New York

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to get in your dormant or winter spraying. If done properly—this will prevent the accumulation of certain insect and fungus enemies; will clean your trees and soften the bark; and will keep the trees in better health, vigor and fruitfulness. For this purpose there is nothing so effective as

Crude Oil Emulsion

Remember—Universal Orchard Sprays are made by us from the finest materials, under expert supervision. They are quick and sure. And—*they penetrate.*

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To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

cows eat this fodder and I wonder if it would not be at least a grand supplemental feed to alfalfa and ensilage. How would its value compare with that of the ensilage? Would you build another silo or cut and shock the corn that you would otherwise put into it? Mine is a pit silo and did not cost over $35.—Subscriber, Hemet.

Where low-priced ensilage can be made the value over that of fodder is materially increased, that is, there is in the process of treating and maturing a beneficial effect and in addition cows will usually eat all the ensilage, while with the fodder there is material waste.

Night Soil Fertilizer

Is the waste from an outdoor toilet ever used for the purpose of fertilizing lemon trees? If so, how is it used, and in what quantity, and with what is it mixed, if anything?—Subscriber, Chula Vista.

By all means save this valuable soil enricher. If mixed with perhaps an equal quantity of dry soil it may be handled easily, and applied in a furrow within reasonable distance from the tree it will never prove objectionable and at the same time will aid in securing maximum growth of trees. If mixed with soil as suggested, a wheelbarrow load properly distributed about a tree would prove beneficial.

Eucalyptus Leaves for Fertilizer

Are the leaves of the Australian blue gum of any value for a fertilizer? It is customary here to burn them, but the owners claim they poison the ground and it is harmful to spread them on the ground.—Subscriber, Oxnard.

They surely are valuable. At least the writer has repeatedly used them as a mulch. Later they have been broken up and worked into the soil and we have never yet seen any injurious effect. The time was when orange and lemon growers carefully removed the cull or fallen fruit, and it is now known that in hauling off these culls one is removing a humus former and, to a small degree, fertility. Orchardists had feared the acid of the fruit would poison the soil. It is barely possible that if a large quantity of blue gum leaves was buried close to the roots of the tree they might cause injury. That might even be true with stable manure, but applied with reason, as probably would be the case, they should be only beneficial. However, would be glad to hear from any subscriber who has had experience along this line.

Feterita Fodder

Would like to ask the value of feterita as a hay food for cattle; also value of grain. Will it bring a good crop in the upper Sacramento river valley on bottom land without irrigation?—Subscriber, Red Bluff.

The grain value of feterita is practically that of Gyp, milo or other sorghum grains, and this is nearly the same as that of common Indian corn, though the slightly higher feeding value of Indian corn, and the fact that it is better known, continues to keep it at a higher market value. In a hog feeding test made at the Kansas station on an average daily allowance of 4.9 pounds the hogs made a gain of 1.36 pounds on feterita and 1.46 on ground corn. Milo came somewhat closer to the corn, giving a daily gain of 1.43 pounds. The fodder is valuable and should be saved. Whether it will make a good crop of grain in Sacramento valley bottom land without irrigation depends so much on conditions, especially as to rainfall, preparation of the soil so as to conserve the moisture that has fallen, etc., that it is impossible to say. As a general proposition we would say, however, yes. There are some soils so retentive of moisture that it is possible to grow a crop of barley or other grain, then plow the stubble and produce a crop of sorghum grain.

Grafting Walnuts

Can black walnut be grafted on locust or any kind of nut?—Subscriber, Turlock.

Hardly, but the native black growing wild all over the state makes excellent foundation. See Mr. Neff's article in the Cultivator of February 22.



"It Starts 'Em Right"

"That's the secret of my success! And it's *blasting* the holes that does the trick."

"When I first started to use dynamite I found out that it was an *easier* way but in two years time I knew that it was a *better* way too. Those trees grew like weeds and were in blossom a full year ahead of time."

HERCULES DYNAMITE

is a pretty good pal at planting time. It not only *digs* the holes but it loosens the soil all around them so that the roots of your young trees can take hold and *grow!*"

"There are a lot of other things that dynamite can help you do. It'll dig your post holes, cultivate your bearing orchards, clear your waste land and drain your wet land."

"Better send to the Hercules Powder Co. for a copy of their illustrated book "Progressive Cultivation." It'll tell you all about the uses of dynamite on the farm and in the orchard."

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Hercules Powder Company, 1029 Chronicle Building, San Francisco, Cal.

Gentlemen: Please send me a copy of "Progressive Cultivation."

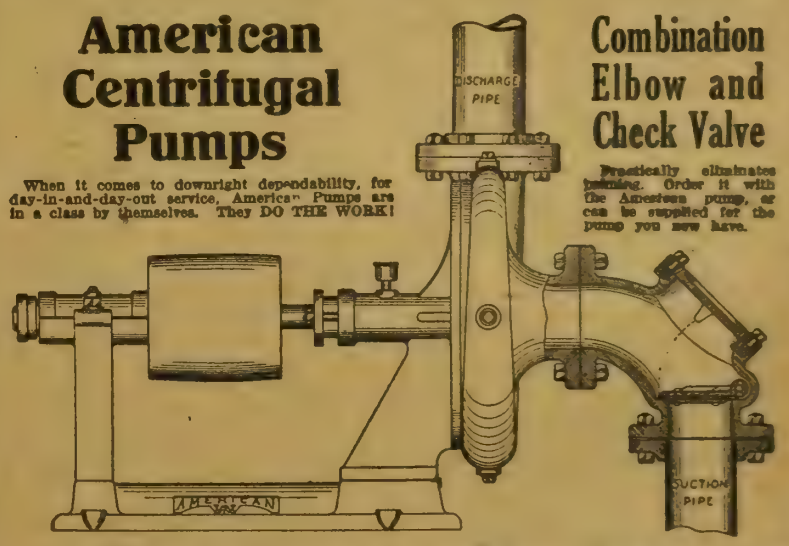
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When it comes to downright dependability, for day-in-and-day-out service, American Pumps are in a class by themselves. They DO THE WORK!



Combination Elbow and Check Valve

Practically eliminates priming. Order it with the American pump, or can be supplied for the pump you now have.

Write for Catalog of Centrifugal Pumps

If your water problem can be solved with any pump, it can be solved with an American. These pumps are designed to meet every possible condition. They get the MOST water at the LEAST cost and with the LEAST TROUBLE. Put your irrigation problems up to irrigation experts. Also write for Catalogs of Motors, Gas Engines, and Oil Engines.

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422 E. Third St., Los Angeles *73 Fremont St., San Francisco*

The California Cultivator
Weekly—24 to 36 Pages One Dollar per Year

Holsteins | Holsteins

Three Great Daughters of Prince Gelsche Walker

in Our Consignment to the Guaranty Sale, March 27, 1919

Two of these are from dams with 32.76 and 31.91 pounds butter in seven days, whose sires have eight and four 30 pound daughters respectively.

Can you imagine finer foundation animals than daughters of this great sire from thirty pound dams? Never before have they been offered at either public or private sale.

And better still they are bred to SIR AAGGIE MEAD DE KOL, the highest yearly record bull in the world, with an average of 1093 pounds of butter for his first seven dams, and over 31 pounds for seven days.

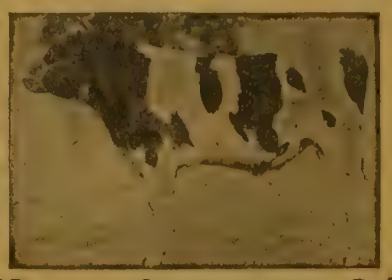
We have also selected for this sale one of the most desirable young bulls ever offered in the West, a son of SIR AAGGIE DE KOL ACME out of a 34 pound junior four year old daughter of PRINCE GELSCHE WALKER. Beautifully marked and his type is beyond criticism. If interested in a real top herd sire consider this one well. Write for his pedigree.

A. W. Morris & Sons Corporation
Woodland, Cal.

Santa Anita Rancho

Anoakia Breeding Farm
REGISTERED HOLSTEINS

A herd of fine individuals, strongly bred in the lines of great production as evidenced by both short and long time records, handled in a manner to produce sound healthy breeding stock.



Merci Lad Korndyke Burke

Son of De Kol Hengerveld Burke who has a long list of A R O daughters with records up to over 35 pounds butter in seven days, and out of Winnie Korndyke Cornucopia De Kol who made 31,034.1 pounds milk in one year and was the first cow in California to make over 1200 pounds butter in one year. A few of his good sons out of excellent dams for sale.

SANTA ANITA RANCHO *Santa Anita, Cal.*
Anita M. Baldwin, Owner - . *W. H. Taylor Supt.*

Your Opportunity

to buy a choice granddaughter of Jessie Fobes Bessie Homestead, bred to KING KORNDYKE PONTIAC 20TH, in the Guaranty Sale, Sacramento, March 27.

We are also contributing a fine daughter of our 31 pound cow Thelma Hartog De Kol, due in April to Prince Riverside Walker.



King Korndyke Pontiac 20th

These are two of the very choicest heifers in our herd, the kind that will make money for whoever buys them.

Our Entire Herd is Tuberculin Tested

Tulare Holstein Farm

H. J. Higdon, Owner TULARE, CAL. **H L. Redd, Herdsman**



Prince Hiske Walker

He is by Prince Gelsche Walker and out of Hiske of Riverside, being therefore full brother to Lady Hiske Walker, 34.25 pounds butter in seven days as a junior four year old, former state record in class.

His offspring are uniformly straight, vigorous, and well marked. A few of his young sons for sale.

Packwood Farm
W. F. Mitchell, Owner *Visalia, Cal.*

Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average:

Milk one year....24,089.88 pounds
Butter ..... 1,105.07 pounds

This butter average is equalled by only one other bull of service age in the world. Buy your next bull from

Eldorado Herd

Alex. Whaley, Owner **Tulare, Cal.**

A GRANDSON OF TILLY ALCARTRA

We are offering for sale a son of Prince Alcartra Korndyke from one of the best daughters of Prince Gelsche Walker.

This bull is a good individual, straight and well marked. He is backed on both sides by good yearly records, his dam having 542 pounds butter as a two year old and her dam 536 pounds as a two year old.

For price and further particulars write

The J. S. Gibson Co., Williams, Cal.

Adding Pounds of Beef via Good Bulls

By R. P. Royce

SOME time ago, Professor Gordon H. True of the University of California furnished the writer with some figures showing the results of a plan of cattle management that has been developed on the great Parker ranch on one of the Hawaiian Islands.

The figures are complete in that they cover a period of nine years and represent the total annual sales of beef from that outfit since 1910. Taken as a whole, it is doubtful if a more valuable or convincing demonstration of the possibility of increasing the efficiency of live stock—any kind of live stock—has been made available.

As stated above, the figures are from the books of a beef outfit—but in a more indirect way can be applied to all live stock—either dairy cattle, hogs, sheep or horses.

The Parker ranch consists of several thousand acres. For a good many years it has been operated as a cattle plant. Prior to about 1910 no especial effort had been made to follow out any of the modern methods of cattle or range management. Native cattle were handled almost exclusively and the idea seemed to be to run as many head per acre as the grass would stand—and usually the place was made to carry more than it could rightfully be expected to maintain. Little progress was made. Each year the same number of cattle were marketed at about the same weight. Gradually, it was noted that the range appeared to be deteriorating—that it was losing its carrying capacity per acre, and that the net tonnage of beef per acre was showing a decrease.

About this time, according to our understanding, the ranch came under new management—an attorney for the Parker interests was placed in charge. The new manager was not a cattleman—at the time—but his successful handling of the proposition entitles him to a high place now. He was, however, a keen business man. He knew there was a difference in cattle—that some were good—but most were of poor quality. He learned that the better cattle were better because they were better brd. And it occurred to him that there was really no good reason why the Parker cattle could not be brought up to a much higher standard. If good bulls could improve the quality in other herds, as much could be expected in their own. If, through a systematic use of such bulls, steers could be produced that would be heavier at the same age than the ones they were turning off, obviously the profits could be increased. Again, steers sired by well-bred bulls would show more quality, would dress higher and hang up a better carcass, all of which would enable the killer to pay more per pound than he could for the more common stuff. Here was a chance to add more profits—and profits were what was wanted. Being firmly convinced of the soundness of the plan, the new manager set about replacing the scrub bulls with pure-breds. He proceeded on the theory that, if a fairly well-bred registered bull was better than a scrub, then it followed that a better-bred bull would prove even more valuable—and that was the kind of bulls he purchased. Bulls of the very highest type were secured from leading breeders on the mainland. A high-class herd of females was installed for the purpose of raising the bulls that would be needed each year.

The new manager next turned his attention to the range. After a careful investigation he concluded that a much better plan of range management could be worked out than the one under which they were operating. Recognizing the fact that in order to make the most out of the cattle they should be provided with an abundant and well distributed supply of feed, and not being in a position to increase the acreage, the manager developed a system of "under-stocking." In brief, his plan was this: Rather than attempt to make every acre carry the maximum of beef, the herd was reduced, by culling out, until a point was reached where every head would have ample feed to carry it through the year in good strong condition. Under such a plan the cow herd was maintained in thrifty breeding condition, thus assuring a better calf crop, and the young stuff had sufficient feed to keep it growing steadily, thereby enabling the marketing at a younger age. By reducing the age at which the steers were marketed (through the use of better bulls, and ample feed) more breeding cows could be run than had been possible under the old plan. Along with under-stocking, water was developed, and a general practice of range control inaugurated.

As remarked before, the present plan was put in operation about 1910. That year and the year following considerable culling of the cow herd was done, and 3329 head were marketed in 1910 and 3637 head were sold in 1911. Since 1911 few, if any, cows have been sold, practically the entire sales represent steers. All of the stuff marketed has been sold to the Hawaiian Meat Company, a co-operative concern, and the dressed weight for each year's sales are available. In 1910 the average dressed weight of the 3329 head, cows and steers, was 449 pounds. The next year the dressed weight was 472 pounds, due quite largely to the fact that more age was represented in the 3637 head.

Now comes the interesting part of the story. In 1912, 2186 steers dressed an average weight of 523 pounds. In 1913, a drouth year, 2049 head killed out at 530 pounds. In 1914, 2578 steers averaged 563 pounds. The next year 2472 steers registered a killing weight of 579 pounds. In 1916, 1451 head averaged 612 pounds—an increase of 33 pounds per head. In 1917, 2015, with only about 100 head older than two years, dressed 643 pounds. During the year just closed, 2249 head (ages not given—but few older than twos) killed out at 653 pounds.

The above figures should be given the careful consideration of every range outfit in this state. In nine years this outfit raised the dressed weight of their stuff 204 pounds, and at the same time reduced the age, by nearly a year, at which time their steers were marketed. Most of the 204 pounds can be credited to the use of good bulls, some must be credited to better range management.

There is no accurate way of knowing the exact number of steers marketed in this state each year, but we have heard that the number will run between 250,000 and 350,000 head. Assuming that 300,000 head is approximately correct, and assuming that the cattlemen of this state would put into operation such a plan of cattle management as has been briefly outline, the added pounds that good bulls

would send over the scales would reach a tremendous total.

Generally speaking, the average cattleman is coming to a higher appreciation of better methods. That this is true is reflected in the rise of purebred cattle values during the past few years. There is vast room for improvement, though, and it would seem that in the face of such demonstrations, and the one just cited is but one of hundreds, that no argument should be needed. These practical demonstrations are proof positive of what can be expected and what has been accomplished on the ranch in the Pacific islands can be accomplished with as much, if not greater, ease in California. It is no longer a question as to whether one can afford to use good bulls on the range, but rather is it a question as to whether one cannot.

There are a great many cattle outfits operating in this state that are failing to register any material profit at the end of the year. Nine out of ten can be placed on a profitable basis by adopting more modern methods of operating. Production costs have mounted to new levels. Old methods will no longer suffice. The time will soon come, if indeed it is not already here, when the range man who persistently refuses to accept the better methods that have been proved sound, will go the way of the old longhorns and the Mexicans.

AN INDEX TO HOLSTEIN PROGRESS

Some of the facts shown in a survey of the registered Holsteins to be sold in the great Guaranty Sale at Sacramento, on March 27, tell a story of Holstein progress in the West possibly better than it has ever been told before. For instance, it was only a few years ago that a 40 pound cow was only a hazy dream on the Pacific Coast, and 30 pound cows were very few and far between. A 30 pound cow is worth more money today than she ever has been before, and through improved breeding and feeding practice Pacific Coast breeders have developed a substantial number of cows with records from 30 to 41 pounds butter in seven days.

But it is remarkable proof of the efforts Pacific Coast breeders are making to sell only top individuals in their classic sale, that in this sale more than 60 per cent of the 65 head to be sold are by bulls whose dams have official records from 30 to 37 pounds butter in seven days, and almost 50 per cent of the 65 head are themselves out of dams with official records from 30 to over 41 pounds butter in seven days.

Again, for the first time in the history of the Pacific Coast sales every bull to be sold is out of a 30 pound dam or better and by a 30 pound sire or better. There are six splendid young bulls in the sale and their dams have over 30, 30, 31, 33, 34 and 41 pounds butter in seven days respectively.

Truly the breeders who are founding herds today have opportunities for the purchase of high record cattle of breeding and individuality that were not available to our present breeders when they founded their herds, and the many advantages thus resulting are hardly measurable in dollars and cents.

Secretary T. W. Tomlinson of the American National Livestock Association, of Denver, says that the executive committee of the association will carefully consider Phoenix as the meeting place for the association in the early part of 1920.

The Highway to Success in Holstein Breeding

Leads to

State Fair Grounds

Sacramento, California

Thursday, March 27, 1919

THE GUARANTY SALE

Here you will have an opportunity to buy from among 65 head of picked tops from 14 leading Pacific Coast herds of registered Holsteins.

Never before in the history of Pacific Coast Holstein breeding has it been possible to assemble such an outstanding group of cattle for public sale to the highest bidder, and the breeder who is fortunate enough to secure one or more of these great animals, no matter how high class his herd at present, will have given added strength to his herd to meet the ever increasing demand for QUALITY.

EIGHT COWS WITH RECORDS FROM 30 TO 37 POUNDS. THIRTY SONS AND DAUGHTERS OF 30 TO 41 POUND COWS, almost 50 per cent of the total number in the sale.

FORTY DAUGHTERS AND SONS OF 30 TO 40 POUND SIRES, more than 60 per cent of the total number in the sale.

THE HIGHEST RECORD BULL EVER SOLD ON THE PACIFIC COAST; his dam has 41.01 lbs. butter from 831.7 lbs. milk in 7 days, and still on test; has over 158 lbs. butter from over 3500 lbs. milk in 30 days.

SIR AAGGIE WALKER, son of the 34 lb. junior 4 year old Lady Hiske Walker and sired by Sir Aaggie De Kol Acme, whose 35 lb. dam holds the world's yearly official butter record.

THE HIGHEST RECORD COW EVER SOLD IN A PACIFIC COAST SALE, Boweda, 37.62 lbs. butter in 7 days, and she is due to calve soon to the twice grand champion bull, King Segis Alcartra Prilly.

RICHLY BRED COWS AND HEIFERS BRED TO JUDGE SEGIS, whose first daughter to be tested at mature age made over 37 lbs. butter in 7 days.

COWS AND HEIFERS BRED TO THE $106,000.00 BULL, CARNATION KING SYLVIA, beautiful individuals of exceptional breeding.

COWS AND HEIFERS BRED TO MATADOR SEGIS WALKER, who now has a 40 lb. 3 year old daughter, and another 3 year old above 29 lbs.

DAUGHTERS OF PRINCE GELSCHE WALKER out of 31 and 32 lb. dams and bred to Sir Aaggie Mead De Kol, whose dam is a 34 lb. 3 year old, and he was the first bull whose 7 nearest dams averaged over 1000 lbs. butter in one year.

SOME BEAUTIFUL YOUNG DAUGHTERS OF "IT" out of 29, 32, 34 and 35 lb. dams of first rank breeding.

THE MOST REMARKABLE FAMILY EVER SOLD ON THE PACIFIC COAST, a 30 lb. granddaughter of Colantha Johanna Lad, her daughter and granddaughter. This great cow is only 7 years old and made 971 lbs. butter last year. She is on semi-official test again this year and promises to go well over 1000 lbs. butter. She has a 30 lb. junior 4 year old daughter that was first prize 3 year old at 1918 National Dairy Show, and her daughter in this sale is a full sister to the 30 lb. 4 year old. The granddaughter is out of the 30 lb. 4 year old, and is a show heifer herself. The 30 lb. cow in this family is well along with calf to Judge Segis, and the two heifers are both due in April to a son of a 31 lb. 2 year old.

You can't make a mistake buying a bull in this sale. There are six in the sale, every one out of a 30 to 41 pound dam, every one by a 30 to 37 pound sire.

For a partial list of the other individual stars in this sale read the column at the right.

No breeder who wants to improve his herd, no intending breeder who wants to lay his foundation with the best blood that money can buy, can afford to miss attending this sale. Only a small portion of the story of the excellence of these cattle has been told in this space.

Every animal is positively guaranteed to be a breeder; every animal is tuberculin tested and sold with a 60 day guarantee against tuberculosis.

Contributors to Sale:

HOLLYWOOD FARM, Hollywood, Wash.
ALBERT E. SMITH, Sumas, Wash.
BRIDGFORD CO., Knightsen, Cal.
TOYON FARM, Los Altos, Cal.
A. J. STALDER, Riverside, Cal.
W. J. HIGDON, Tulare, Cal.
R. F. GUERIN, Visalia, Cal.
CARNATION STOCK FARM, Seattle, Wash.
A. W. MORRIS & SONS, Woodland, Cal.
McALISTER & SON, Chino, Cal.
FRED W. KIESEL, Sacramento, Cal.
GOTSHALL & MAGRUDER, Ripon, Cal.
ALEX WHALEY, Tulare, Cal.
W. F. MITCHELL, Visalia, Cal.

Catalog of Sale Free on Request

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.
Auctioneers: Col. Ben. A. Rhoades, Los Angeles; Col. H. C. Cranke, Nez Perce, Idaho.

How Would One of These Look in Your Herd?

A DAUGHTER OF HOLLYWOOD LILITH PALMYRA out of a 35 lb. granddaughter of Pontiac Korndyke, due April 15 to Judge Segis.

A BEAUTIFUL 27 POUND 3 YEAR OLD daughter of Ollie Johanna Sir Fayne out of a 27 lb. granddaughter of Hengerveld De Kol and bred to the $106,000.00 bull, Carnation King Sylvia.

A DAUGHTER OF THE 25 POUND 2 YEAR OLD ELDORADO WINIFRED, who is a daughter of the 32 lb. cow Winifred Hotaling 3d.

A DAUGHTER OF THE 30 POUND COW MELBA HENGERVELD, bred to the 35 lb. bull King Sadie Vale Idyl Segis.

AN 18 POUND 2 YEAR OLD daughter of the $50,000 bull King Segis Pontiac Alcartra.

A GRANDDAUGHTER OF JESSIE FOBES BESSIE HOMESTEAD out of a 28 lb. granddaughter of King of the Pontiacs, bred to the $6500 bull King Korndyke Pontiac 20th.

A DAUGHTER OF ADMIRAL WALKER PRILLY, out of a great daughter of King Korndyke Pontiac, bred to the $4,000 bull Prince Gelsche Walker Korndyke.

A DAUGHTER OF KING MORCO ALCARTRA, son of Tilly Alcartra, bred to Sir Aaggie De Kol Acme, son of the world's official yearly butter record cow Aaggie Acme of Riverside 2d.

A 30 POUND DAUGHTER of King Pontiac Netherland Segis out of a daughter of Sir Skylark Ormsby Hengerveld.

A 30 POUND GREATGRANDDAUGHTER OF KING SEGIS, and her two daughters. All three of them are bred to King Pontiac Netherland Segis 3d, whose dam has twice made over 34 lbs. butter in 7 days.

A DAUGHTER OF A 31 POUND COW, sired by the 36 lb. bull Kingmaster and bred to the 35 lb. son of King Valdessa. She made over 18 lbs. butter in 7 days last year as a 2 year old and will be fresh before sale.

A DAUGHTER OF A 31 POUND COW, due April 22 to Prince Riverside Walker.

A GREAT 26 POUND COW bred to Prince Hiske Walker, full brother to the 34 lb. junior 4 year old Lady Hiske Walker.

A BEAUTIFUL 30 POUND 4 YEAR OLD daughter of King Hengerveld, still on test.

A GRANDDAUGHTER OF RAG APPLE KORNDYKE 8TH that made 23.55 lbs. butter from 636.2 lbs. milk in 7 days as a senior 2 year old, milking as high as 95 lbs. in one day. She will be fresh before sale.

A 32 POUND GRANDDAUGHTER OF KING OF THE PONTIACS THAT MILKED 701 lbs. in 7 days.

A 31 POUND GRANDDAUGHTER OF DE KOL 2ND'S BUTTER BOY 3D that milked 615 lbs. in 7 days. Well along with calf to King Segis Alcartra Prilly.

THE GRAND CHAMPION COW at 1918 California State Fair. She has a junior 2 year old daughter now on test with 24.85 lbs. butter to her credit in 7 days.

A TWICE 30 POUND COW, granddaughter of Pontiac Hengerveld Parthenea, will be fresh before sale.

A DAUGHTER OF FORWARD PRINCE SEGIS out of a 31 lb. daughter of Sir Skylark Ormsby Hengerveld that made over 1100 lbs. butter in one year, bred to Judge Segis.

A 28 POUND GRANDDAUGHTER OF COLANTHA JOHANNA LAD due to calve the day after the sale to Chimacum Spring Farm King Pontiac.

A DAUGHTER OF JOHANNA McKINLEY SEGIS bred to the $106,000.00 bull Carnation King Sylvia.

FOUR DAUGHTERS OF SIR BESSIE HOMESTEAD SUNNYSIDE, three of them out of 29, 31 and 32 lb. dams.

A DAUGHTER OF A 32 POUND JUNIOR 4 YEAR OLD daughter of a 32 lb. cow that made over 26,000 lbs. milk and 1077 lbs. butter in one year.

A GREAT COW that has 22,070 lbs. milk and 826 lbs. butter to her credit in 305 days, milking as a senior 4 year old, and still going strong on semi-official test.

A GREAT 27 POUND COW now milking around 95 lbs. per day on semi-official test, bred to the $106000.00 bull Carnation King Sylvia.

A 22.71 POUND 2 YEAR OLD daughter of Hollywood Lilith Palmyra, out of a good record granddaughter of Pontiac Korndyke.

Milky-Way Farm

Contributes to

THE GUARANTY SALE

Sacramento, March 27

A 30 Pound Granddaughter of Colantha Johanna Lad

that milked over 700 lbs. in 7 days. Last year she made 21,222.3 lbs. milk and 971.56 lbs. butter in 365 days. She is on semi-official test again this year and promises to go well over 1000 lbs. butter. She has a 30 lb. junior 4 year old daughter that was first prize 3 year old at 1918 National Dairy Show. She is bred to Judge Segis.

A Daughter of the Above Cow

sired by one of the best sons of Sir Rag Apple Korndyke. She is a full sister to the 30 lb. junior 4 year old mentioned above, and is due in April to a son of a 31 lb. 2 year old.

A Daughter of the 30 Pound Junior 4 Year Old

mentioned above, a show heifer, due in April to a son of a 31 lb. 2 year old. She is sired by Chimacum Spring Farm King Pontiac, son of Spring Farm King Pontiac.

A 28 Pound Granddaughter of Colantha Johanna Lad

by the same sire as the 30 lb. cow above, that made 17,887 lbs. milk and 761 lbs. butter in 305 days last year. A big cow of excellent type, weighing close to a ton, and due to calve the day after the sale to Chimacum Spring Farm King Pontiac.

A Great Young Cow

that made 21,366.9 lbs. milk and 805.46 lbs. butter in one year as a senior 3 year old. She made 24.89 lbs. butter from 614 lbs. milk in 7 days as a senior 4 and continued on yearly test now has 22.070 lbs. milk and 826 lbs. butter to her credit in 305 days.

A Show Cow

that made 23 lbs. butter in 7 days as a senior 4 year old. She is by Sir Korndyke Manor De Kol Jr. 2nd and out of a 26 lb. junior 4 year old dam.

A Great 27 Pound Cow

now milking around 95 lbs. per day on semi-official test, bred to the $106,000.00 bull Carnation King Sylvia.

We invite you to look over our consignment on the sale grounds before the sale. We believe the size, type, and breeding of our cattle will please the buyer of top Holsteins.

Our Herd is Under Federal Test

ALBERT E. SMITH

SUMAS, WASHINGTON

Dispersal Sale

45 Registered Holstein Cows, Heifers and Bulls
45 High Grade Holstein Cows and Heifers

Wednesday, April 2, 1919
E. R. Putz Ranch, Near Laton, California

Mr. Putz is retiring from the breeding and dairy business and has instructed us to conduct a complete dispersal sale of his well known herd of profitable producers.

While no official testing has been done in the herd, the blood lines are substantial, representing some of the most popular lines of the breed, and the cattle are practically all young, clean, and good producers. This herd contains

24 Greatgranddaughters of Pontiac Korndyke
3 Daughters of Arcady Pontiac Wayne Hengerveld
3 Daughters of Prince Beauty Pieterje Segis

Besides the desirable young cows and bred heifers in the herd, there is a very desirable lot of unbred heifers and heifer calves that will grow into money fast for someone. Dairymen will also find some choice young bulls in this sale, although there are only a few bulls from this herd have been in strong demand and few have stayed in the herd long enough to reach service age.

The Grade Cows and Heifers

are a well marked lot, young, clean, good producers, and all that are bred are in calf to a grandson of Pontiac Korndyke, the present herd sire. Here is an opportunity to buy some grade Holsteins of high quality.

Prince Lunde Korndyke 2nd

the herd sire will be sold. He is a grandson of Pontiac Korndyke and is a fine individual. See this bull and then look over his calves in the herd and you will find that he is getting some exceptionally promising heifers.

Every animal in the sale over six months of age, both purebreds and grades, is tuberculin tested and sold subject to retest by the buyer.

THE FARM is nine miles north of Hanford on paved County Highway; three and one-half miles east of Laton; ten miles west of Kingsburg.

Write for Catalog to

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, California.
Auctioneer: Col. Ben A. Rhoades, Los Angeles.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Live Stock News Notes

Humphrey Adds New Guernsey Bull

A. B. Humphrey, proprietor of the Grape Wild herds of Guernseys and Berkshires, Escalon, has recently secured a new herd bull from Fruit Bros., Waukesha, Wisconsin.

The new bull was sired by Rex of Richneck, and is out of Laura's May of Maple Hill, a cow with a record of 624 lbs. fat as a three year old.

New Poland China Futurity

According to Charles Paine, secretary of the California State Fair, the American Poland China Record Association has announced that in addition to the regular futurity show sponsored by that association, plans have been worked out for a junior yearling futurity for the 1919 fairs.

The new classes are for animals farrowed between March 1 and September 1, 1918, and any animal farrowed in a herd nominated last year will be eligible to compete as a junior yearling, provided the owner makes the specified payments.

The prize list provides for six places and the first prize is $60.

All that is required of a fair desiring the new futurity is that the management contribute 25 per cent of the prize money.

Mr. Paine states that the board of directors for the California State Fair have not decided in regard to the plan. It is to be hoped that provision will be made.

Futurity shows have accomplished much for the various breeds of live stock. They offer encouragement to young breeders and tend to stimulate better management practices. Heretofore, the swine futurities have been for pigs. This new plan aims to encourage breeders who have developed pigs, to carry them on for another year.

Wyoming Herefords at Denver

At the recent Denver live stock show the Hereford Corporation of Wyoming, Cheyenne, exhibited the reserve champion load of calves and the second prize load of yearling heifers. The calves were sold to a Canadian outfit and the yearlings were purchased by Cyrus Tow, a well known Hereford breeder of Iowa. It will be recalled that the Hereford Corporation exhibited cattle at the Liberty Fair, Los Angeles, and that their showing made a fine impression upon California cattlemen.

In many respects this herd stands as one of the remarkable collections of Herefords in this country. Established in 1883 with the largest single importation of Herefords ever brought to this country, it has been developed and expanded without the purchase of additional females—new blood being added through the use of superior bulls.

William Cox, who was in charge of the cattle shown on the Coast, states that the herd is coming through the winter in fine condition and that it is expected that the 1919 calf crop will be quite the best yet dropped on the ranch. Demand for bulls has been unusually good—reflecting the general demand for Herefords that has placed this breed on extremely high level and made possible the registering of the world's record sale.

Hereford Calves Average $920

In the recent sale held in Chicago by Col. E. H. Taylor, proprietor of the famous Hereford Farms, Versailles, Kentucky, 42 head of calves sold for an average of $920. One bull calf, Woodford 41st, commanded a bid of $5500, and the yearling heifer Belle Woodford 32d brought $2000.

Murphy Sells Boar to Nevada

G. A. Murphy of Perkins has sold the young Berkshire boar, Duke's Laurel Combination, to J. R. Densmore of Las Vegas, Nevada. The boar, farrowed last August, was sired by Wilsonia King Laurel, a son of Laurel Champion, and is out of Duke's Combination Lady, by Duke's Combination 13th. Duke's Combination Lady was sold, in the recent Western Berkshire sale at Davis, to W. F. Sandercock, Sacramento, for $155.

Beckman Adds Eastern Polands
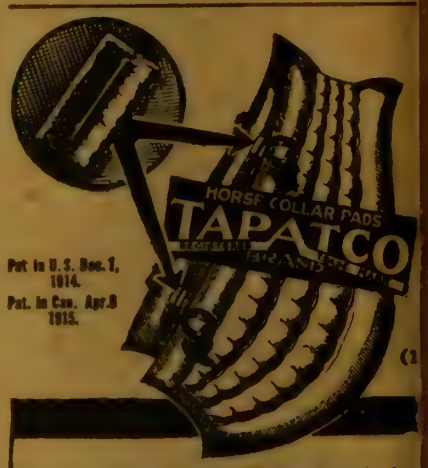
Geo. V. Beckman & Sons, Poland China breeders of Lodi, have recently received a young boar and bred gilt from the Meharry herd in Illinois. The boar, Lakeside Defender, was sired by Chief Defender's Choice, the boar that as a pig was purchased by R. A. Welch of Red Oak, Okla., for $2250. The latter boar is a litter mate to Big Improver, grand champion at the 1918 Iowa state fair.

The dam of Lakeside Defender is Hadley's Best 2d.

It will be recalled that the senior herd boar in the Beckman herd is Matchless Big Bob of U. F., a boar that was sired by Big Bob Orange 3rd, formerly at the head of the University herd. The junior boar is very much after the same type. He gives promise of developing plenty of size and will undoubtedly mature into an exceptionally well balanced boar with splendid quality.

The gilt referred to above is a litter mate to the boar and is is carrying a litter to the service of Big Square Jumbo, an Eastern boar of prominence.

The Beckman family has been hand-



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The horse is a vital factor in such accomplishment. His efficiency is measured by the degree of fitness for constant use.

Stuffed Collar Pads

Are the only guarantee against bruised, galled and chafed shoulders. They are better than other kinds, being soft, springy and absorbent. They make possible the continued use of a horse collar long after its worn condition would otherwise compel its discontinuance.

New Patented Hook Attachment

(Found only on pads made by us)

Consists of wire staple with felt washer. It gives hook a firmer hold and prevents pulling off, even though fabric is weakened by long usage. The greatest improvement since we invented the hook. Ask your dealer for Tapatco Booklet.

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Greenfield, Ohio
Canadian Branch: Chatham, Ontario

California Breeders

have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

CALIFORNIA BREEDERS SALES & PEDIGREE CO.,

C. L. HUGHES, Sales Mgr. Sacramento, Cal.



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We supply any height wheel to fit any kind of an axle. Guaranteed to fit or money back. Put a set on that old gear. Write today for list and measurement blank.

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Pioneer Roofing is equally good for old buildings or new. It is that reliable brand of READY Roofing that has been used in California since 1888. There is a dealer near you who handles the Pioneer Roofing and can supply your orders. Write for samples.

Pioneer Roofing

In addition to the manufacture of Pioneer Ready Roofing, insulating and building paper, we also are printers of orange and lemon wrappers, roll wrapping paper, paper bags, bread wrappers, etc.

We carry a complete stock of waxed and tissue paper, twine, etc.

Pioneer Paper Co.

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LOS ANGELES

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families.

Registered Berkshire Pigs

Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.

Careful attention given to mail orders

Whittier State School

Whittier, California

Segis Pontiac De Kol Dutch

Whose three nearest dams are 1000 pound cows that average over 30 pounds in 7 days heads my herd Bull calves for sale E. E Freeman, Rt .B, Modesto

HOLMES STOCK FARM

Registered Holsteins of best breeding. Young bulls for sale.

R. L. Holmes Modesto, Cal.

The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

ling Poland China hogs for over 20 years.

Belknap Increases Sale Offering

In a recent letter from D. L. J. Belknap, San Jose, who will disperse his entire herd of Durocs March 18, he says:

"I have just added two yearling bred gilts, of very high class, to my herd and they will be sold in my sale. Both are by Crimson Monarch 2d, grand champion at the 1917 California state fair, and are out of the good sow Monarch's Beauty that sold in the Rucker sale for $500.

"My hogs are doing nicely and I am anticipating a successful sale."

Ireland Ranch Gets Hogs from Ohio

The Ireland ranch, at Owensmouth, California, has just received by express a consignment of hogs, purchased in the sales rings of Ohio. A spring boar, tracing back to Joe Orion II, and that wonderful sow, Willetta J, on his sire's side, with Orion Cherry King and High Lady on the dam's side. They plan to cross with their gilts sired by Cherry Volunteer II, the grand champion of the Riverside Fair in 1918 . Two sows, daughters of Pals Perfection, with intensive King of Col's breeding are bred to Joe Orion Cherry King IV, for March litters, and these litters may be a factor in the futurity herds of next September.

BERKSHIRE CONGRESS PLANS CAMPAIGN

By Frank B. Anderson, Secretary, Western Berkshire Congress

An enlargement of the field for promoting the interests of Berkshire hogs on the Pacific Coast and contiguous states will be undertaken by the new administration of the Western Berkshire Congress, consisting of A. B. Humphrey, president; James Mills, vice president; Frank B. Anderson, secretary, and George Murphy, Mrs. A. C. Hardy, J. Francis O'Connor, H. C. Muddox, W. F. Sandercock and Homer Hewins, Jr., directors. Many special attractions in the way of sales and shows are planned for this year.

The congress directors will ask that the state fair create a class for barrows under six months, open to all breeds, grades and crosses, using March 1 as the base date.

Mixed sales of Berkshires will be held in various counties, beginning with a sale at Martinez about the middle of April, at which consignments are open for bred sows, gilts, young boars and weanling pigs of both sexes. Each sale will carry a guarantee. J. Francis O'Connor, the director in charge of the initial sale, has a number of entries already from various breeders who are going to offer their hogs for sale at the farmers' own door steps and at their own prices.

To popularize the Berkshire among the young folks—and that takes it to many farms where perhaps no hogs or only scrubs are now raised—the Western Berkshire Congress has placed a special price of $15 a head on weanling sow pigs for boys' pig clubs.

J. Francis O'Connor has offered a boar or sow pig out of Riverby Princess, the P. P. I. E. grand champion, or Rookwood Lady 100th, the 1917 National Swine Show champion, to the member securing the most new members from January 1 of this year to July 1. H. C. Muddox has put up a cup to the breeder who starts the most new Berkshire breeders in the business during the year of 1919.

Efforts are being made to have the American Berkshire Congress meet with the Western Berkshire Congress at Davis next February, which would be one of the biggest attractions yet held in Berkshiredom.

PAINT PAYS

The wise and frugal farmer plies the paint brush during the spare time as he understands the dual value of paint in protecting against decay and weathering and in improving the sightliness of the farm buildings. If the farmer feels that he can not afford to use paint on his buildings, he at least can utilize cold water paint or whitewash. The disadvantage of these materials is that their use requires more labor, for they must be applied every year, and if the owner wishes to use oil paints later on he will have to scrape away all the whitewash first.

CUNNINGHAM STRENGTHENS HIS BILLIKEN HERD

C. B. Cunningham, Mills, owner of the Billiken herd of Chester Whites, has just received a very high bred gilt from the McAnaw herd, Cameron, Missouri.

The gilt, Emily Wing 2d, was shown as a senior pig last fall and was first in class and junior champion at the Missouri State Fair. She also won the silver cup offered for the best Chester White gilt. Later, in a very strong show at Nebraska she stood second in class, and was seventh in a class of 24 at the National Swine Show at Cedar Rapids, Iowa. She was also a member of the young herd that was first at Missouri, Illinois, and the two Kansas state fairs, second at Nebraska and eighth at the National.

The gilt was sired by Joe Wing, whose get won 154 prizes at five state fairs and the National. She is bred to the $2500 Model's Wonder, the sire of Alfalfa Wonder, junior champion at the 1918 Nebraska show.

Cunningham states that when she was unloaded she weighed 412 pounds and that she was considerably thinner than he keeps his sows.

Mr. Cunningham has also received a last spring gilt from the Vaughn herd at Marion, Iowa. She was sired by Wildwood Type, a boar by Highland Chief out of a sow by the $6000 Wildwood Prince. She is due to farrow this month to the service of Aristocrat, a son of Chickasaw Kossuth.

Both sows are strictly big type and when bred to the big type boars now in the Billiken herd should produce the type of hogs for which the herd is noted.

Mr. Cunningham is president of the California Swine Breeders' Association.

Ord. L. Leachman

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Sacramento

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My services are available to all who plan to sell live stock, farm equipment or real estate, and who want the high dollar. Pure bred live stock sales a specialty. Terms reasonable. Write or wire for dates.

Duroc Jersey Boars

3 by Great Wonder (the 955 lb. Iowa Grand Champion).

5 by Great Model (a son of Great Wonder and the sire of more prize winners at So. Cal. fairs than any other boar).

1 by P. & L. Defender (a son of Defender, the $5000 Grand Champion at the Chicago International).

These bears are 4 to 10 mo. old and are the tops out of 50 head of the sons of our 600 to 800 pound sows.

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WIND MILLS

Our steel mills are well made. Thoroughly guaranteed. Large bearings. Heavy gears. Write for complete information. Angle towers also furnished.

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Dependable Holsteins at Public Auction

60 Cows, Heifers and Bulls

on Packwood Farm

Owned by WALTER F. MITCHELL

Visalia, California

Thursday, April 3, 1919

Mr. Walter F. Mitchell, one of the longest established breeders of registered Holsteins in California, has instructed us to sell to the highest bidder every female in his herd that is of milking age. The sale will also include some choice bred and unbred heifers, and a few good bulls of service age or near service age.

Mr. Mitchell is not retiring from the breeding business in which he has been so successful. He is retaining for future breeding females all of the daughters of PRINCE HISKE WALKER, the splendid young sire now heading the herd, out of the good cows that will be sold in this sale.

The Sale Will Contain:

FOURTEEN COWS AND HEIFERS with official records up to over 31 pounds butter in seven days.

NINETEEN GRANDDAUGHTERS OF SEGIS PONTIAC DE KOL BURKE, one of whose daughters holds the California record for butter in one year in the senior two year old class with a production of 932.44 pounds in 365 days, and another holds the junior two year old state record with a production of 851.01 pounds butter in 365 days.

THIRTY-NINE COWS AND HEIFERS bred to Prince Hiske Walker, who is by Prince Gelsche Walker and out of Hiske of Riverside, making him a full brother to Lady Hiske Walker, 3425 pounds butter in seven days as a junior four year old, former state record in class.

THREE DAUGHTERS OF ARCADY PONTIAC WAYNE HENGERVELD, who has the largest list of A. R. O. daughters of any bull yet developed on the Pacific Coast.

A BEAUTIFUL DAUGHTER of Spring Farm King Pontiac 6th that will be fresh before sale.

A PAIR OF TWIN HEIFERS out of a great 26 pound dam.

PRINCE HISKE WALKER will be sold as Mr. Mitchell is keeping only his daughters. He is a high class herd sire for someone, and as his large number of daughters are mostly in the hands of Mr. Mitchell and Mr. H. E. Cornwell, Modesto, there is every assurance that they will be developed and given official records.

SOME GOOD YOUNG BULLS will be offered in this sale, out of choice dams and sired by Prince Hiske Walker, Segis Pontiac De Kol Crane, and Sir Veeman Korndyke Pontiac, 30 pound son of Sir Veeman Hengerveld.

Every animal positively guaranteed to be a breeder; every animal tuberculin tested and sold subject to retest.

Catalog free on request.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes Sales Manager, Sacramento, Cal.

Auctioneer: Col. Ben A. Rhoades, Los Angeles.

Imported and American Bred

Percheron, Belgian and Shire Stallions

A large collection of Stallions ready for service this season. Heavy boned types with plenty of style and action. Prize winners and descendants from prize winners. No better in America.

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Visitors Welcome Correspondence Invited

N. W. Thompson

Patterson, Cal.

DISPERSAL SALE OF DUROCS

Garden City Sanitarium, San Jose

TUESDAY, MARCH 18

30 - Sows, Gilts and Boars - 30

Best of breeding. Orion Cherry King and Col. strains, 700 pound senior yearling sows, in pig. One 900 pound two year old boar, Orion Model, Jr. Several boars ready for service—perfect in type. Gilts of the very best breeding, bred or open. All of the Mammoth type. The best ever offered at any sale in California. Sale will be held at 1 o'clock. Terms Cash, or its Equivalent.

L. J. BELKNAP, Garden City Sanitarium, San Jose, Cal.

Grand Champion Boar Grand Champion Sow

Sacramento State Fair



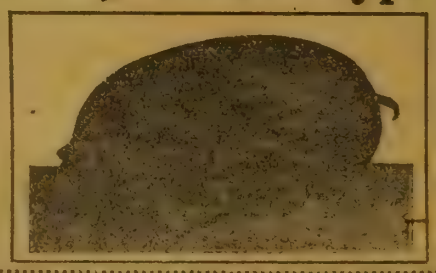
Berkshires

Forty-three of our litters this year averaged ten to the litter. We sell foundation sows and boars to head your herd from our easy keeping, heavy producing strains. Write to

JAMES MILLS ORCHARDS, Hamilton City, California

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



M. Bassett

Hanford, Kings County, Cal.

CALIFORNIA CHAMPION HAMPSHIRES

As good as the best and better than the rest. A boar or a sow pig sired by my great herd boar Director, and out of one of my choice sows will add prestige to your herd. I am booking orders now for the pigs of March and April farrow. Write now and place your order.

L. A. DENKER

Boquet Canyon Saugus, Cal.

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Remarkable Family in Guaranty Sale

What is generally admitted to be by far the most remarkable family group ever contributed to a western Holstein sale is found in the contribution to the Guaranty Sale, Sacramento, March 27, from the herd of Albert E. Smith, Sumas, Washington. The key animal of this group is the cow Ava Model Hengerveld 2d, now milking in her six year old form. She is by a good son of Colantha Johanna Lad and out of a granddaughter of Hengerveld De Kol, thus combining the blood of two of the very greatest sires of the breed. Milking as a five year old this great cow made 21,222.3 pounds milk and 971.56 pounds butter in 365 days, and at her last freshening as a six year old made 30.53 pounds butter in seven days from 708.7 pounds milk. She is again on semi-official test and now nine months in milk promises to go well up toward 1100 pounds butter this year.

She is the dam of Korndyke Model Hartog, who was first prize three year old at the National Dairy Show, Columbus, Ohio, last year, and who made an official record of 30.84 pounds butter from 569.7 pounds milk in seven days shortly after coming off the show circuit.

A full sister to this 30 pound junior four year old is one of the family group in this sale, and she is due to calve in April to a son of a 31 pound two year old.

A daughter of the 30 pound junior four year old is the third member of this remarkable group, and she also is due to calve in April to the same bull, son of a 31 pound two year old.

Ava Model Hengerveld 2d herself is well along with calf to the famous Judge Segis, the great Hollywood sire whose first daughter to be tested at mature age made over 37 pounds butter in seven days.

The fourth member of this group is De Kol Butter Boy Belle 2d, by the same sire as Ava Model Hengerveld 2d. As a five year old she made 28.08 pounds butter from 700.7 pounds milk in seven days, and 17,887 pounds milk and 761 pounds butter in 305 days. She is a splendid big cow, weighing close to a ton, and is due to calve the day after the sale to Chimacum Spring Farm King Pontiac, son of Spring Farm King Pontiac.

Sale of Arizona Holsteins

The Sanders-Bradshaw sale, held at Phoenix, Arizona, February 5 and 6, was a decided success.

As it was the first large affair of its kind held in the baby state the results were very encouraging to present and prospective breeders of pure-bred cattle generally, inasmuch as they demonstrate the fact that there has now been established there a market for this class of animal.

Below is given a list of all cattle, with purchasers, selling for over $200:

M. W. Turley, Tempe. DeKol Robina Roxanna, $1025; Korndyke Aaggie Queen 2d, $245; Lady Alice Aralia Lorenzo Snowball, $215; Lady Vernon Lorenzo Aaggie Maxima, $220; Lady Aaggie Lorenzo Snowball, $210.

B. Coman, Phoenix. Frontier Mona Korndyke, $2000.

Orange County, Santa Ana, California. Aaggie Lieuwkje Emporia, $600; Mercedes of Alhambra, $575; Margaret Jewel DeKol, $450; Aralia Mercedes King (male), $325.

University of Arizona, Tucson. Palo Verde Snowflake DeKol, $700.

B. Van Blaricom, El Monte, California. Brookline McKinley Aaggie, $600; Arizona Dichter Girl, $400; Wolverine Mary Walker, $375.

F. M. Wolf, Scottsdale. Arizona Dichter DeKol Van Beers (male), $800.

Frank E. Empey, Tempe. King Lilith Pontiac Segis 2d (male), $620; Jewel of Arizona, $400; Piebe Paul Aaggie Colantha, $200; Lady Robles Pietertje Aaggie, $200.

J. R. Norton, Phoenix. King Lilith Pontiac Segis 4th (male), $500.

J. S. Elliott, Phoenix. Arizona Korndyke Queen Spofford, $425; Celia Brookline Tucker, $430; Cornucopia Cedarcrest Korndyke, $400; Edith Luecke DeKol, $340; Pambytuning Butter Boy Ann, $215.

Latta and Redd, El Paso, Texas. Palo Verde Tryntje DeKol, $230; Copia Winsome Maid, $250.

L. R. Baldwin, Laveen. K. P. S. P. Beatrice, $300; Copia Pauline Korndyke, $280; Lady Sethje Mooie Pontiac, $275; Lieuwkje Duchess DeKol, $200.

Herbert St. Claire, Tempe. Agnes Spofford Lincoln Kate, $300; Jaunita Korndyke DeKol, $310.

L. V. Guthrie, Mesa. Aaggie Uneeda Bon Bon, $410; Lieuwjke Murphy Pietertje, $285; Palo Verde Lieuwjke Burke, $285; Snowball Alban DeKol Robles, $235; Piebe Lou, $220; Lady Johanna Aralia Lorenzo Aaggie, $205.

Willis Hall, Phoenix. Lilith Pontiac Dichter Girl, $340; Lady Lilith Korndyke Maid, $310.

J. H. Norton, Mesa. Palo Verde King Pearl Korndyke (male), $425; Canary Princess 2d, $265.

C. D. Wilson, Phoenix. King Segis Pontiac Pietje (male), $540; Belle Oak Segis, $340; Palo Verde Magnolia Pearl, $290; Gerben Phoebe DeKol, $265; Daisy Walker Dummerston, $260; Queen Athenia Lincoln 2d, $250; Segis Boon Caroline Korndyke, $230; Speckel Mercedes Pauline, $230; Lady Anita Aralia Pietertje Ysabel, $200.

C. T. Thompson, Phoenix. Robina Roxanna Beryl DeKol, $450; Edith Roderick, $215.

R. W. Westover, Tempe. Utilia Leucke DeKol, $300; Gerben DeKol Gem Roxanna, $370; Pauline Niko DeKol Phebe Roxanna, $360.

W. H. Brundage, Mesa. Queen of Fairlawn Roderick DeKol, $350; King Lilith Pontiac Segis 5th, $600; Lady Cora Pietertje Aaggie Ysabel, $300; Lady Riverside of Santa Ysabel, $260; Lady Juliana Kathleen Ysabel, $230.

Frank Wilson, Mesa. Starrie DeKol Korndyke, $375; Piebe Paul Aaggie Colantha 2d, $310.

Sherman D. Cooper, Buckeye. Palo Verde Partheea Belle, $300.

Rurrup & Bond, Mesa. Palo Verde Copia Mercedes, $275; Yeslet Pontiac Jannek, $230.

A. L. Stewart, Tempe. Lady Fannie Aralia of Santa Ysabel, $210.

H. L. Chandler, Arizona. Lady DeKol Artis Wayne Renas Aaggie, $250.

Ed Shaw, Phoenix. Lady Carlotta Robles Pietertje, $235.

W. W. Mitchell. Lady Elsie Aralia Lorenzo Robles, $205.

The Pan-Handle Southwestern Stock Association, among the members of which are stock owners in Arizona and New Mexico, met at El Paso March 4, 5 and 6.

McALISTER & SON MAKE SENSATIONAL CONSIGNMENT

McAlister & Son, Chino, have not only developed some of the top Holsteins on the Pacific Coast in their own herd, but they have also sold a large number of high class animals that have made wonderful production records in the hands of other breeders. They have always made it a practice to sell some of their very best in the high class sales, and their contribution to the Guaranty Sale, Sacramento, March 27, exceeds any of their previous efforts. The highest record cow in their consignment is a fine granddaughter of Pontiac Hengerveld Parthenea, and she has twice made over 30 pounds butter in seven days, her best record being over 31 pounds. Then there is a remarkable granddaughter of Rag Apple Korndyke 8th that milked as high as 95 pounds in one day on official test as a senior two year old.

But the real sensation of the contribution is found in the opportunity that McAlister & Son have provided for other breeders to secure some of the most highly bred daughters and sons of their famous sire "It" that they have in the herd. There are six daughters of "It" in the offering. It Tola, out of the 33.98 pounds K. P. Tola has an average of 30.17 pounds butter in seven days for her seven nearest dams; It Segis Clorinda, out of a 29.39 pounds three year old daughter of King Segis Pontiac, has an average of 29.88 pounds butter in seven days for her seven nearest dams; It May Korndyke, out of the famous 30 pound three year old May Korndyke, has an average of 30.58 pounds butter in seven days for her three nearest dams; It Idyl Segis, out of the 35.61 pound junior four year old K. P. Idyl Segis, has an average of 31.88 pounds butter in seven days for her three nearest dams; It Meta Kuperus, out of the 32.44 pound senior three year old Meta Ward Kuperus, has an average of 34.82 pounds butter in seven days for her dam and sire's dam; and It Changeling Wildwood, out of a 27.23 pound junior three year old daughter of Changeling Butter Boy, has an average of 30.78 pounds butter in seven days for five of her seven nearest dams.

Two splendid young sons of "It" in the offering should meet with keen appreciation on sale day. One of these is It Cornucopia Wayne, out of a 31.42 pound daughter of Sir Sadie Cornucopia, and having an average of 30.03 pounds butter in seven days for five of his seven nearest dams. The other son of "It" is out of the now noted Ontario Blonde Pietje, who made over 30 pounds butter in seven days last year as a junior four year old and came back this year with 33.07 pounds butter in seven days, 127.25 pounds in 30 days. Five of the seven nearest dams of this great youngster average 32.92 pounds butter in seven days.

NATIONAL MILK EXPOSITION

Announcement is made that New York again will be the scene of the National Milk and Dairy Farm Exposition. It will be held in the 71st Regiment Armory during the week of April 21st, and judging from present indications, it will be far the best exhibition of its kind ever held. Those in charge of the exposition are planning to make it worthy of the support and patronage of every one interested in the milk, dairy farm and allied industries. Nearly $100,000 is being put into this exposition to convince the milk consuming public of the food value of milk; also that milk costs are reasonable and that a big milk industry is involved. The exhibition will be a big "store window" in which everything pertaining to the management of the dairy industry will be exhibited for the benefit not only of those interested in the industry but to the layman as well.

The Armory will be filled to overflowing with exhibits of all forms of milk foods, milk products, processes of milking, handling, machinery and equipment, and all manner of things relating to the dairy farm and its allied interests.

GREAT HEREFORDS TO CALIFORNIA

C. R. Thomas, superintendent of live stock at the Liberty Fair, and formerly secretary of the American Hereford Breeders' Association, has just returned from Kansas and Missouri Hereford centers with a full car of the finest Hereford bulls to be had in this country. These were purchased for the Diamond Bar ranch in eastern Los Angeles County, owned by F. E. Lewis II. These great bulls are to supplement purchases made during the past few months by Mr. Lewis. He began at the Liberty Fair, cleaning up practically all ribbon-winning, pure-bred Hereford cattle at that fair. He now has on the Diamond Bar ranch some 640 pure-bred cows, and it is anticipated that he will commission Mr. Thomas to keep in touch with Hereford activities and secure for the Diamond Bar the very best. This will be by far the largest gathering of Herefords south of Tehachapi.

PURE BRED SALE IN ARIZONA

By M. E. Bemis

The pure bred livestock industry received an impetus at the auction sale of pure bred Holstein-Friesians held on the state fair grounds early in February. This was the first big sale of pure bred cattle held in the state and was advertised nationally. Many breeders came from distant states and a considerable number were sold to go outside the state.

The highest prices were for two cows, one selling for $1025 to Mr. Turley of Tempe and one for $ 000 to B. Coman of Phoenix. The Orange County Home of California purchased a number of very fine animals, one was a two year old daughter of King Segis Pontiac Climax which sold for $600. Several cows at around $500 each were included in the list.

Mr. Van Blericon of El Monte, California, also purchased a number of good cows. One carload was purchased by Latta and Redd of El Paso, Texas. The sale netted a little over $40,000.

The number of dairy cows in Arizona, according to the estimate of the United States department of agriculture, is 72,000, a slight decrease in the number one year ago. The number of range cattle is 1,100,000, the same as given for last year. Sheep decreased from 1,500,000 to 1,400,000. There was also a slight decrease in swine, the number now being given as 58,000.



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THE SALE AT BUTTE CITY RANCH

By Bruce S. Bennett

The initial sale of Butte City Ranch was held in Butte City Saturday, March 1, and it was stated that this was the first sale of the kind ever held in this section.

Butte City Ranch was established a few years ago by W. P. Dwyer and W. S. Guilford and had as its aim the providing of seed animals especially in their community.

In conversation with Manager Guilford after the sale he stated that the sale was in every way highly satisfactory, and while the animals did not always bring their full value or as much as they could have been sold for at private sale, they had accomplished their purpose of planting a seed here and there on the farms in their community.

The sale was not advertised as a breeder's sale but as a farm sale, and every effort was made to get the farmer there, with the result that about 500 of them responded.

The morning was spent inspecting the sale animals, during which time music was dispensed by the band from Willows.

After a very appetizing lunch interesting talks were made by Judge Shields of Sacramento; E. H. Grubb, an agricultural authority of International reputation; Professors True and Thompson of the University of California; A. B. Humphrey, a noted breeder of Berkshires and Guernseys, and president of the Western Berkshire Congress, and J. Francis O'Connor, a director of the same organization.

The first offering in the sale comprised 30 Berkshires ranging in age from four to six months, part of which were sired by a son of the much talked of English boar Epochal, the prices ranging from $50 to $90.

Next came the Shorthorns, the offering consisting of 12 young bulls and eight heifers.

The prices secured, while in one way very satisfactory were not such as would have been secured at a breeder's sale. The young bull Royal Rancher 9th, by Prince Imperial and out of Lady Gem, topped the sale at $235, followed closely by the young heifer Princess Adeline, by Prince Imperial and out of Hickory Bub 5th, at $225. The prices for the entire lot ranged from $140 to $235, averaging around $175.

The children now had their inning, as the next in line was the ponies. One little miss stood by the ring and bid until she secured the pony she wanted.

Last, but not least by any means, came the sheep, and it looked as if all the remaining buyers were there for the sole purpose of securing one or more head. The bidding was quick and lively and 20 head were sold in about as many minutes, netting their owners about $65 a head.

Both the owners and the purchasers seemed pleased with their day's work and it is to be hoped that like sales will be held in other communities during the year.

It is the purpose of Butte City Ranch to make these sales an annual fixture and their aim to make their county and community the center of the pure bred live stock industry of the state.

ZEBRA-MULES

The hybrids obtained in the United States are very vigorous, and resist the cold of temperate regions as well as does the ass. They show a decided improvement over the parents as regards their form, movements, and way of standing.

The cross, she ass x zebra, are very obstinate and hard mouthed, which constitutes an obstacle to their use as working animals. On the contrary, the cross, mare x zebra is more docile and tractable, and can be used like the mule, over which it has the advantage of being much better shaped.

In crosses made in the United States between mares and zebras, the stripes in the coat of the hybrid were indistinct, and the characters of the mother predominated. In other crosses made in South America and Europe, the characters of the father were predominant, and the stripes were still more marked than those of the father.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Warts

We have a two year old Jersey heifer. Of late several growths have appeared on the top of her head and the last few days one has come on her eye. They resemble a seed wart and range from the size of a pea to almost the size of a walnut and are light or almost white in color. Please advise us how to remove them and the cause of the growths. We have used iodine on them twice.—Subscriber, Victorville.

Warts do develop that way sometimes and nobody can account for them. Oil them once a day with castor oil and they may go away soon; if not then use nitric acid. Apply the acid with a swab once or twice a week. Be careful with the acid and do not allow it to touch your skin or clothing. It is a powerful caustic and will burn a hole. There is a ringworm that sometimes appears about the heads of young cattle, that has a silver white appearance and might be thought to be warts, but they do not raise up from the skin. The hair drops out and the skin has a white scaly appearance. This is contagious and may show on the other cattle. They get it from rubbing on the same posts or against one another. Your treatment of iodine will cure the ringworm but to prevent it spreading you

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should whitewash the posts where they rub.

Ringbone

We have a young horse that is lame in the hind foot. Some say it is ringbone. He has been lame for some time and there is a growth just above the hoof about the size of an egg. Is it joint lameness or not? Which is best; to have a veterinarian burn it or to just blister it?—Subscriber, Potter Valley.

Ringbone starts with inflammation of the joint between the fetlock and the foot and is caused by an injury from a bruise or strain or from rheumatism. The inflammation destroys the joint oil and the smooth cartilage that covers the ends of the bones, then the two bones grow together like the ends of a broken bone. The enlargement is a deposit of cartilage that nature provides to hold the bones in place while the ends are uniting, and in time this turns to bone also. To hasten the process of making the two bones one we fire and blister the skin to increase the flow of blood to the parts. You had better have your veterinarian blister and fire it and then you repeat the blistering every two weeks until four or five blisters have been used. When the joint becomes solid the lameness will cease but the horse will have one less joint and will walk clumsily and only be useful on the farm although some do very well on the road.

BACK-LOT POULTRY PLANT

Continued from Page 323

three parts cracked corn. The chick mash formula is: three parts rolled oats, three parts wheat, four parts white milo, four parts red milo, two parts cracked corn, ten per cent dried buttermilk, five per cent Darling's meat scrap, one pound fine ground bone. Poultry people who are looking for a more rapid growing feed for their chicks will do well to copy this formula and try it, for some of Mr. Ruess' chicks, a cross of Dark Cornish on Rhode Island Red, have reached broiler weight, 1½ pounds, in six weeks. Part of this rapid growth is no doubt due to the cross, but a great deal is due to the feeding. This mash is not fed dry. It is moistened with semi-solid buttermilk, diluted in the proportion of one pound of buttermilk to 1½ gallons of water, and is fed at first four or five times a day, but after ten days is left before the chicks all the time. The scratch is fed twice a day, at 10 o'clock and 2 o'clock, and greens are given at noon.

The mash for the layers and breeders consists of ten pounds milo whole and cracked, two pounds bran, one pound cracked corn, one pound rolled barley, two pounds wheat, eight ounces dried buttermilk, 12 ounces Darling's meat scrap, ten ounces ground bone, one quart charcoal. This is moistened, like the chick mash, with semi-solid buttermilk diluted with water, and is fed at night. The scratch feed, which is fed in the morning in deep litter, consists of two parts wheat and one part cracked corn. Grit, shell and charcoal are before the birds all the time. Mr. Ruess does not beleive in keeping a mash constantly before laying hens. "Hens that nibble all the time are just like people that are constantly piecing," he declares. "They don't amount to anything." While this view is quite different from that commonly held, it is well to remember that the Little Compton poultry farmers, who made a conspicuous success in Rhode Island a good many years ago, fed only a moist mash.

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And the Reserve tends to prolong the life of the machine, for it is usually working at its normal capacity. Continuous, undue strain is thereby avoided.

This Case 10-20 will also handle other implements usually requiring 8 to 10 horses, such as two 7-foot binders, two 20-shoe grain drills, eight sections spike-tooth harrow, 8 to 10-foot double disc harrow and other implements of like requirements. For belt work, this tractor has proven equally efficient. It drives a Case 20-inch cylinder thresher with wind stacker, feeder and grain handler. Also silo fillers, hay presses, feed mills, etc.

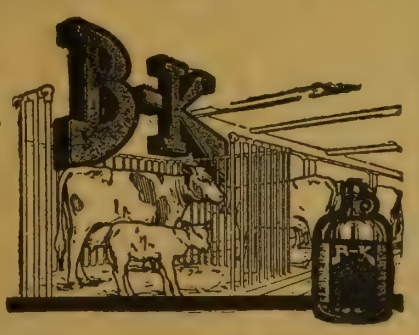
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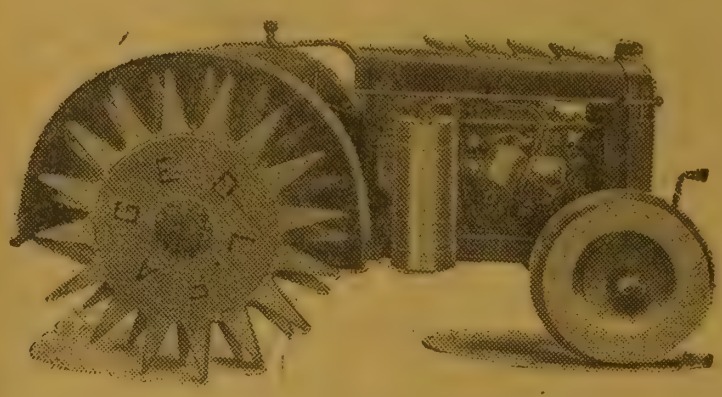
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Cross or Kind Bees

BEES can be bred to develop certain characteristics of disposition, of industry, and of swarming, according to Dr. J. H. Merrill, assistant professor of entomology in the Kansas state agricultural college.

The prolific qualities of queens can also be increased by consistent breeding with that aim in view. Queens may be brought up to a production of from 4,000 to 5,000 eggs a day, and this fact is valuable in the matter of perpetuating desired characteristics. As to the development of a non-swarming tribe, I believe that the chances of doing so are in favor of it rather than against it.

Hard to Control Breeding

The difficulty in attaining desired results is in controlling the breeding. The queen may, on her wedding flight, mate with a drone from a hive exhibiting entirely different characteristics from those being worked up. This will result in a disturbance of the working out of the plan, as characteristics of habits and disposition are said to be transmitted through the male parent.

Mating between different races of bees will tend to emphasize certain characteristics which may then be further developed. The Cyprian bee, which is almost entirely yellow in color, is the crossest bee known. When mated with the Italian bee having three yellow bands about the abdomen the bees produce an Italian having an increasing number of yellow bands, and exhibiting the characteristics of the male parent. If the male parent of a golden Italian is a Cyprian, the golden Italian will be extremely cross, a disposition entirely foreign to the Italian bee.

This Is the Problem

In order to control the breeding to an even reasonably certain extent it would be necessary to buy up all bee colonies within a radius of five miles, study them in order to make sure just what kind of bees were in each, and dispose of those exhibiting undesirable traits. One can not be absolutely sure even then, for a queen in a colony at the edge of the radius may go a half mile farther and mate with an individual of opposite traits, which will at once begin to be transmited through the colony, changing it materially.

If breeding can be controlled, however, there is no reason why a colony cannot be bred up to show any desired trait.

The Grange in Washington

At the National Grange, Patrons of Husbandry, held in Syracuse, New York, in 1918, it was resolved to establish headquarters in Washington, D. C. A building has been constructed and the Grange is now in its new national home, and Thomas C. Atkinson, one of the executive committeemen, writes regarding the work of the Grange and its desire to serve its great constituency:

"The order of Patrons of Husbandry is a positive and virile force in American life. This is due to the wisdom of the founders of the order as evidenced by its growth and its numerical strength today; and their farsightedness in building the Grange upon the principles of real representative democracy. First they provided for a broad foundation in each subordinate Grange of the men and women actually engaged in the business of agriculture and home making; and then that these interests are served by actual representatives, chosen in the pure American way, constituting the state and national organizations. Thus indubitably the Grange brings to bear in the expressed views of these representative bodies on state and national questions, and its position on national legislation and administration the sound judgment reached by long and mature consideration participated in actively by the largest single constituency representative of American agriculture.

"The very 'checks and balances' which have operated to make democracy safe in America, the wonder and the admiration of the great students of the science of government, are found to be duplicated in the principles of the Grange. In actual practice its work has been found to be safe, well considered and progressive. The very method prescribed for its consideration of national and state questions prevents radicalism; yet in spite of this it has taken the great American democracy a half century to come abreast of Grange thought which declared in its earliest statements for prohibition of the liquor traffic, equal suffrage for men and women, technical education for agriculture, rural delivery of mails, the parcels post, etc.

"The opening of the Washington office of the National Grange is only a step in the modest desire of the representatives of this great constituency of American farmers and farmers' wives to more adequately serve this membership in making plain to those in more or less temporary legislative and executive authority the views of sound and progressive country thought on national problems and the reaction of the country people to governmental activities. Washington is a long way from the average American farm home; the ways of government do not run parallel to those of average country life. Men in government positions wish honestly to represent but may not know what is in the minds of those they wish to honestly represent. The opening of this office is one step in the work of making the way shorter and clearer by which the members of this order, and the true friends of agriculture, may be in closer touch with their servants in governmental positions, and thereby help make American democracy more safe and more enduring.

"Through this office, when its facilities are developed, the Grange hopes to be in close relationship, with every department of the national government which is working with the problems of rural life; as in the past it hopes also to be constantly heard on all proposed legislation affecting the business of agriculture. For these purposes it hopes to have the advice and cooperation of the agricultural press of the country as well as of all others who may be interested in these great subjects."

The snow fall of February 20 in the higher elevations of Arizona leaves an unusually heavy covering of snow over much of the range country.

GROWING STAPLE COTTON

(Continued from Page 321)

(About 1,800 pounds of seed cotton is required to produce 500 pounds or one bale of lint.)

Two feet in rows—1,650 pounds of seed cotton was produced to the acre. From cotton planted 2 1-3 feet, 1,850 pounds of seed cotton was produced, and from cotton planted March 15th to 20th, and spaced three to four feet apart, 2,012 pounds of seed cotton was produced on one acre. These results, which seem to show that wide spacing will result in high production to the acre, are commented upon by Superintendent Woods as follows:

"Cotton that is fairly wide spaced will stand more punishment than cotton which is thicker in the row. If ideal conditions were always attainable, that is if an expert cotton grower were always at hand to say just when the plants should be irrigated, and if water was immediately available when it was needed, the thicker plantings would be desirable, but with many who have had little experience, and as with nearly all farmers, water cannot be applied at a few hours' notice, I believe that the wider spacings will produce the best general results, particularly upon rather heavy soil." Mr. Woods emphasizes the very important point that no crop grown in the Salt River Valley requires so much personal judgment in cultural methods as does cotton. "No general rule," he says, "which will apply broadly can be given in the growing of cotton. All land must be thoroughly understood by the grower and the depth to the water table are factors which must be taken into consideration in order to produce a maximum crop."

Cultivation, both before and after planting, must be constant to produce successful crops. Many growers try to get over their fields every week or ten days as long as it is possible to get a horse pulling a cultivator between the rows without doing material damage. Most growers prefer shovel cultivators.

The subject of irrigation is one thing on which very little advice can be given—a question which has proved a stumbling block and a source of failure to some who have either irrigated too much or too little.

The ideal cotton ground, to some growers, is that where the water table is within two to six feet of the surface, or a sandy loam type which has been prepared in the proper manner and thoroughly saturated with water before planting requires very little water after planting, and some extraordinary yields have been obtained from land of this kind which received no water after planting. On the other hand, some of the largest yields have been obtained upon land where irrigation was necessary, that is, where the water table was so far beneath the surface that there was no sub-irrigation. The desired condition of the plant is to keep the growth constant without producing a rank "weedy" growth which will carry a large number of vegetative branches, overly large stalks and comparatively few fruit buds or bolls. The healthiest plant and the one which will produce a large amount of fruit is one where the early blossoms or bolls appear very close to the top of the plant. The experienced grower strives to obtain this condition and it is seldom necessary to begin irrigation until the first blossom appears. After this, irrigation is done at intervals or whenever the condition of the plants suggests the need of water. If the blossoms appear close to the top and there is no undue wilting of the plants, an experienced cotton grower does not irrigate. When the plants droop to a considerable extent and do not recover in the latter part of the afternoon, it is generally considered that water should be applied. A little wilting in the middle of the day and particularly after cultivation is not considered as being at all detrimental to the plants.

This matter of irrigation is a subject which must be considered and one upon which it is extremely difficult to give advice. Usually after irrigation has begun, that is, upon the land where there is no sub-irrigation, it will be necessary to apply water at rather frequent intervals and particularly after the plant is well fruited. Some successful growers on this kind of land emphasize the point that plants should not be allowed to suffer for water. On the other hand, an excess of water after the plant has been deprived of it for some time is apt to cause a serious dropping of the squares, which will, of course, result in a great loss in the cotton production. The importance of cultivation cannot be too strongly emphasized. One successful cotton grower said: "I spent my vacation making my crop; one cannot grow cotton in the mountains."

Here in the Salt River Valley growers are coming to realize more and more the necessity of having a humus content in the soil. Those who are practicing a rotation and are able to turn under alfalfa fields which have passed the maximum yield have the desired amount of humus in their land. Obviously, when one-fourth of the acreage is in cotton, a long time rotation, such as alfalfa requires, does not appeal to the majority of growers. Some experiments which have been tried out this year very successfully, and which will be practiced to a very large extent this coming year, will be the growing on each third row in the field of cow peas. These in most instances will be planted a little later than the cotton, and when they are beginning to form pods are disked back into the soil. Whether the cotton plants on either side of these decaying cow peas receive any benefit the same season is a disptued question. Some claim that the increased crop is due to the wider spacing rather than to the immediate benefits of the nitrogen gathering cow peas. This is a question for the scientists to settle, but there can be no question but that the soil for the succeeding crop will be much better.

It is pleasing to note that growers as a rule are making their plans to produce crops at a lower cost than in the past two years. This is only made possible by the growing of large crops per acre. It is conceded that cotton at present prices cannot be produced at a profit unless one produces at least the average—one-half bale to the acre. Below this there will be a loss. Therefore, the thing to do is to produce a maximum crop. It would do no harm to point out the fact that if the average were one bale to the acre instead of one-half bale, we could have produced just as much cotton on half the acreage.

From interviews with these successful growers I am thoroughly convinced that an average of one bale to the acre is possible, but it means the gradual establishment of a rotation and a most thorough preparation of the soil, intense cultivation of the crop and the best judgment of the grower in irrigation. Such crops will be profitable, even though the price should be considerably lower than at present, and with the possibility of lower prices the average or below the average crop will not be profitable.



Tractor Use, Profit, and Safety

TRUE progress is always slow. The change to mechanical power for farm work has been twelve years in the making, but today there are few American farmers who have not given serious thought to the question of tractorizing their farms.

For the benefit of those who may not yet be convinced that the tractor is a useful, profitable farm power machine, we present again a few of the opinions of farmers who are using the International Kerosene Tractor. Some of these are about essential features, and some mention only conveniences, but taking them altogether, almost any farmer will feel, after reading them, that the International 8-16 is a tractor worth considering.

"My International supplies a power flexible enough to handle the large amount of seedbed, harvest and other work without delay."

"It can be used for continuous work if emergency demands it."

"It produces power at much lower cost than horses, and it can be used for both drawbar and belt work."

"I like the steady way it works. Without seeming to hurry, it gets through a surprising amount of hard work."

"It does a lot of good work at a cost so low I could hardly believe it. You did a wonderful thing for Eastern farmers when you made this tractor to run on kerosene."

"It is not bothered by flies, nor by bumble bees. It works steadily on the hottest days."

"Requires very little care. When the day's work is done, I run the tractor tail first into an inexpensive shed. In the morning, I fill the fuel tank and the oiler, look into the radiator, and am ready for another day's work."

These opinions are typical. They prove at least that the International 8-16 is a useful, profitable tractor. Now consider just one other thought for a minute.

This tractor is the outgrowth of twelve years of active tractor experience by a company that has sold all kinds of farm machines for many years. The beginning of this business goes back to 1831—almost 88 years ago. Does it not seem reasonable that with this experience we should offer you a tractor that you could use with profit, especially when we expect to come back some day and sell you more of the machines listed in this advertisement?

If you are now convinced that the International 8-16 is a useful, profitable tractor on some farms, and that you don't have to be an expert to buy one safely, write us to find out what this tractor will do for you, on your farm. A post card will bring you full information.

The Full Line of International Harvester Quality Machines

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Budded Avocados, Fuerte, Sharpless, Lyon, Dickinson, Blakeman, Puebla, Spinks, Taft, Linda, Rey, Queen, Knight, and others. A fine stock of field grown trees, $2.50 for one, $2.00 each by the 100, 25c per tree for packing. Newbery-Sherlock, 2202 East Colorado St., Pasadena, California.

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Royal and Tilton Apricots, Flemish Beauty and Bartlett Pears on Jap Root, Lovell Peaches, closing out at reduced prices. Will deliver by trailer within Kern Co. and Tulare Co. Spengler & Rickert, Jasmine, Kern Co., California.

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Placentia and Eureka Walnuts on black root. A general line of high grade nursery stock. A. R. Marshall Nurseries, 1212 Ross St., Santa Ana, California.

KADOTA
Fig Trees for Sale
JOHN H. OLIVER, PHONE 57116
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Trees for Sale—Bartlett and Wilder pears, Imperial and French prunes, also cherries, four by six, fifteen cents. Write M. Sharpe, Vacaville, California.

Apricots and Olives. Good thrifty stock and carefully grown. C. E. MOYER, Hemet, Riverside County, California.

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2500 Nonpareil Almond, 250 Peerless, 12½c;. Packing extra. C. W. Story, Rivera, California.

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No War Prices.
Cash Nurseries, Sebastopol, California.

Grafted Feijoas or Pineapple Guava. Large plants $3.00 each, 10 for $25. Wm. Boyes, Lomita, California.

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ARNOTT & COMPANY, INC.,
The Yellow Front. Established 1892
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For Sale—One pen Thoroughbred Buff Ducks, fine large birds and wonderful layers; $3.00 each. Mrs. M. Lopez, Lathrop, California.

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For Sale—Used ranch machinery.
Guaranteed to do as much work as new machinery you buy which will soon be secondhand but not necessarily worn out. WE SELL FOR LESS. CALL AND SEE.
WINDMILLS—8t ft., $29 to $35; 10 ft., $30 to $45; 12 ft., $58 to $68; 16 ft., $135.
REDWOOD TANKS—New, used, all sizes, 3 new 1500 gal., $32.50 ea.; 25,000 gal., $135; 50,000 gal., $250; 100,000 gal., $350.
NEW GALV. TANKS—1000 gal., $39; 2000, $53. USED galv. tanks, 4500 gal., heavy galv., with cover, $95; 3000, $75; 6000, $125; 7000, $145; 1000, $29.
RANCH TOOLS—10 ft. grain drill, $95; mower, $45; Fresno beet drills, $35; Avery tractor, fine shape, $450; Deere 14 in. riding plow, $35; brand-new P. O. power lift tractor, 4 gang disc plow, $230; 3 gang disc, $85; 4 gang disc plow, $120; double disc harrow with pony truck, $65; potato planter, $75; single disc harrow, $45; spike harrows, $7 to $18; Planet Jr. new potato digger, $20; slip scraper, $5.50; fine galv. water trough, $7.50; corn cultivator, $28; 2 row bean cultivator, $35; 3 shovel 1 horse weeder, $8.75; Aermotor crab with frame and cable, $12; 4 in. irrigating pipe, $14.90; 6 in., 25c; 10 in., 45c; bone grinders, cheese cutter, wire stretcher, shears, discs for plows, cable; Kirstin 1-man stump puller, $39; sundries.
PUMPS—No. 3 Double Acting Ames pump with double 24 in. stroke, $250; 1-in. centrifugal, 2½ B. & J., $45; 6 hor. Gould, $110; 4 two stage, $150; 7 vert. Krogh, $150; Single Pomona Plunger Pump, $50; large Bulldozer, $98; small size, $49; many others, 50 brass cylinders. DEMMITT CO., Upstairs, 120 N. Main. Yards, 816 Yale. Also buy first class used material. Los Angeles.

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3-inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2.

For Sale—1918 Bean Tractor. Apply John Stirrat, E. North St., Anaheim.

WANTED

Wanted—Man or Woman Manager, Every Community, Town and Country, to furnish information, etc. No selling. State your occupation and references. CALIF. DEVELOPMENT LEAGUE, 307-321 West 3rd, Los Angeles.

Wanted—Man With Some Capital for manager of one of our hog ranches now being put into shape for production; excellent opportunity for right man. Call 1013 Hibernian Bldg., Los Angeles.

Wanted—Married Man with Experience to raise Mammoth Bronze Turkeys. Geo. A. Smith & Son, Corcoran, California.

Young Married Farmer, understands general farming conditions, wishes position. Wife will cook. W. B. Ballard, Friant, California.

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Wanted—To hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

Wanted—Two Pea Hens. Give age, price and where they may be seen. Todos Santos Rancho, Daggett, California.

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Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

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Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

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Billiken Chester Whites, are all sold except one yearling boar. Am booking orders for spring pigs to be shipped at weaning time. Can still accept a limited number of orders. My boars and sows are of the best blood and most approved type and the pigs I will have to offer will be equal to the best that can be obtained anywhere. C. B. Cunningham, Mills, California.

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I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

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Castleview Giant Type Berkshires are the thrifty, typey, quick-growing kind that will make larger profits for you. Prizes and Championship honors are awarded—by the greatest judges in America—only to animals possessing the essential qualities for economical meat production, viz.: heavy bone, good feet, broad strong backs, large hams and easy feeding qualities. Our grand champion herd includes Riverby Princess, grand champion sow of the world; Rookwood Lady 100th, 1917 grand champion of America; Mayfield Laurel 15th, 1917 grand champion of California. Bred sows, bred gilts and fine weaned pigs for sale.
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To introduce my world and national grand championship blood to farmers and breeders, I will sell a limited number of boar pigs, 6 to 9 months old, at two cents above the market price. They are by Baron Duke 201st, national grand champion, Winona Lee Champion 6th, first prize junior yearling 1917 State Fair, and from 650 pound prize winning sows. We will sell nothing that we would not use ourselves. Sandercock Land Co., 906 K St., Sacramento, California. In charge Natomas Land Sales.

Registered Duroc-Boar Pigs—We have four boar pigs, four months old, weighing 150 lbs., out of a King's Col sow and sired by King Orion himself. Sow is a sister to Citation, $5,000 boar, and is herself one of the best sows in the country. This blood won more prizes for get of sire than any others west of the Mississippi. These pigs are the classiest boars for sale in California. Write for one or call and take your pick, $150. Hog Dept. Elliott-Brant Rancho, Owensmouth, California.

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GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
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The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

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Bargains in Poland China Sows. All immune. Good mothers and prolific. Registered stuff. Also boars. Write for details. N. C. Hansen, Coachella, California.

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Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California

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Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

"Never Saw Chicks Grow Faster," "Your Pullets Laid Through Moult." Why? Bred 20 years to lay 200-290 eggs yearly. White, Brown, Buff Leghorns; Anconas; Reds; Barred, White Rocks; Minorcas; Orpingtons; clearing customers $5.00. Valuable circular with proof, free. Chicks 2-3 booked to May, reasonable; yet most weeks still open. Increasing our hatcheries as demanded (50,000). Many repeat orders monthly, yearly. Breeders, pullets. James Beeson, Pasadena, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially Interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

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Baby "Chicks" and Eggs for Hatching from pure bred McFarland strain S. C. White Leghorns. Carefully culled and Hoganized for heavy egg production, not simply "CHICKS" but stock as well. Sonoma Valley Hatchery & Poultry Yards, Sonoma, Sonoma County, California. R. D. 2, Box 48. F. J. Hansen, Prop.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs $2.50 per 15. Chicks March and following months 30c each. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose.

Super Quality White Leghorn Chicks, hatched right in Jubilee machines from best strains of foundation stock. Our customers come back each season, we can refer you to them. Write at once before we are all sold out. Newton Poultry Farm, Los Gatos, California.

Baby Chix — Barred and White Rocks, Reds, Buff Orpingtons, Black Minorcas, Buff and White Leghorns from Hoganized stock bred to lay. Reasonable prices and pleased customers our aim. Tobener Hatchery, Washington Avenue, San Jose.

I Prepay Charges on Baby Chicks. 2000 Rhode Island Reds, 1000 Plymouth Rocks, 2000 White and Brown Leghorns, 500 Anconas, coming off each week. $22 per 100. Delivered anywhere. ERNEST VINCE, Santa Barbara, California.

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Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

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Chix or Eggs—Hoganized W. Leghorns—also limited quantities of Buff Leghorns, Buff Minorcas, B. P. Rocks, L. Brahmas, Reds. S. Martina, R. 2-627, Santa Cruz.

Black Orpingtons Lay. Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Choice White Wyandotte breeding cockerels, $5.00; eggs $3.00 and $5.00 per 15. Baby chix. R. W. Stawetski, Route B, San Jose, California.

For Sale: Leghorn Chicks from high quality heavy laying stock. Prices right. Madera Hatchery, Madera, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Schellville, California.

White Leghorn Chicks from good laying strain of Hoganized and trapnested stock. Rose Hill Hatchery, Turlock, California.

Save the Baby Chicks—Write today for our valuable free booklet "Making Every Chick a Chicken." Box 593, Modesto, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

White Wyandotte setting, 15 eggs, $1.50. Mission 281. G. O. Tetley, 190 Edgewood Place, Riverside.

White Wyandotte hatching eggs from high testing Hoganized hens and cockerels. Selected winter layers. $2, $3, $5 per setting. S. Reyner, Lathrop.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS

It's our business to improve egg production for you. We have the stock planned for your success. We hatch our own eggs and sell chicks and eggs from our own hens only. We have 1500 chicks yet to sell for middle of March, otherwise we are all sold out. Hatching eggs from our high record hens at $5.00 and $10.00 per 15. Write us for prices on second season hens and yearling cock birds for April first delivery. These males are all bred from 200-egg hens or better and by hatching from them in May and June you will get eggs next December. If you really want the best in Leghorns, let us hear from you. ENGLANDS EGG RANCH. The home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Baby Chicks, Hatching Eggs, Breeding Males. Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfariane White Leghorns, CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

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Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for twenty years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Hatching Eggs—White Leghorns, Light Brown Leghorns, Dark Brown Leghorns, White Rocks, $2.50 per 15; $10.00 per 100. All bred to highest possible standard of beauty and utility. Mahajo Farm, P. O. Box 597, Sacramento, California.

R. I. Red Chix or hatching eggs from first class Hoganized utility stock, prices no higher than ordinary stock. Chix and eggs from prize winning Buff Orpingtons, quality rather than quantity our motto. Munier Poultry Yards and Hatchery, Cupertino, California.

Baby Chicks Every Week. Order early and get the date you want. White and Brown Leghorns, Rhode Island Reds, Barred Rocks, Anconas; also hatching eggs. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

Finest Hatchery in the World. Chicks, White Leghorns, Rhode Island Reds, 10s, 1000s, hatched right in our $60,000 brick and concrete hatchery from our Hoganized heavy layers. Stock, eggs. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

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Giant Bronze Turkeys — Gold Nugget strain. Prove their superiority by winning Gold Special Sweepstakes for best turkeys at the following great shows: Arizona State Fair, 1916; Texas State Fair, 1917; California State Fair, 1917-1918; Los Angeles Show, 1917-1918; Pacific Coast Land and Industrial Exposition, Oakland, 1918. An unequaled record. Large turkeys can be raised at practically the same cost as small ones. Toms for sale that will increase size and improve any flock. I am the originator of the Gold Nugget Strain. J. Will Blackman, 607 East Third St., Los Angeles, California.

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30 Acres ½ mile from State Highway, ¾ mile from point where local trains stop, and 3½ miles from Arbuckle. This place partially improved; 11 acres six years old almonds, 1 acre six year old fruit and 5 acres one year old Thompson Seedless; 13 acres to be planted to almonds this spring. Fine location. Will make a dandy home. Write us.
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ARBUCKLE, CALIFORNIA,
THE HOME OF THE ALMOND.

Bargain if Taken at Once. Get in Before the Raise. Work on State Highway Started Last Week. 43 acres of orchard land located in Owens Valley, west of Bishop. Pear and apple land, 6 inch cement pipe line across same. Free gravity water with established ditch rights. Cleared of brush and partly plowed last year. $1200 cash or $1300 on time. No agents. Walline Bros., R. D. 2, Bishop, California.

For Sale—560 acres land, Government Patent in San Luis Obispo County, 12 miles from Santa Maria. Good grazing and timber land. Four room house, big barn and outbuildings. Fruit trees, vines and berries. Stock and growing crops go with place, nearly all fenced and cross fenced, well watered, soft water at house. All farming tools go with ranch. For full particulars address: W. W. Palmer, Santa Maria, California.

Near Earlimart, Tulare County, 40 or 80 acre tracts, very best alfalfa lands, shallow water, $100 an acre, on easy terms. Near McFarland, 160 acres alfalfa land, $50, terms. Owned by an estate. Write for full information. JOHN RUPP, 318 Story Bldg., Los Angeles, California.

Equipped Central Oregon Wheat Farm—Fully equipped 800-acre ranch; 5 miles to railroad, Opal City, Jefferson County, Oregon; 550 acres cultivated; 225 seeded; 100 ready to seed, plowed up alfalfa; 100 more can be plowed; running water in each of six fields; 9 miles of woven fence. Immediate possession. $45,000, half down, balance crop payments. G. Springer, Culver, Ore.

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For Sale—The famous Bane Almond orchard at Orland. On account of labor conditions, as well as physical condition, I have concluded to sell my almond orchard, either in subdivisions of 10 acres, or as a whole. For particulars address P. D. Bane, Orland, Glenn County, California.

For Sale—$1000. Clear, 160 acres, 30 mi. N. E. of San Diego. 25 acres tillable, rolling; 15 bottom, 3 plowed, balance grazing. Small new house. Well, spring, abundance soft water; timber. Fine bee, cow, pig proposition. No trades. E. T. Gray (owner), Petrolia, Humboldt Co., California.

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Wanted to Sell, trade or exchange 80 acres of alfalfa land in Imperial Valley for a dairy having 40 to 100 cows with lease on place to keep them. Address Frank C. Dias, Holtville, California.

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For Sale—At Lindsay City, 10 acres olives, also fitted for raising chickens, 6 miles west of Strathmore. Owner: J. D. Evinger, Selma.

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For Sale or Trade—Equity in 200 acres Imperial Valley. Part in barley. $93 per acre. V. E. Rice, R. R. No. 2, El Centro.

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"TESTED" and "GUARANTEED" Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.
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For Sale: 5400 feet No. 14 10-inch riveted steel pipe, 2500 ft 11-inch, 2800 ft. 12-inch 2000 ft. 4-inch. L. B. Vollmer, Monrovia, California.

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Send 10c for pkt. of fine fresh home selected seeds—Heading cry sweet corn, tip top, pineapple and Burrels Gem musk melons, Hubbard squash, chilean and angeleno water melons, also stone and earliana tomatoes. Roland C. Casad, Covina, California.

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For Sale—Cleaned Lady Washington Seed Beans. E. F. Siegmund, Vineland Avenue, Baldwin Park, San Gabriel Valley, California.

Peruvian Alfalfa, Amber Cane, Milo Maize, Sudan Thousand-headed Kale, Artichokes, Seeds. Write for circular. Box 501, Fowler, California.

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Raise rabbits for us. Will pay $6.00 per pair. Send stamp for particulars. H. E. Gibson Co., Arcadia, California.

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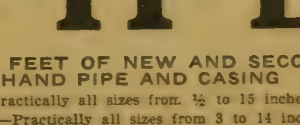
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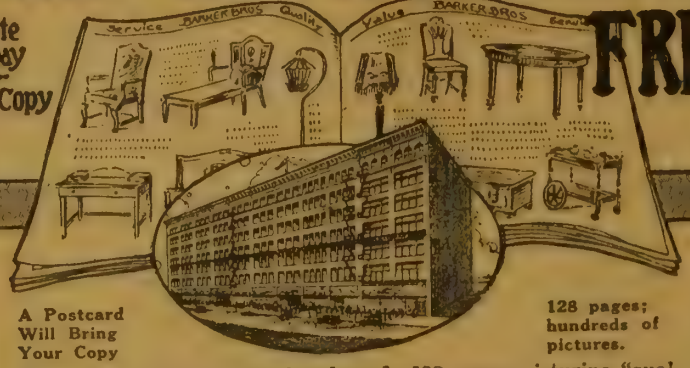
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Remembering how our tortured hearts
Turned unto Thee in time of war,
For help to bear its blistering smarts,
Its fears, its tears, its shifting score,
Dear Lord our God, let us not cease
To pray to Thee in time of peace.

Give to the eyes that wept and wept
A clearer vision for their tears.
Grant to the hearts all passion-swept,
A manlier courage for their fears.
Let feet that through the depths have trod
Learn to walk humbly with Thee, God.

Out of the foulness let us bring
Clean hands that hold life's standard high,
Souls that will brook no bargaining
With greed or lust, deceit or lie.
Ears deafened by war's murderous din
Make Thou to hear the Voice within.

Let us forbear to strut and boast
Because of triumphs we have won,
Remembering the valiant host
That died or ever we'd begun.
O Lord, protect us from the shame
Of thinking we are free from blame.

Let the great hour that now has struck
Wake a great echo in our breasts,
Let us, each one, with joyful pluck
Turn to the task that with him rests.
Lord, may it not have dawned in vain,
This day of peace Thou didst ordain.
—Julia M. Lippman in Good Housekeeping.

JUGO-SLAV AND CZECHO-SLOVAK

By Constance Winifred Stumpe, in Red Cross Bulletin.

JUGOSLAVIA, Czechoslovakia—new names on the lips of the world. What are they? and where? Let us imagine ourselves skimming in a swift plane, along the shores of the blue Adriatic, as far west as the river Save, which bounds Carniola and Croatia, and the river Drave, which bounds Slavonia—from Trieste to the Greek frontier, hovering over the western Balkans and portions of Macedonia. Here lies Jugoslavia, the federation of the southern Slavs ("jugo"—south). Below us lies a rugged mountainous country, with fertile strips of meadow and farmland running down to the sea, embracing 18 different political divisions, inhabited by a homogeneous and loyal people, united today for the first time under one government. There to the north, tucked in the Bosnian hills, lies Serajevo, where in June, 1914, the tragic assassination of the Austrian archduke flung the spark in the tinder-box of Europe. Innocent enough it looks, this little city, with its crooked streets and half-oriental aspect, under the frowning panorama of the hills.

Serbia, with whom the world has become intimately acqpainted during the last four years, is the most important of the Jugo-slav states. Her story is one long tragedy, and the story of Serbia is the story of the Balkans, the story of the Jugoslavs. The people of this corner of the earth have been harassed from all sides by the Romans, by the Turks, whose victory at Kossovo (1389) extinguished the independence of the Serbs for four hundred years, by the Austrians, who have played chess with them in preserving what kings have been pleased to call "the balance of power." But the Serbs, fighting down the centuries, have remained unconquered in spirit, striving always for their own freedom and in this they have been more fortunate than their brother neighbors, for the treaty of Berlin of 1878 fixed the boundaries of Serbia and Montenegro and made of them autonomous states.

Serbia's plucky stand in the war is an old story. Of the army of 250,000 that began the great retreat of 1915, 100,000 perished in the campaigns through the snow filled passes of Montenegro and Albania. Serbia was laid waste. Two hundred thousand Serb women and children straggled over the hills, while their men fought desperately, though vainly, against the enemy pressing down from the north. And there was snow, and freezing cold and famine and death. Thousands perished by the wayside. The remainder reached Monastir, the last Serbian outpost, on the Macedonian frontier, where the kindly hand of the Red Cross has done its pitifully small utmost to feed them, clothe them and dispel their terror, if only for a moment.

Religious differences have played their part in the Balkan question. The Jugo-slavs had been early converted to Christianity, but unfortunately, they were not all to gain salvation by the same process, those living east of the diocesan line, when the church, in the eleventh century divided these lands between the jurisdiction of Rome and that of Constantinople, becoming Greek orthodox, and those west, Roman Catholic. Men, in the false interpretation of their beliefs, have made religion a burden, a handicap, rather than a key to higher spiritual achievement and the science of living well. So with the Slavs of the Balkans. Bigoted, narrow, superstitious, though devout enough in their own way, living in the wrath of God instead of in His love, their varying and conflicting religious faiths have proved as subtle and potent a weapon in the hands of their oppressors as politics. Austria was able to keep her hold on Bosnia and Herzegovina, which she annexed in 1908, by making appeal to the Roman Catholics.

But the national spirit smoldered. When the guns screamed their challenge across the world in 1914, the representatives of "pan-Jugoslavia," were scattered among various lands. They knew the hour had come and lost no time in organizing their resources outside of Jugoslavia and in inciting the spirit of revolution among the Jugoslavs forced to fight under the flags of their conquerors. Jugoslavs all over the world, and there were not a few of them in the United States, rallied as at the sound of a long awaited summons, to fight for their freedom. A regiment fought valiantly with the Italians along the Piave. Their objective is the foundation of a constitutional and limited monarchy whose sovereign shall be "king of the Serbs, Croats and Slovenes," the three principal divisions of the Jugoslav peoples.

The story of Czechoslovakia is similar in that it tells of a long oppressed people living under Austrian domination who have at last, under an able champion, risen to the dignity of freedom in establishing the autonomous republic of Czechoslovakia, with the old and beautiful city of Prague as its capital. It lies in that northwestern corner of Austria next the German frontier, embracing Bohemia and Moravia—a romantic country, with a long and stirring past covering a thousand years of struggle. To even touch the high light of Czech history were to print a volume. A progressive and prosperous state in the Middle Ages, the Thirty Years war (1618-1648), reduced Bohemia to complete subjection under Austria. The Czech nobility was decimated by execution; Czech language was forbidden; Catholicism was forced upon a

people that had been staunchly Protestant since the days of John Huss, all those that did not bow to the absolutism of the church being persecuted and driven from the land.

But fire and sword and blood and tears can not break the spirit of freedom. Like their neighbors to the south, the Czechs and the Slovaks awaited the "day." The world is familiar with the achievements of the Czecho-Slovak legions, recruited from every corner of the earth. Czechoslovakia has been recognized by the great powers, and her first president, Thomas G. Masaryk, a Moravian by birth, has already taken up his duties.

And so order rises out of the chaos and oppression frees itself from the lash of hate. All power to the new born nations; may their peoples find happiness and prosperity in their new federation and may their progress mark a new era in the evolution of mankind towards greater destinies, bringing peace at last to the troubled Balkans and joy to the hearthfires of those who have suffered greatly for freedom's sake.

SOME ANONYMOUS COMMENT

Here is one anonymous sister who has often been moved to write to the Cultivator, but failed to do so, for good reasons. But I've read all the Cultivator recipes—cut them all out, and used many of them—with eliminations and reservations. You all should see me smile over some "economical" recipes. Why, dears, you don't know what it is!

In the "gems" or "muffins," I eliminate the fats, the sweets, and the eggs. And so on with all of them. Johnny cake—instead of the regulation 2 cups meal to 1 of flour I used 3 cups of meal, and no fats nor sweets, nor egg, nor milk—just baking powder and water. I feel proud of my soup. It is a most elastic recipe, expanding or shrinking according to the available "makin's."

Fry a bacon rind if you have a piece of it, and boil it. Fry an onion, if you have plenty, or a piece of one, if not, and add to the kettle. If you have no onions (too often the case, alas), use a piece of clean onion peeling which you have saved for this very purpose, and boil it with the soup, removing it before serving. To the kettle add a little pinch of celery seed which you happen to have, also a sprinkle of clove; pepper, both red and black, and salt. If you have a tomato or so, or a smitch of boiled rice, or most any old thing, add it to the soup, but try to save a bit of it for next day. For crackers in the soup, use the bread crumbs—even every crumb that falls from the slicing must be saved for this. (That is why I can't keep a hen—no crumbs to spare for her.) If you have a potato or two that can be spared for soup, pare and slice and add them also to the boiling soup, or a sprig of mustard, or a piece of cabbage leaf, or stump I add if I have it, which usually I do not.

If making anything in the bread, cake or pancake line which needs egg, add a bit of cornstarch instead. Use water when recipe calls for milk. If it is sour milk needed, add a little vinegar if you have any. If not, mix up a little flour (most any kind) with a little warm water, and keep in a warm (not hot) place till sour. A "speck" of yeast, bits of dough or batter, beaten into this, helps matters on a bit. Now I don't know whether the Cultivator would care to publish this, or not. It can do just as it pleases. But if it is—my name is not to be made public. Nor do I wish this to be returned; the waste basket is good enough.

SOME GOOD RECIPES FROM NEW MEXICO

By H. G. Willing

Cheap, Quick and Sure Mock Angel-food Cake

1½ cups flour, 1 cup sugar, ¼ teaspoon salt, 4 level teaspoons baking powder. Put these in sifter and sift 5 times. Add 1 cup scalding hot milk gradually to dry ingredients and stir until smooth, add 1 teaspoon vanilla extract. Fold in stiffly beaten whites of two eggs and turn into ungreased loaf pan, small size. Bake in moderate oven 40 minutes.

For chocolate frosting sufficient for this: 1 square chocolate (unsweetened), ⅜ cup sugar, 1 pinch salt, 1 tablespoon milk, ½ teaspoon vanilla extract, 2 egg yolks. To make: Melt chocolate, add sugar, salt and milk and cook till smooth, then egg yolks and vanilla and cook one minute. Then apply.

For practical helps in any housekeeping problem, cooking, cleaning, sewing, etc., the Cultivator will credit subscription of sender. With contribution please send name and address of the one to whom the paper is to be sent.

Best Pancakes Ever—Quick Breakfast

Using level measure. 1 cup Graham flour, 1 cup corn flour, 1 teaspoon salt, 4 teaspoons baking powder, 1 cup milk or enough for right consistency, or ½ teaspoon soda, 1½ cup sour milk, 1 teaspoon baking powder, 1 egg.

For syrup, cook sugar with water and a little molasses, flavor with vanilla. This resembles maple.

Easy Biscuits

2 cups white flour. 4 teaspoons baking powder (level), 1 teaspoon salt. Sift these and rub in as much shortening as a teaspoon can carry heaped and cold. Add 1 cup milk and stir. Do not roll. Shape quickly with fingers and place on a buttered pan, just moist enough to hold together and bake 12 to 15 minutes in a hot oven.

SAVE THIS TILL GRAPE SEASON

"The following simple method for making syrup from grapes is much used in Southern Italy and can be employed in California just as well," says the Placer County Farm Bureau Weekly. "This syrup can be made in any kitchen and is suitable to be used with hot cakes, cooking and other purposes for which corn syrups are used. It is much superior to most of the syrups at present on the market."

The grapes are stemmed, crushed and then heated to nearly the boiling point for a few minutes. The juice is then strained off, through a muslin bag in the usual way, and placed in a wide shallow pan on the stove. Egg shells are put in with the juice to neutralize certain of the acids—say about a dozen egg shells to the gallon of juice. Or prepared chalk (from the drug store may be used instead of the egg shells)—about 1½ to 2 ounces to the gallon.

The juice is then kept boiling slowly until it thickens to a syrup of the desired consistency. It is then again strained through a bag and kept in jars.

THE ETERNAL GAME

"Why is it that some men can't stand prosperity?"

"Because," replied Mr. Dustin Stax, "so many of us are inclined to forget our own and try to take somebody else's away from him.



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And the savory fragrance of *real* home-cooking calls to him that *mother's in the kitchen*

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Hundreds of Potato growers are availing themselves of the opportunity to get clean potato seed that has been dipped in a solution of corrosive sublimate by

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Write for their 1919 Catalog



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This is the strongest engine harrow of its type sold on the Coast. Heavy axles, heavy discs. Built for service. Do not accept any imitation said to be the same. Only one genuine "ARNOTT" eight, nine and ten feet wide. Write or call for full information.

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NOW BEST TIME TO PLANT

Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb or Berries, write for special prices. J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, California.

When writing advertisers, mention The Cultivator.

Los Angeles Market

Los Angeles, March 5, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price, 59 lb.; prices to retail merchants in 1-lb. squares, 62@63.

Dairy exchange prices last week on extras:

Feb.	26	27	28	Mar. 1	3	4
'19 ...	56	57	57	59	59	..

CHEESE

Brokers' prices:
California fresh, lb. 31

EGGS

Fresh extras, Produce Exchange closing price, 37 doz.; price to retail merchants, 40@42 doz.; case count, Produce Exchange closing price, 35 doz.; price to retail, 38@40 doz.; pullets, Produce Exchange closing price, 34 doz.; price to retail merchants, 37@39.

Dairy exchange prices last week on extras:

Feb.	26	27	28	Mar. 1	3	4
'19 ...	37	37	37	37	37	..

POULTRY

Prices to producers: Hens, 34; broilers, 42@50; fryers, 42; roasters, 34; old roosters, 20; ducks, 34; ducklings, 34@35; geese, 28; turkeys, 36@37; squabs, 40@43.

Belgian hares, 16.

LIVE STOCK

By F. P. Allen, Bureau of Markets, Los Angeles

The receipts of finished steers gradually diminish as the hay fed cattle season advances, the bulk of the supply consisting of half fed steers. High feed prices are mainly responsible and the producer seems to figure that the price he receives for half fed cattle is a better return than to finish them at the present top market price. Steers of good quality find a ready market and a premium is paid when the quality justifies. Cows are in active demand and prices are firm for all grades.

The future of the hog market is an unsolved puzzle to both producers and killers. The present government contracts in the Eastern markets, for export hogs, have their effect on the local market to a great extent. The burning question is, will new contracts for foreign shipment of pork be made upon the expiration of present contracts. Local killers of hogs have maintained the agreed to price for No. 1 hogs throughout February and present prices are still at that level even in the face of the fact that the market for dressed hogs is in a weakened condition caused by a poor demand from the consumer.

Choice lambs are fully steady but all other grades have a weak undertone. The supply of them is a little in excess of the demand. Yearlings are in good demand. Wethers are very scarce and the market is strong. Ewes are weak owing to the extremely light demand.

Good steers .....13.00@14.50
Medium steers .....11.00@12.50
Common steers .....9.00@10.50
Good cows .....11.00@12.00
Medium cows .....9.00@10.50
Common cows .....6.00@7.50
Hogs No. 1, 175-225 lbs.....16.00@16.75
Hogs No. 2, 250-400 lbs.,.....14.50@15.50
Lambs No. 1, 65@80 lbs. .....16.00@16.50
Wethers No. 1 .....11.00@12.00
Ewes .....8.00@10.50

POTATOES AND ONIONS

These are the actual prices obtained March 4 by Los Angeles wholesalers in in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.
on walk.

Demand and movement moderate. Stockton, Burbanks, quality and condition generally good; sacked per 100 pounds, fy., 2.50; resorted, 2.65; ch., 2.00; Idaho Russets, quality and condition fair, 2.25; rurals, 1.75; Oregon, seed stock, White Rose and Red Rose, sacked per 100 pounds, 2.85@3.00; homegrowns, White Rose, best mostly 2.75@3.00.

Carlot sales to jobbers: Stockton Burbanks sacked per 100 pounds, fy., 2.35; ch., 2.00; Idaho Russets sacked per 100 pounds, 2.25; rurals, sacked per 100 lbs., mostly 1.75.

Sweets, lug, 1.00@1.10.

Onions: Demand and movement moderate. Prices higher. Stockton, sacked per 100 pounds, Browns, best from cold storage, 3.50@4.00; White Globes, 3.00@9.00; homegrown green onions 15 per bunch.

VEGETABLES

These are the actual prices obtained March 4 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz. .....1.25@1.40
Brussels Sprouts, best, lb. .....12@14

Cabbage: Sales to retailers, best, 95@1.00 per cr.

Demand and movement good, prices slightly higher. Quality and condition good. Carloads f. o. b. usual terms: Early Winningstadt, California crates, best 25.00@27.00 per ton, mostly 25.00. Crates extra.

Carrots, doz. 45

Cauliflower: Best in cabbage crates, 1.75@2.00; poorer 1.25@1.50.

Carlots: Demand and movement good, little change in prices. Quality and condition ordinary carloads f. o. b. cash track best stock in pony crates mostly 1.35.

Celery: Homegrowns, best, 8.00@8.50; poorer, 5.00 per crate.

Carlots: Supplies practically exhausted. Quality and condition very poor. No carlot sales reported.

Lettuce: Wide range in prices. Sales to retailers: best in cabbage crates, 1.75@2.25.

Carlots: Demand and movement good, little change in prices. Quality and condition generally good. Carloads f. o. b. cash track—Iceberg, California crates, Los Angeles district best 3.25@3.50, mostly 3.25, Imperial Valley district 3.75@4.00.

Parsley, doz. .....15@20
Peas, Tel. lb. .....12½@13
Peppers, Chili, lb., best .....25@30
Bell, lb., best .....25@30
Pumpkins, lb., best 1½
Radishes 15
Rhubarb, Strawberry, box.....2.15@2.25
Spinach, doz.....15
Squash—Hubbard, best, lb.....2½@3

Tomatoes, Mexico, condition generally good; best, 3.25@3.50 lug bx.

Turnips, doz. 25

FRUITS

These are the actual prices obtained March 4 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Bellefleurs, fy. best, medium size, 2.25-2.50; loose, 5-6c lb. Yellow Newtowns, fy. medium size, 3.00@3.50; loose, 6-7c lb. Oak Glen, Rome Beauties, Pearmains and Winesaps, large 3.50. Yucaipa, Delicious, fy., 3.00-3.50; King Davids, 2.50-2.75.

Pears: Winter Nellis, lb., 5@6.

Lemons: Fy. packed, 4.00@4.25; local pack, 3.00@4.00; loose, some tree ripe, 1.75@2.00.

Oranges: Navels, medium and large size, fy., 4.50@5.00; local packed, 2.75@3.50; loose, 3½@4 lb.; Tangerines, 6@7 lb.

Grapefruit: Local fy., 2.50@3.00 bx.; Imperial Valley, 3.00@3.25.

HONEY

Practically no demand or movement. Supplies practically exhausted, prices lower. Carloads f. o. b. usual terms, Los Angeles, and common rate points, no sales reported Friday. Asking prices: Extracted, lt. amber, alfalfa, 17@18c; White orange, and lt. amber sage, 20c lb. Comb, lt. amber, alfalfa, fy., case 5.50; No. 1, 5.00; No. 2, 4.00 case. Beeswax, bright yellow and yellow, 37½@40c lb.

BEANS

Practically no demand; prices slightly lower. Reported purchases by grain corporation apparently not affecting the market. Warehouse cash to growers, ch. recleaned sacked, 100 lbs., Limas 6.50@6.75; Small Whites 6.00, mostly. Large Whites 5.25@5.75; Henderson Bush, 6.00@6.25; Pinks, free from rain damage, 5.25@5.50; Black Eyes, 3.00@3.50. Tepary no sales reported.

GRAIN

Carlot prices on local grain exchange.

Corn, Yellow, 2.55; White.....2.50
Wheat .....34.50@37.50
Milo .....2.25@2.35
Barley .....1.75@1.78
Egyptian corn 2.51½
Feterita 2.51½
Middlings 42.00

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....20.00@25.00
Barley .....18.00@23.00
Alfalfa .....16.00@20.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:

Choice hay.....27.00@28.00
No. 1 dairy.....24.00@25.00
Choice Alfalfa .....24.00@25.00
Standard dairy .....21.00@22.00
Standard Alfalfa .....15.00@19.00

San Francisco Markets

San Francisco, March 4, 1919.

BUTTER

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½c to 2½c; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extras 61½
Prime Firsts .....Nominal

Prices extras past week and year ago:

Feb.	25	26	27	28	Mar. 1	3
'19 ...	55	57	57½	58	60	61½
'18 ...	..	50½	50½	50½	50½	..

Rcts. wk. ending March 3, 348,000 lbs.

CHEESE

Dairy exch. quotations:

Cal. Flats .....30½@32
Ore. Triplets 38½
Jack, full cream .....25@27

EGGS

Dairy Exchange quotations, dozen including cases:

Extras 41
Extra Pullets 37

Prices extras past week and year ago:

Feb.	25	26	27	28	Mar. 1	3
'19 ...	41	41½	41½	42	41	41
'18 ...	..	38	38	36¼	35	..

Rcts. wk. ending March 3, 12,918 cases.

POULTRY

The high price ranges are easily maintained. The only traders are those who can readily dispose of their purchases at almost any price which they may ask, but on the whole they demand and expect excellent quality. Supplies being small, the quality is mainly good.

We quote to producers, lb.:

Hens, 38@41; broilers, 58@60; fryers, 40@45; old roosters, 20@25; young roosters, 37@38; turkeys, dressed, 41@43.

Ducks, 29@31; geese, 29@31.

Belgian hares, live, 18@20.

Squabs, 60@65.

Jack Rabbits, 3.00@3.50.

LIVE STOCK

Prices gross weight:

Cattle: The following prices are for grass fed stock. Hay fed brings ½ to ¾ cent more.

No. 1 steers, weighing 950 to 1100 lbs. alive, 12¾@13; 1200 to 1400 lbs., 13@13¼; second quality, 11½@12; thin steers, 9@10. Cows and heifers, No. 1, 9@10; second quality, 8@9; common to thin, 6@7; calves, 8@12.

Sheep — Lb. gross weight: Wethers, 11½@12; ewes, 8½@9¼; lambs, 14@14½; yearlings, 12@12½.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 16; 150 to 250 lbs., 16½; 250 to 300 lbs., 16; 300 to 400, 15½.

POTATOES

Deltas, 1.50@2.15; Red Shimas, 2.35; Oregon Burbanks, 2.00@2.10; Gems, 2.00@2.15; British Queens, 1.75@1.90; sweet, 100 lbs., 3.00@3.25.

ONIONS

Wholesale selling price on wharf, cwt.:

Australian, Brown .....4.25@4.50

VEGETABLES

Wholesale selling price:

Artichokes, doz .....50@1.00
Asparagus, lb. .....35@75
Beans, String, lb., local .....10@20
Beets .....1.50@1.75
Brussels Sprouts, lb. .....6@8
Cabbage .....65@85
Carrots, sk. .....1.25@1.50
Celery, cr. .....7.00@8.50





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SEED CATALOG

SEED CATALOG

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Cauliflower, doz. .....75@90
Cucumbers, hothouses, bx. of 30 .....2.50@3.00
Egg Plant, lb., local, ...5@10
Lettuce: Per cr., southern, iced, 3.50@4.00; Watsonville, 2.25@2.50.
Mushrooms, bx. .....15@50
Peppers, Southern .....12@15
Peas .....11@15
Pumpkins, sk. .....1.00@1.10
Rhubarb, bx. .....3.25@3.75
Strawberry, lb. .....11@12
Squash—Cream .....75@1.25
Hubbard, sk. .....1.75@2.00
Spinach, lb. .....3½@6
Tomatoes, Mex., cr. .....3.00@3.50
Turnips, bag .....1.50@1.75

FRESH FRUITS

Wholesale selling price:
Apples—Newtown Pippins .....3.00@3.25
Pearmain .....1.25@1.65
Bananas .....6½@7½
Olives, lb. .....10@12½
Pears—Winter Nellis .....3.00@3.50

CITRUS

Box: Lemons, 2.50@4.00; Lemonettes, 2.00@3.00; grapefruit, 2.50@4.00; Mandarins, 1.75@3.00 bx.; tangerines, half orange bx. 3.00@3.50; Navel, 3.50@4.50.

DRIED FRUITS AND RAISINS

Prunes—Bulk basis: 30-40s, 10; 40-50s, 9½; 70-80s, 8½; 80-90s, 8; 90-100s, 8; in 25-lb. bx., 20-30s, 18½; in 50-lb. bx., 100-120s; 5¾; 120s up, 5¾.

Peaches — Bulk basis: Standard yellows, 11¼; ch., 11¾; fy., 12½; extra fy., 13¼; slabs, 10¼; standard Muirs, 11¾; ch., 11⅞; extra fy., 14; slabs, 10¼.

Raisins—Muscats, pkg. seeded: Fy., 36 16s, 9¾; fy., 54 12s, 7¾; ch., 36 10s, 9¼; ch. 45 12s, 7¾. Bulk seeded in 25-lb. bx.: Bakers, 8; loose in 25-lb. bx., recleaned and floated, 1-cr., 7½; 2-cr., 7½; 3-cr., 8; 4-cr., 8¾; layers, ordinary pack, 20-lb. bx., 3-cr., 1.85; 4-cr., 2.10; 6-cr., 2.95; 10-lb. bx., 3-cr., 1.05; 4-cr., 1.20; 6-cr., 1.65; 5-lb., bx., 3-cr., 65; 4-cr., 70; 6-cr., 90; vineyard run layer raisins, 50 lbs., 3.00; 100 lbs., 7.50.

Figs—Bulk basis: White Adriatic, extra fy., 17½ fy., 15¾; ch., 14; Calimyrna, extra fy., 25; fy., 23½; pkgs. ch. to fy., 12 10s, 1.75@1.80; 24 8s, 2.90@2.95; 50 6s, 3.40@4.40; 70 4s, 4.40@4.50.

Pears—Bulk basis: Fy., 19½; extra ch., 17; ch., 15½; standard, 12@14.

Apples—Lb.: Extra ch., to the evaporator, 13½ jobbing price, 14½.

Apricots—Standards, 9½; ch., 13; extra ch., 14½; fy., 16; extra, 17½; Moorparks, 19; slabs, 11.

RICE

1918 crop, per 100 lbs: Paddy rice, Nos. 1 and 2, 4.32; 3d and 4th grades, 4.16; clean, fy. Japan, 7½ per lb; choice Japan, 7¾ per lb; screenings, 5⅝ per lb; brewers, 5¼ per lb; rice polish, 50.00 per ton, car lots; rice bran, 30.00 per ton, car lots; early prolific, 4.47. All other grades are to be sold on proportional basic value and proper differentials are to be added for the cost of double pockets.

SEEDS

Flax .....8@8½
Millet .....5@5½
Rape .....2¼@5
Hemp .....5@5½

HAY

Under date of March 1, Scott-Magner & Miller says:

Receipts past week 1228 tons, last week 1662 tons, and the week preceding 1398 tons. The falling off no doubt was caused by inclemency of the weather throughout the state during the greater part of the week. At present time the country crop conditions are encouraging. Owing to the continued wet weather there has practically been no hay market held during the week, dealers refusing to go down to the hay yards when it is so muddy and wet, preferring to work on stocks on hand until things are dry underfoot Therefore, prices quoted are simply nominal and trading is done on former quotations.

The main item of interest during the week was the call by the government for prices on 900 tons of double compressed hay for shipment to Manila. This without doubt will be awarded to San Francisco bidders. It is rumored that the government will soon be in the market for a round lot of hay for their various cantonments.

The unsettled condition of the grain market is reflected by the hay demand—buyers holding back and purchasing only from hand to mouth.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market—for prices to consumers, charges of cartage, commission and handling expenses must be added according to conditions:

Fy. wheat hay (lt. 5 wire bale).24.00@25.00
No. 1 wheat or wheat-oat hay.22.00@23.00
No. 2 wheat or wheat-oat hay.16.00@20.00
Choice tame oat hay.....21.00@23.50
Other tame oat hay.....16.00@19.00
Wild oat hay .....16.00@18.00
Barley hay .....16.00@18.00
Alfalfa hay .....16.00@19.00
Stock hay (in order).....14.00@17.00
No. 1 barley straw (bale)..... .50@ .80
Damaged hay (all kinds), according to quality.

GRAIN

Barley: Feed, 1.85@1.90 per cental; shipping, nominal at 1.95@2.05.

Oats: Red feed, 2.05@2.20 per cental; seed, do, 2.50@2.75; recleaned, 3.00@3.10.

Corn: California yellow 2.52½@2.75 per cental: Egyptian, 2.80@3.25 for dry and 2.50@2.75 for rain damaged. Milo maize, 2.75@2.90 for dry and 2.40@2.50 for rain damaged.

Wheat—Following are net weight prices for bulk grain based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Cental
No. 1	2.20	$3.62 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58½
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48½

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran, 42.00; shorts, 42.00; middlings, 42.00; rolled barley, 48.00 @50.00; alfalfa, 32.00@34; scratch feed, 3.75 per cental.

Citrus Fruit Market

Los Angeles, Cal., March 5, 1919.

With still about 8000 cars of navels yet to go, the market is looking exceptionally attractive; $5.00 to $6.00 sales are common and some sales have gone well towards the $7.00 mark.

Lemons are not so attractive. Occasional sales of poor stuff have gone below the $2.00 mark. Good stock, however, is commanding fair prices and limited shipments are being made.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 8401 cars, lemons 2347, total 10,748. To same date last season; oranges 4331, lemons 1157, total 5.488. Central California this season; oranges 2949 lemons 337, total 3286. Last season to same date; oranges 1895, lemons 107, total 2002. Northern California; oranges 244, lem. 2. Last year same date, 202.

AT THE AUCTIONS

February 26

New York: 15 oranges, 6 lem. Slightly higher. Nav. 4.35-6.25, Tang. halves 3.15-4.10, blood halves 3.05, lem. 3.05-4.70.

St. Louis: 7 oranges, 3 lem. Nav. 5.00-5.95, lem. 2.65-3.50

Cleveland: 8 oranges, 1 lem. Nav. 3.40-5.70.

Philadelphia: 3 oranges, 2 lem. Nav. 5.40-6.00, lem. 3.30-4.30.

Boston: 5 oranges, 3 lem. Higher. Nav. 4.95-6.45, lem. 3.25-4-20.

February 27

New York: 17 oranges, 6 lem. Nav. 4.65-6.10, lem. 2.95-4.40, Tang. halves 3.30-3.65.

Boston: 3 oranges, 3 lem. Higher on all oranges. Nav. 5.90-6.45, lem. 3.65-4.05.

Pittsburg: 4 oranges, 1 lem. Nav. 4.25-5.70, lem. 2.10-2.80.

February 28

New York: 13 oranges, 5 lem. Nav. 4.65-5.90, Navelencias 6.00-6.35, lem. 2.85-4.20, Ruby bloods. halves 2.90-3.30, Tang. halves 3.20-3.65.

Boston: 5 oranges, 1 lem. Nav. 5.15-6.70, Seeds. 3.80, Tang. halves 3.70, lem. 3.65-4.20.

St. Louis: 5 oranges, 1 lem. Nav. 3.70-6.05, lem. 2.95-3.50.

Philadelphia: 5 oranges, 2 lem. Market slightly lower. Nav. 4.55-9.95, Tang. halves 3.05, lem. 2.90-4.55.

New York: 16 oranges, 8 lem. Nav. 4.20-6.25, Tang. halves 3.35-3.70, lem. 2.70-4.15.

St. Louis: 6 oranges, 1 lem. Nav. 4.20-5.80, Tang. halves 4.10, lem. 2.85-3.20.

Boston: 12 oranges, 3 lem. Nav. 5.00-6.65, Seeds. 5.75, lem. 3.45-4.30, Tang. halves 3.05-5.00.

Philadelphia: 4 oranges, 2 lem. Nav. 5.20-5.70, Navelencias 5.80, lem. 3.30-4.20.

Cincinnati: 1 oranges, 1 lem. Nav. 5.50-5.90, lem. 2.90.

Pittsburg: 10 oranges, 3 lem. Nav. 4.30-5.80, lem. 1.90-3.40.

March 4

New York: 13 oranges, 8 lem. Nav. 4.75-6.60, Ruby bloods. 5.75-6.85, lem. 2.20-4.25.

Boston: 5 oranges, 1 lem. Nav. 3.85-6.05.

PARTIAL LIST CALIFORNIA FRUIT AND VEGETABLE SHIPMENTS

From post card reports to Los Angeles branch of the bureau of markets, report is made of the following shipment of cars of products from California for the week ending March 3: Apples, 39; artichokes, 1; cabbage, 70; cauliflower, 106; celery 32; dried apples, 10; dried apricots, 2; dry beans, 56; dried figs, 1; dried peaches, 18; dry peppers, 1; dried prunes, 20; lettuce, 115; mixed vegetables, 105; mixed fruit and vegetables, 15; mixed dried fruit, 8; onions, 30; pears, 2; potatoes, 54; raisons, 73; spinach, 18; squash, 2; sweet potatoes, 1; Mexican tomatoes, 29; turnips, 1.

MARKET NOTES

The San Fernando district is making its maiden effort in the production of cabbage. From observations made by field men connected with the bureau of crop estimates the outlook for Winningstadt is not very promising. It is yielding only four to five tons per acre and apparently not adaptable to this particular section, however, 60 per cent of the acreage which is of the cannon ball variety is in good condition with a probable yield of 10 to 11 tons per acre. Shipments of this variety will start about March 20.

After investigations as to cantaloupe conditions in the Imperial Valley R. G. Risser reports: "The acreage is as large as was ever planted, and the present prospects are for record breaking shipments in the Imperial district. The new districts in Los Angeles and Riverside Counties will probably make important commercial shipments later in the season.'

Imperial Valley's cantaloupe acreage is divided about as follows: Calexico, 160 acres, Heber 2205, Imperial 624, Grape 367, Brawley 6313, Rockwood 595, Poppy 843, Westmoreland 1983 acres.

Imperial Valley lettuce has been developing slowly and heads are smaller than in former seasons.

Thermal, Riverside County, reports onions as growing nicely and showing a condition of about 90 per cent.

The Imperial Valley and San Pedro hills in Los Angeles are shipping peas in express lots to Eastern markets. The planting in Imperial is about 738 acres, in the San Pedro hills, 550.

Florida strawberry shipments have been lighter than usual because of shortage of transportation, labor and fertilizer. A very few express shipments are made at 75 cents per quart.

Imperial and Los Angeles Counties will begin the shipping of tomatoes the latter part of May.

Imperial Valley will plant about 1035 acres of watermelons.

Fullerton, Orange County, has made liberal planting of potatoes, but owing to the failure of last year's crop it is predicted the total will not reach that of former years.

The Kansas City stockyards reports great increase in the demand for manures. This season's shipments during the month of January aggregated 253 cars, while in January, 1918, there were only 16 cars shipped out. Most of the supply goes to truck farmers.

The trade anticipated a great decrease in the supply of hogs at the Kansas City yards, but the receipts during February ran much heavier than during the months of December and January.

Reports as to the area planted to onions in the Stockton district indicate less acreage than last year. The onion districts of Texas show a condition of about 85 per cent. The market is much more active than for some weeks.

Potato values the country over are dropping much lower than anticipated. Northern California potato sections are reporting prices around $1.00 per hundred pounds. Stockton, however, reports some fancy stock still commanding $1.75 to $1.90.

WEATHER CONDITIONS

San Francisco, Cal., March 1, 1919.

STATIONS.	Wy	Rainfall - Season	Norm	Temp. Max.	Min.
Eureka	1.93	29.07	31.77	52	36
Red Bluff	76	22.11	17.75	58	34
Sacramento	1.84	15.49	14.04	56	38
San Francisco	251	22.89	16.45	58	45
San Jose	1.16	15.78	16.45	58	32
Fresno	.37	5.62	6.53	60	36
San Luis Obispo	1.10	14.34	14.22	62	36
Los Angeles	.09	5.76	11.05	66	44
San Diego	.26	6.17	7.29	64	46



Top Dressing Talks

Deciduous Orchards. Run-down deciduous orchards may be greatly benefited by the application of 100 pounds of ARCADIAN Sulphate of Ammonia per acre about four weeks before the blossoming period. Where the soil has lost most of its nitrogen 200 pounds may be added with most beneficial results.

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Lawns and Pastures. On an established sod, 100 pounds per acre will promote growth and vigor. The application should be made when the grass is dry, for if wet, the Sulphate will adhere to the leaves and burn them. An irrigation soon afterwards, however, is very beneficial.

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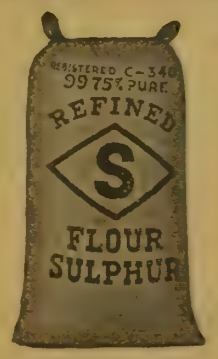
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Waste Beans as Poultry Food

Written for California Cultivator · By E. Ralph de Ong

THE great need in the food of either man or beast is protein, that is nitrogenous material. Our first great source of supply is of animal origin, either meat or dairy supplies, all of which are very expensive. The second and cheaper source is from plants which contain a high percentage of protein, especially the legumes such as beans and peas.

The poultry keeper is compelled to feed his growing stock and laying hens large quantities of nitrogenous food, if he expects to succeed. If a cheap supply of this kind of food, such as buttermilk or skim milk, is not available to the poultry man, then he must resort to blood meal, meat or fish meal at a price of four to eight cents a pound to supply the deficiency. Alfalfa meal is sometimes used in poultry foods as a cheap nitrogenous food, but the amount which the hen will consume is limited.

A cheap substitute for the high priced meat meals them is what interests the poultryman, and here is where the waste bean may supply the need. The following table shows the relative value of the bean as a food compared with other common sources of protein for poultry feed. It will be noticed that beans stand at the head of the list, so far as the total food value is concerned, it having a total percentage of 74 per cent as against 23 per cent for fresh bone. The expensive element protein ranges from 18 to 26 per cent for beans with an average of 22 per cent. In meat products it is from 69 per cent in blood meal to 18 per cent in bone. Comparing the cost of the foods the price of protein in blood meal at six to eight cents a pound would be practically the same as the cost of this substance in beans at three to four cents per pound.

Comparative Feeding Value of Beans and Meat Products

	Protein Pct.	Carbohydrate Pct.	Fat Pct.	Total
Beans	18 26	54	.8	74
Dried blood	69	..	.9	70
Fish meal	38	..	8 0	46
Fish meal	27	..	11 0	38
Fresh bone	18	..	5 0	23

When the amount of carbohydrates and fat is considered in the bean, in addition to the amount of protein present, it will be seen that this is a very valuable food.

Beans alone are a richer food than is necessary to feed poultry. The most economical use of this material will be as a supplement to grain and mill feeds. Ground it may be incorporated into the dry mash to 10 or 15 per cent of the entire amount. In other words, use it about the way oil meal is commonly mixed into the dry mash. Poultry will not eat the dry, whole bean so that it is necessary to either cook them or have them ground to the same fineness as coarse meal. For the small flock, cooking with the addition of a little salt is the better way of making them palatable, allowing about one-fourth of a pound of beans daily to 12 or 15 hens.

There are two sources of waste beans in this state; beans which are split in the process of threshing and those which have been damaged by rain or injured by bean weevil or other insects. Stock of this kind often accumulates at the warehouses, particularly where they are doing cleaning work. Some of the larger supply stores also carry this class of beans, wherever the demand warrants it. The price on ton lots usually ranges from $40 to $50 a ton, depending on the condition of the bean and the amount of trash present. On small lots the price varies from three to four cents a pound. Any variety of bean or pea may be used for this type of feeding. There is of course some variation in different varieties but all are valuable.

Meat Makes Eggs

My experience with my chickens this winter has been so satisfactory that I felt it might be of interest to other owners of town lot flocks. I moved them to town the middle of July. They had been on free range and were not laying very many eggs. I had 13 hens and a rooster, all pure bred R. I. Reds, two years old next month.

I have been raising chickens for several years and in common with others found it a problem the last two years to secure the best and cheapest feeds. I found it more of a problem with chickens in a small yard than when they had the run of a 15 acre farm.

I first tried one of the best of the commercial mashes with greens and milo as a grain, but the results were only fair.

The bread winner of the family took charge of a meat market and began to save the bits of meat which were not salable, such as the block scrapings and dark pieces which had to be trimmed from the steaks and roasts. In the course of a day he fills a quart box and these I cut up, and feed raw, being careful that none of it is spoiled. In a very short time the hens began to lay and all fall and winter the neighbors envied me my hens.

I fed milo morning and evening, no mash, but let them run in the outside yard and a vacant lot next to us for an hour each evening so they could choose their own greens. They were taught to come when I called, so with a handful of grain I can soon yard them when they threaten to invade the neighbor's garden.

I regret that no account was kept of the number of eggs. It has been no uncommon thing to get 12 eggs a day from the 13 hens though never two days in succession. We expected them to stop to moult, but except that I found feathers under the roosts one could not tell whether they moulted or not.

I was afraid that so much meat might cause sickness but haven't had a sick hen. Sometimes I have seen a tendency to loose bowels but cutting down on the meat for a few days soon remedies this.

This method of feeding may not seem to be a scientific one, but has certainly given results.

My neighbor thinks it is the breed of hens and plans to have some of them next year, but last year, which was their pullet year, they were fed grain and a mash and were on range and I got no such results as this year.—Mrs. E. M. Bradley, Santa Ana.

Unfortunately few people have access to such a liberal supply of meat, and if purchased, even at the low price which the butchers charge for these meat scraps and bone scraps all

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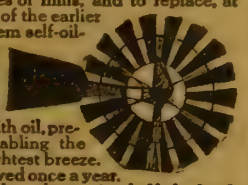
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ground together, it still could hardly be made such exclusive diet, we mean within the bounds of economy. But these ground bone scraps are well worth liberal using. We believe that practically every butcher now saves these wastes and in the grinders which they install they are made into the most satisfactory part of the meat ration of many near-town poultry yards.

THIRD ALL NORTHWEST LAYING CONTEST

By Jean A. Koethen

The reports from this contest, which began at Pullman, Washington, November 5, 1918, are always interesting. The latest, which gives results of the contest for the three months ending January 31, is added proof, if such proof were needed, of the superiority of certain standard breeds in the matter of egg production.

We are not told just how many breeds are competing, but the breed honor roll of high pens in each breed includes three pens each of White Leghorns, Rhode Island Reds, Rhode Island Whites, Barred Rocks, Black Minorcas and White Wyandottes, with a single pen each, classed as "miscellaneous," of Anconas, White Rocks and Buff Orpingtons. As usual, White Leghorns lead, their high pen records being 339, 337 and 296 eggs for the three months. It is understood that each pen contains five hens, but in some cases in these contests there have been six in a pen. Next to Leghorns, though placed at the bottom of the list because two of the three pens are from the Washington State College, and therefore not in the competition, come White Wyandottes, with 303, 245 and 244 eggs respectively. Rhode Island Reds scored 295, 255 and 189; Rhode Island Whites 239, 220 and 131; Barred Rocks, 182, 147 and 123; Black Minorcas, 156, 113 and 109. From these figures it appears that Rhode Island Reds laid nearly 100 per cent more eggs and Rhode Island Whites nearly 30 per cent more than Minorcas, while Leghorns were so far ahead that one could only see the dust they raised.

Among the high hens on the honor roll, White Leghorns led, of course, the best layer producing 74 eggs in the three months, or an average of almost 25 eggs per month. The other Leghorns produced respectively, 73 and 70 eggs, three hens having the honor of laying 70 each. The only other hen in the competition that reached 70 eggs was a Rhode Island White, but Rhode Island Reds averaged a little better than the Whites, the average of the three highest Reds being 65 1-3 eggs, while that of the four highest Whites was 61¾. The three highest Wyandottes laid 66, 65 and 65 eggs, an average identical with that of the Reds. The three highest Minorcas averaged 42, and the three highest Barred Rocks 51 eggs each.

HENS OR CAPONS?

Oregon tells us that the total annual loss due to keeping cockerels with flocks is $630,427. If this is true in the north, California might find the loss just as great. To caponize the rooster may prove the real antidote for the trouble; by this simple operation, we change something worthless into profit; a great expense and waste to abundance.

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The cockerels should be caponized when comb and wattles begin to show red; in heavy breeds this will be when they are about eight weeks old.—Mrs. H. Ament.



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Vol. LII — March 15, 1919 — No. 11



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F. o. b. Racine

New Mitchell Sixes

Wheelbase 120 inches
Long-stroke Six motor
Cylinders 3¼ x 5
Tires 34 x 4

A Completely New Six

Over 100 New Standards---75% More Endurance

The war has enabled us to do in 18 months what we might have spent years to accomplish. The great Mitchell factory was given to truck building. Our engineers and specialists had 18 months to bring out a new Mitchell, built to new standards.

The result is that now we are able to offer our new conception of a lasting Six. There are more than 100 improvements, 50 per cent added strength, 75 per cent more endurance, 25 per cent more economy and 20 per cent greater beauty and comfort.

It Had to Come

Two years ago we decided, for our part, that the Light Six type should be bettered. It had been too light. Experience had shown that the boasted over-strength was too often under-strength.

Fierce price competition had forced makers to skimp. Then ideas were changing. Buyers bought their cars to keep, and they looked for many years of service.

The Mitchell was great and successful. In 14 years it had won a world-wide fame. But we knew that all Light Sixes, including the Mitchell, must adopt new standards to meet new-day expectations. And we started then to make our preparations.

New Specialists

We added to the Mitchell staff many new specialists. These were men who had made their mark in high-grade car construction.

Then came the war, and with it came their unique opportunity. For 18 months, while we built trucks, they worked on this new model.

They made over 100 important improvements. Part by part they added an average of 50 per cent more strength. They spent over $250,000.00 for new machines and equipment, just to build parts better and to test them better. They created a staff of 135 trained inspectors, to measure and test and insist on perfection.

The result is this new-standard Mitchell, combining 100 of the greatest advances that ever were made in Sixes.

New From End to End

The design is new, the color and the top. The radiator is larger, and the wheels, with 34x4-inch tires.

The steel frame is deeper, adding 50 per cent to the strength. Rear axle strength is increased 50 per cent, brake efficiency 75 per cent. The gears are 25 per cent stronger by actual crushing test.

There is a new-type disc clutch. There are 123 drop forgings. Chrome-Vanadium and Chrome-Nickel steels are lavishly used in construction.

The ball-bearing steering gear is made 10 per cent stronger. Our new crank shafts show a tensile strength of 150,000 pounds per square inch. They are perfectly balanced on two costly machines.

Gasoline Saving 25%

Gasoline and oil cost is reduced 25 per cent. This largely comes through the use of a thermostat to regulate the water system. It controls the temperature of the air, liquids and gases. The carburetor intake is twice better heated, so the gasoline is vaporized and combustion is complete.

To make staunch bodies we use frame material costing twice the usual. We use interlaced hair in the upholstery. We use four coats of varnish, instead of the usual two, to double the life of our finish.

We give ample room with a 120-inch wheelbase. Compare that with other 5-passenger Sixes.

But one part could not be bettered—our long cantilever rear springs. Out of 40,000 now in use, not a spring has broken. And they have made the Mitchell the easiest-riding car in its class.

Undersells All Rivals

This new Mitchell, despite all these new standards, still sells below all comparable cars. That is due to our wonderful factory efficiency which has made the Mitchell plant famous. We build the complete car —chassis and body——under scientific methods, which reduce labor cost to the minimum.

Write us for further details. Then go over this new car, part by part, with your nearest Mitchell dealer. When you know this car, you will want this new strength, new endurance, new beauty, new economy.

Mitchell E-40

Price, $1,475, f. o. b. Racine
Wheelbase, 120 inches, 40 horsepower
Six-Cylinder Motor
Cylinders 3¼ x 5. Tires, 34 x 4
3-Passenger Roadster, same price
We also make a Touring Sedan

MITCHELL MOTORS COMPANY, Inc., Racine, Wisconsin

California Cultivator

Vol. LII, No. 11 | Los Angeles: March 15, 1919 | One Dollar Yearly

Present Understanding of Citrus Fertilization

From Address by W. P. Kelley at Citrus Institute at San Bernardino

THE problem as I see it in the citrus groves of California has to do quite largely with the matter of increasing the efficiency of the materials that are now commonly applied. Hitherto whenever a grove has failed to grow properly or to set a sufficient amount of fruit, when the trees become unhealthy and begin to show mottle leaf or other symptoms of malnutrition, it seems to have been the general idea that some fertilizer should be applied, without giving very serious consideration to other factors that may possibly be fundamentally at fault.

I do not wish to be understood as intimating that fertilizers have no efficacy; on the contrary, I merely wish to point out that other factors are often also involved, which tend to defeat the purpose of the grower when he resorts merely to fertilizer, or to lower the efficiency of the very fertilizer which he applies. I have reference mainly to the physical condition of the soil.

Soil Management

I have come to look upon fertilization as a phase of soil management, and what I shall say is partly for the purpose of directing attention to this broader view of fertilization. It may possibly be helpful to consider fertilization from the standpoint of conditions as they actually exist in the soils of citrus groves.

The practice of fertilization has evolved from the idea that fertilizers are used to provide plant food when the amounts or solubility, of that already present in the soil, are inadequate. In this connection there are two reasons and only two, so far as I know, why the problem of citrus fertilization in California is different from that of other crops in other parts of the world. These are, first, the unfavorable physical conditions which irrigated soils tend to assume just below the depth of cultivation; second, the occurrence of small amounts of soluble sodium compounds in the soil. It is largely because of its joint effects on these two features of our soils that I regard nitrate of soda to be an undesirable fertilizer for a considerable part of the citrus area.

Vital to Growth

The unfavorable physical condition now found so commonly in the subsoils of citrus groves operates to interfere with the maintenance of satisfactory conditions of both moisture and plant food, and this is in my opinion, a very real matter; the moisture and food requirements of citrus, as is the case with all plants, are vital to its growth.

I prefer to look upon both the moisture and food requirements as being parts of an inseparable whole. Therefore, when the feeding habits and power of citrus are referred to, both water and plant food should be considered. The ability of any plant to satisfy its food and moisture requirements ordinarily depends upon three factors: the amounts present in the environment about its roots; the requirements of the plant; the foraging power of the plant. To these might be added a fourth, namely, the rates at which moisture and its associated dissolved plant foods are capable of moving by capillary force from one part of the soil to nearby or adjacent parts.

Not Extensive Root System

With these points in mind it is interesting to note that at least one of the necessary plant food elements upon which citrus makes heavy demands does not occur abundantly in the soils of Southern California. I refer to nitrogen. The food requirements of citrus are heavy and unfortunately most heavy for the very element that is most deficient in the soil. The foraging power of citrus, when we take its demands into consideration, is not great. Citrus trees do not possess a fine, fibrous and extensive root system such as many of the annuals, and the extent and proportion of feeding roots as compared with the demands of the tree are not as great as is the case with many of the annual and more vegetative crops, such as alfalfa and the like.

It is necessary, therefore, to apply fertilizing materials. But it is still more necessary so to manipulate the soil and irrigation that the maximum amount of the materials applied actually comes in contact with the roots. Now you would hardly expect live stock to be properly nourished if the main portion of their food should be placed in the barn loft, only slightly, but just beyond their reach. In like fashion it is just as unreasonable to expect citrus trees to derive the greatest benefit from fertilizer when all but a mere tantalizing bit of it remains on or near the surface of the ground, where, owing to frequent cultivation, only an occasional root is permitted to grow. The soluble materials are frequently not able to penetrate deeply into the soil owing to the presence of compacted subsoil into which the irrigation waters pass with difficulty and through which, during a considerable portion of the summer, they can scarcely pass at all.

Plowsole

One of the very greatest practical problems before the citrus grower, especially in the interior valleys, has to do with the widely occurring plowsole and compacted subsoil, and the efficiency of fertilizer is intimately related to this matter. The surface soil may be in excellent tilth, with the subsoil only a few inches below entirely unsuitable. I frankly believe that unsatisfactory and in very many cases quite unprofitable tree condition and fruit production are the only reasonable promise of many groves for the near future, unless effective measures be taken to improve the physical conditions in the zone immediately below the depth of cultivation.

It is just in this connection that we find an important reason for the addition of organic matter. We have consistently advocated replenishing the organic matter of soils and the farther investigations go the sounder this doctrine becomes. Decaying organic matter is far and away the most potent agent in ameliorating the unfavorable physical conditions of soils. The importance of this matter can scarcely be overemphasized.

Unless the compacted subsoil or plowsole be efficiently broken up and kept open and porous, it is certain that a large part of the fertilizer applied to the surface will remain near the surface and not come in contact with the main portion of the feeding roots, at least during the season immediately following the spring application. When organic matter undergoes decomposition the small soil particles with which it comes in contact or among which its soluble products diffuse, coalesce into granules. The practical result is that the soil mass becomes more porous and the physical

Continued on Page 390



Cover Crop Is a Fertility Restorer

Agricultural News Notes of the Pacific Coast

Northern California

Shasta County will plant 2300 acres of rice this year.

The traveling tractor school is now being held at Chico, Butte County.

Nearly 300 attended the tractor school held at Chico, Butte County.

Sonoma County plans bonding $1,600,000 for good road construction.

The poultry farm at the Napa state hospital has proven a profitable venture.

Many tons of herring are being used by San Francisco fertilizing plants.

A movement has been started in Butte County to promote a bond issue of a million and a half or two million for road building.

The Humboldt County farm bureau has a most profitable feature in a purchasing and marketing department.

Wine grape growers are given privilege of writing off from income tax loss incurred on vineyards because of prohibition.

Sutter County farmers have started a squirrel drive which is under the direction of Harry P. Stabler, horticultural commissioner.

The Lassen national forest accommodated during 1918, 4505 cattle, 50 horses, 16,000 sheep. These practically all from Tehama County.

J. A. Teagarden, for four years president of the Placer County farm bureau, declined to act longer and has been succeded by E. C. Bedell.

Mendocino County grape growers have been offered a contract for their crops for ten years, $14.30 per ton for grapes reaching 22 per cent sugar.

Solano County farm bureau meetings held during the earlier days of this month made plans for a strong campaign against squirrels and gophers.

Tehama County's farm center meetings: Oak Park, March 14; Richfield, 17; Corning, 19; Bend, 21; Los Molinos, 24; directors' meeting March 21.

Eldorado County proposes to go after pear blight. The horticultural commissioner expects to make thorough inspection of every orchard in the county.

C. J. Evans, federal poultry specialist, has been assigned to work in Sonoma County. His headquarters are in the office of Farm Adviser Merrill at Santa Rosa.

The regular monthly meetings of the Tehama County farm bureau will be held as follows: Dairyville, March 12; Oak Park, 14; Richfield, 17; Corning, 19; Bend, 21; Dos Molinos 24.

Castella, Shasta County, is a large producer of strawberry plants, having shipped out over 900,000 plants at an average of around $8 per thousand. Watsonville is her biggest customer.

The executive board of the Northern California Counties' Association is deliberating over plans for highway improvement in the five counties of Siskiyou, Trinity, Lassen, Modoc and Shasta.

Sutter County farmers are asking the state legislature to restore the old Sutter by-pass or else force the Armour interests to complete the east wall of the by-pass and relieve flood conditions.

Central California

Kerman, Fresno County, has a live wire pig club connected with its high school.

Sale of fat hogs at Tulare resulted in 568 hogs being sold, $15.35 being top price.

Several farms on the Waterford Irrigation District, Stanislaus County, are planting figs.

Sylvan Farmers' Union held annual meeting recently and elected officers for the coming year.

Farmers at Modesto, Stanislaus County, are taking steps to secure more effective control of noxious weeds.

Santa Cruz County, which has long been a large producer of loganberries, is planting more extensively than in former years.

County Horticultural Commissioner C. F. Collins of Tulare County reports cost of squirrel eradication as less than crops consumed by the pest.

Santa Cruz County farm bureau has been keeping the wires hot to Washington urging passage of Smith-Lever bill.

A large tract of land at Corcoran, Kings County, is to be organized into the Corcoran irrigation district. It will include about 55,000 acres.

The Madera County farm bureau has voted that the Madera County unit unite with the Hilmar Mutual Fire Insurance of Merced County.

The cattle protection board of Kings County is taking action to secure the enforcement of the branding law and the registration of various brands.

There is a proposal to build a sugar beet factory at Sacramento. It is thought much land in that section could well be planted to sugar beets.

The Turlock Merchants and Growers, Inc., has elected officers and is ready for the coming season's marketing of melons and other Turlock grown products.

The best herd in the Stanislaus County farm bureau cow testing department showed a daily average butter production for the month of January of 1.5 pounds.

A mass meeting of vineyardists at Lodi forwarded petition to President Wilson to extend time before enforcing the dry regulations which are to go into effect July 1.

Speculative prune packers have named 1919 prune prices as follows: 30s, 10¾ cents; 40s, 10 cents; 50s, 9 cents; 60s, 9 cents; 70s, 8¾ cents; 80s, 3¼ cents, and 90s, 7¾ cents.

Farm center meetings Merced County: Planada, March 14; Livingstone, 17; Fruitland, 19; Amsterdam, 21; Merced Colony, 24; El Nido, 26; Eschscholtzia, 28; Hilmar, April 1; Cottonwood, 2.

Merced County wheat growers have had some difficulty with bluestone treated seed but are still insisting that with greater care treatment with bluestone is essential and will accomplish excellent results.

Cotton growers of San Joaquin County recently met at Fresno and voted to pool interests and ship entire crop of the valley to Boston. The ginning will be done at Fresno. Pima seed is now being ordered from Arizona for the coming season's crop.

Southern California

Imperial Valley sheep men are installing shearing plants.

Imperial Valley is hoping for the early installation of a state farm school.

Imperial County held its annual farm bureau assembly at El Centro, March 1.

Independent bean growers of Ventura County are organizing an independent bean pool.

Pomona now has the lid on tight as to no smoking allowed in her citrus frost fighting campaign.

Southern poultrymen are planning for shipping early broilers direct to the New York market.

The California bean situation is not improved, in fact prices are shading slightly almost every day.

Former residents of Michigan meet in picnic in Sycamore Grove park, Los Angeles, on Saturday of this week.

Garden Grove Citrus Association, Orange County, recently held its annual banquet and election of officers.

The bean situation has resulted in a scandal and the removal of two officials of the national food administration.

California Bean Day date not yet chosen, but it is proposed to make it a great day all over the United States.

The frost insurance measure proposed by the state legislature is meeting with support of many citrus growers.

The Riverside County farm bureau is canvassing the county as to live stock and as to seeds which farmers have to sell.

Walnut growers of the southern end of the state are hoping for the appropriation of $10,000 to investigate the walnut moth.

Garden Grove, Orange County, is one of the largest producers of chili. The shipments last year aggregated 430 cars or 6350 tons.

Directors have been elected for the 1919 Ventura County fair and dates will soon be named. J. W. Hitch has been chosen president of the directors.

The recently elected officers of the Imperial County farm bureau are: B. D. Irvine, president; C. F. Boarts, vice-president; J. J. Carr, treasurer; A. M. Nelson, secretary.

Riverside fruit growers are making a canvass of the situation as to supplies for canneries, with an idea of balancing up products so as to keep canneries busy through the season.

The Imperial Valley irrigation district has appointed a commission to inspect Salt River and Yuma reclamation projects and report as to efficiency of government work on canal projects.

Imperial County dairymen are planning a new cow-testing campaign and at the end of ten months will issue certificate of production to every member cow which makes 300 pounds or better of butterfat.

The Orange County farm bureau cow testing department is now signing up dairymen. When 1100 have been signed up the membership will close. Members will pay $1.50 for one year's testing for each cow in herd, the minimum payment to be $15.

The Coast and General

Mabton, Washington, has voted to hold a hay palace fair this fall.

Sweet potato weevil is spreading rapidly over the state of Texas.

Trade is being resumed with that portion of Germany under control of the allied armies.

The Western Washington Horticultural Association will hold its next meeting at Puyallup.

Cotton acreage in the state of Texas will be reduced this season. Peanut acreage will be increased.

Congress has voted to increase the power of President Wilson in maintaining the $2.26 wheat guarantee price.

A wool growers' association in Dayton, Washington, plans returning to branding of sheep to prevent stealing on the reserve.

Necessity of conserving rice for local consumption is restricting export from India. The short crop is due to lack of rain.

The secretary of the National Wool Growers anticipates a price for the spring clip of wool somewhere between 50 and 50 cents.

The food administration has removed the restrictions on prices of pork products and it is thought the first effect will be material increase.

Manufacturers of woolens used in this country in January of 1918 only 38,200 pounds, which is a little more than half what was used in the same month last year.

Thirty suits for damages to apples alleged to have been done by frost during transportation to the East last season, are on file with the county clerk at Yakima, Washington.

A widow living near Chandler, Arizona, was pleasantly surprised a few days ago when a number of her neighbors with 20 horses and a tractor appeared and seeded her ten-acre ranch to alfalfa.

A reclamation project involving about 26,000 acres of Gray's Harbor overflowed lands is expected to be accomplished for returned soldiers and sailors. The work will be done by the federal government.

The experimental stage of cotton growing has terminated in Argentina and commercial planting will be made this year for the first time. It is thought the labor situation is such that the production will be very limited.

Texas, which is becoming one of the largest pecan producing states of the Union, is complaining because government experiment station with various varieties of nuts is not given so much attention in that state as some others.

Arizona is contemplating a revision of her bill providing for agricultural and horticultural commission. The new bill provides for five commissioners instead of three under the old law, with per diem allowance instead of regular salary.

The Walla Walla cow testing association has increased the butterfat production of the dairies of its members from an average of 255.4 pounds to 316.1 pounds and the average profit above feed cost from $34.85 to $66.86. This entirely due to weeding out unprofitable cows.

Sugar---and How It is Made

By Arthur L. Dahl

THE World War has taught us the value of sugar as a food. Until we had to count the spoonfuls and receive our little cubelets with our coffee, instead of having free access to the sugar bowl, we had not realized how essential sugar was to our happiness. Like other sweetening influences that have been as free to us as the air, and of which we took no thought, sugar proved the old adage that "Absence makes the heart grow fonder."

But the sugar bowl is back again on the table, and just as we study the face of a returned friend, we are more interested now than we ever were in knowing the life history and experience of this sweet character.

Sugar is made either from cane or beets and these two sources of supply are grown in many parts of the world. In California the sugar beet industry is an important one, and although no sugar cane is grown in the state, practically all of the production of sugar cane of the Hawaiian Islands is refined at San Francisco, the refinery of the California-Hawaiian Company being one of the largest and best equipped in the United States.

The United States grows only 23 per cent of its consumption of cane sugar, getting the rest from Cuba, Hawaii, Porto Rico and other countries. Cuba furnishes us with 48 per cent of our cane needs, Hawaii with 12 per cent, Porto Rico with 10 per cent and other countries about 7 per cent. While the development of the sugar beet industry in the United States has been rapid, the total production of sugar by the beet factories would supply our own demands for only about three months each year. In several of the European countries, such as Germany, Austria and France, the production of sugar from beets has reached enormous proportions, and large exports were made, in normal times, by both Germany and Austria. In the recent war, Germany's food problem was largely solved by reason of her having on hand vast quantities of sugar intended for export but which was held up by the Allied blockade. This supply was used to take the place of fats and other heat unit foods lacking, and sugar thus played a prominent part in keeping up the health and strength of the Germans.

In Hawaii, Cuba and Porto Rico sugar is the principal industry and a majority of the people are directly dependent upon the cane fields for their living. Those not directly engaged in the growing or grinding of sugar cane are dependent upon the wages received by these workers.

The United States consumes more sugar than any other country, requiring about one-fourth of the world's production. According to the last census, the per capita consumption of sugar in the United States was 89.1 pounds, being only exceeded by the per capita consumption of the United Kingdom, Australia and New Zealand.

All imports of cane sugar to the United States come in the form of raw or unrefined sugar, the refining being done in some one of the 18 large refineries located in this country. Twelve of these refineries are on the Atlantic Coast, four near the Gulf of Mexico and two on the Pacific Coast. These refineries handle only cane sugar, the sugar beets grown in this country being processed in factories located near the growing fields. As sugar beets are perishable, it is essential to have them treated as soon as possible after picking.

Although not as large a producer of cane as Cuba, Hawaii has developed her industry to the highest degree and the sugar produced in the islands is of a high quality. A description of the methods of growing and grinding sugar in Hawaii will suffice for other cane growing countries, as the differences are merely those of local customs. In Hawaii the cane grinding mills are comparatively new and up to date and modern methods are practiced throughout. The sugar growers maintain a full corps of scientists and chemists to constantly study plant diseases, insects, destructive pests, and to experiment with new varieties with a view to improving the yield and quality of the cane. In the Hawaiian Islands it takes at least 18 months to produce a mature crop, and the planting and harvesting is going on in adjoining fields throughout most of the year. In some other cane countries the crop is harvested at the end of each season, even though the cane has not reached its maximum growth.



Great Refinery on San Francisco Bay

View of California-Hawaiian Sugar Refining Company. Cargoes of crude Hawaiian products are landed here and refined for American consumers.

The making of sugar from beets is entirely different from the processes used in the cane industry. Sugar beets are a bulky crop low in value per unit of weight, and beet growing areas must, of necessity, be confined to localities on some railroad line, usually within 100 miles or so of a mill. At the present time there are 15 mills in California, and over 144,000 acres devoted to beet culture. Beet lands should be level, with deep soils, and organic matter and plant food must be abundant. Ample moisture must be supplied, either by irrigation or rainfall. A long growing season is required.

Sugar beets are usually grown under contract with a near by mill, two methods of payment being used. In one the crop is bought on a flat tonnage basis, while in the other payment is based upon a sliding scale depending upon the sugar content of the beet.

To secure maximum crops the growing field must be placed in a fine state of cultivation to as great a depth as possible. The beet roots penetrate deeply into the soil, and the greater the depth of plowing the easier can the roots burrow. Planting occurs between October 1 to June 1, depending upon local conditions. In Southern California planting is usually done in the fall, while in the Sacramento Valley it is done in the spring. The seed is usually furnished to the grower by the mill at actual cost. In planting the seed is sowed by drills capable of planting from four to eight rows at once, spaced from 16 to 24 inches between rows. From 12 to 20 pounds of seed are required per acre. Cultivation is started as soon as the rows are well defined and is designed to provide the three-fold object of weed destruction, aeration, and maintenance of a loose earth mulch for the retention of water. Cultivation is continued until the size of the plants prevents instruments passing down the rows. Thinning is then practiced and hand hoeing carried on. Irrigation is almost necessary except in sections where rainfall is regular and ample, and the flooding system is practiced in most fields.

Fall sown beets reach maturity in from seven to eight months, while spring sown beets will mature in from four to five months. Harvesting is done by plowing out the beets by specially constructed implements which loosen the beets and enable them to be picked out of the soil by hand. They are loaded on wagons which take them to railroad cars, or if near the mill, they are hauled directly to the mill. An average yield of sugar beets is 10 tons, but sometimes 15 tons or more is obtained. A yield under eight tons per acre would not pay for the cost of production.



Tractor Handling Three Loads Beets on Up-to-Date Dump

At the mill the beets are washed and then sliced by machines. The slices or "cossettes" are conveyed by endless belts to the cells of the diffusion battery. The sugar from beets is not extracted by crushing, as with cane, but by diffusion. Beets are made up of a great number of plant cells, the walls of which are porous membranes. These cells are placed in contact with water or juice of lesser sugar content than the juice in the plant cell, and as a result the juice is gradually diffused from the beets and carried away in the circulating water which is added. When this water or juice has reached a certain stage of concentration it is drawn out of the cells and sent to the next stage in the process of manufacture. This juice is quite dark in color, and it is next treated with from three to four per cent of caustic lime in the form of a thick milk. After being agitated, the mixture is treated with carbonic acid gas which removes some of the impurities and reduces the color to a brilliant amber. The carbonation is continued until the juice is only slightly alkaline, when it is passed through filter presses to remove the solid matter. The juice, after being filtered, is again treated with carbonic acid gas to further reduce the caustic lime, and after an additional filtration it is sent to the evaporators for concentration. At this stage it contains about 82 per cent of water which is reduced, by evaporation, to about 40 per cent. The thickened liquid from the evaporators is sent to the sulphur station and treated with sulphur fumes in order to precipitate the soluble impurities and reduce the color. It is then heated to the boiling point and filtered through cloth, and passed on to the graining process. From this point the graining process is identical with that of the cane, and consists of progress through the vacuum pans, centrifugal driers, granulators and screens, and into bags in the packing room.

In California sugar beets produce about 17.82 per cent of sugar, of which 15.64 per cent finds its way into the sacks, the remaining 2.18 per cent being lost in the process.

MANUAL OF INSECT AND PLANT DISEASE CONTROL

Fruits, vegetables, and the principal farm crops grown in California are listed in alphabetical order, with the most approved methods of control of their diseases and their insect enemies indicated in each case, in a "Manual of Insect and Plant Disease Control" which has just been issued by the college of agriculture of the University of California. The manual is adapted to the needs of the commercial grower of fruit as well as to the needs of owners of family orchards and back yard gardens. The poisoning of grasshoppers, squirrels, Argentine ants, and the spraying of plant lice are among the general subjects discussed. About thirty selected formulas for disease and insect control are given.

The manual has been compiled by Professors Ralph E. Smith, E. O. Essig, and Geo. P. Gray, specialists on plant pathology, entomology, and economic poisons.

California, according to these authorities, has more than half a million acres of bearing orchards, a partial census of the acreage of principal fruits and certain farm crops lists 3,000,000 acres under cultivation. The state spends $3,000,000 a year for the purchase of chemicals for the control of insects, plant diseases, weeds, and rodents.



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FRENCH on Almond, 4 to 6 ft.
FRENCH on Apricot, 6 to 8, and 4 to 6 ft.
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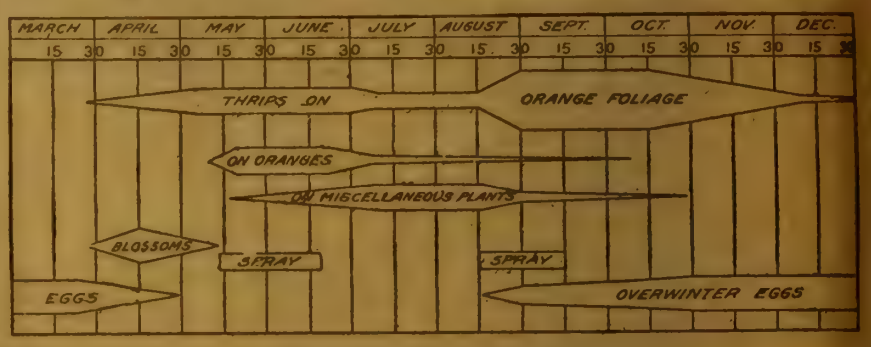
THORNLESS

Let us tell you about this blackberry
EKSTEIN NURSERIES Modesto, Cal.

Citrus Thrips

BULLETIN 674, issued by the U. S. D. A., is of value to citrus growers of the Southwest. It is by J. R. Horton, scientific assistant in tropical and subtropical fruit insect investigations.

The thrips insect has been a pest in the San Joaquin Valey for some years. More recently it has been affecting the orchards of Southern California and is a serious problem with Arizona citrus growers. It is present on the trees practically all the year; its work on the foliage beginning early in April and continuing till late December. Its most serious work on the fruit is during the months of May and June, and some orchards are seriously affected during the month of April when blossoms are attacked. Spraying to accomplish best results is during the months of May and June and August 15 to September 15.



History of Thrips at a Glance

Graphic illustration of the seasonal activities of the citrus thrips as related to blossoming and later growth periods of the orange, and indicating also spray periods.

Injury

The citrus thrips is a sucking insect feeding on the plant juices of the leaves, the fruit rind, and the bark of tender stems, in much the same manner as the mosquito draws its food from its victims. For this reason the insect can not be killed by stomach poisons sprayed on the plant, but must be controlled by sprays that kill by contact.

The injury caused by the citrus thrips begins with the seedling orange tree. The leaves are scarred and distorted, and to a certain extent the stock is devitalized. When the seed stock is budded and the foliage of the seedling trimmed off, the thrips attacks the bud. Nursery buds will make a fine, luxuriant growth of 2 to 3 feet in a season if properly sprayed to protect them from thrips. On the other hand, many nursery trees have the leaves and stems so badly scarred and twisted as to give them a blighted, unsightly appearance, and are so retarded in growth that they must be held in the nursery for a year or more beyond the proper time for sale in order to meet the size requirements, thus decreasing the nurseryman's profit by the cost of the extra care. It sometimes happens that this class of stock is sold along with better trees, and the thrips injury continues for several years in the orchard. The writer knows of 5-year-old and 7-year-old groves in the foothills of Tulare County which have been held back, principally by thrips, to such an extent that the trees are no larger than 3 and 5 year trees in less infected situations. From the general appearance of such trees it seems evident that they will never attain the size and bearing capacity of trees which have escaped severe thrips infestation in the nursery and during their early years in the orchard.

As the young fruit appears it in turn is attacked, and its market value at maturity is much reduced by the enlarged feeding scars and scabbing. A larger percentage of small-sized fruits than ordinarily develop results, and there is a total loss, as the result of early and severe scabbing, of a proportion of the fruit. To calculate the damage caused by the insect in reducing the grade of the fruit, it is necessary to know the system of grading and the relative market value of the grades.

Spray Mixtures and Dilutions

Of the large number of combinations of insectides tested, the following have given the best results, and any of the mixtures here recommended may be relied upon to do good work:

Commercial lime-sulphur.—If the lime-sulphur is of a density of 36 degrees on the Baume scale, dilute 1 gallon with 56 gallons of water; if of a density of 33 degrees Baume, dilute 1 gallon with 50 gallons of water.

Commercial lime-sulphur and blackleaf tobacco extract (40 per cent nicotine sulphate).—Dilute 1 part of the commercial lime-sulphur, if 34 to 36 degrees Baume, with 86 parts of water; if 30 to 33 degrees Baume, with 75 parts of water. Then add 1 part of the tobacco extract to 1,000 parts of the lime-sulphur diluted as above.

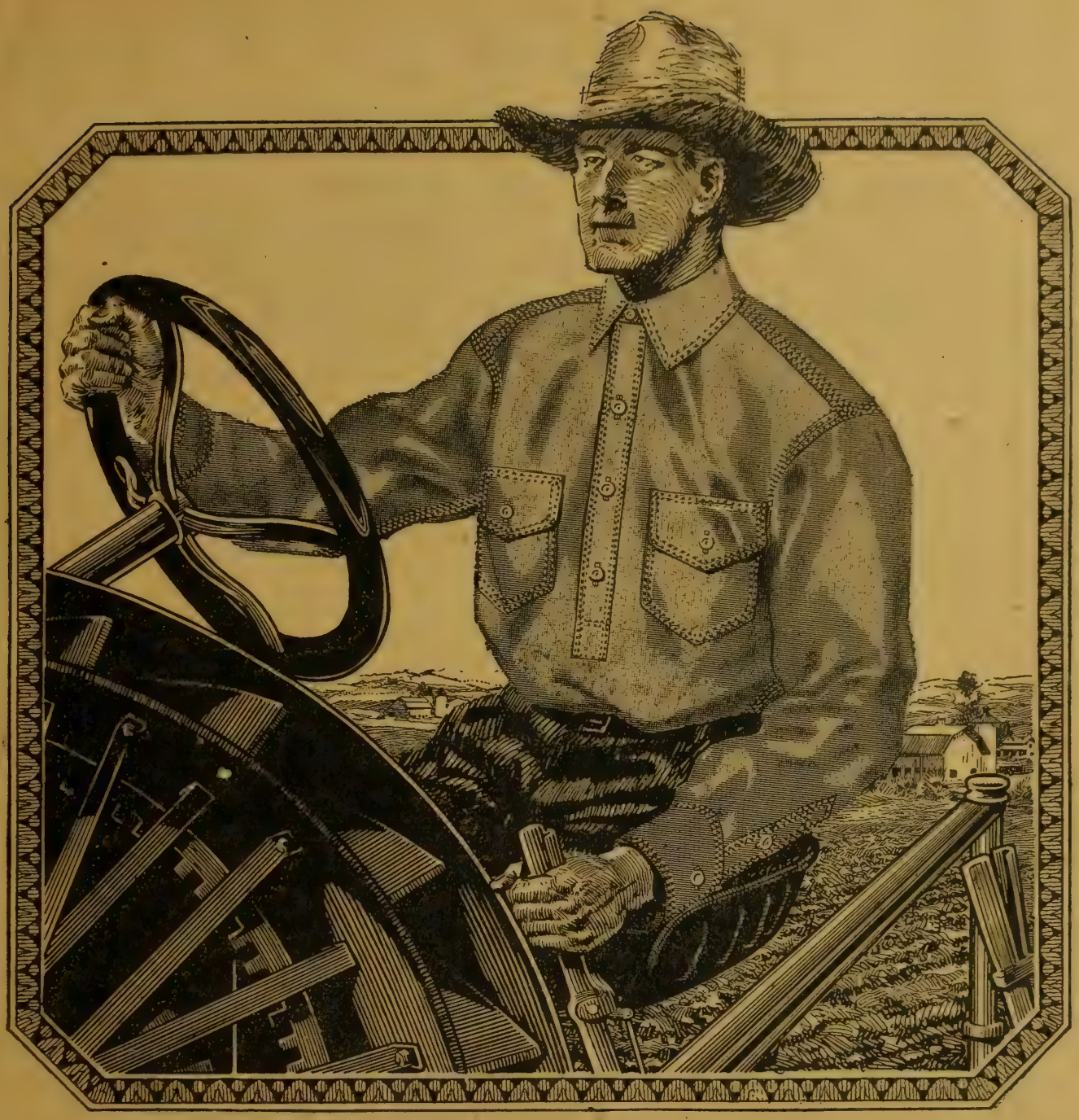
Blackleaf tobacco extract (40 per cent nicotine sulphate).—Dilute 1 part with 800 parts of water.

Time and Number of Spray Applications

Unfortunately no specific dates, which will hold for every season, can be fixed for the applications of the spray. The investigations of the seasons of 1910 and 1911 have shown that the date on which the thrips first become numerous and injurious and the navel orange blossoms lose their petals varies as much as 30 days in certain seasons, due to the nature of the spring weather, and, further, that it varies in different orchards in the same season. The greatest injury to the fruit is done between the time the petals fall and the fruit is half grown. It has been demonstrated that three applications of the insecticide are necessary during this period to prevent marking of the fruit. The first spring growth has usually hardened by the time the petals have all fallen, and the thrips then seek the young fruit. The petals do not all fall at once, but come down gradually, and the transfer of thrips is therefore gradual.

The first application should be made as soon as four-fifths or more of the petals have fallen. This checks the insect at a time when the orange is most susceptible of deep injury and when the blossoms have passed the period at which pollination might be interfered with by the spray.

After the first application more



Wear "OLD FAITHFUL"—the Comfort Shirt

The "OLD FAITHFUL" work shirt will give you that feeling of genuine comfort every man seeks.

"OLD FAITHFUL" is typically American—built *big* throughout to permit great freedom of action—triple stitched on all strain seams—reinforced—has two large pockets with buttoned down flaps, just where you can reach them easily. Go to your dealer—ask him for "OLD FAITHFUL". It's one of the family of

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made famous by the senior member, the Milton J. Levi Man. "OLD FAITHFUL" comes in blue and grey chambray, black sateen and other standard fabrics—is good-looking and will outwear three ordinary shirts.

Look for the name "Reliance" in a work shirt—it is a guarantee of quality.

"Black Beauty"—"Army"—"Honor Bright," the latter for boys, are other familiar Reliance brands.

RELIANCE MANUFACTURING COMPANY
WESTERN MADE WORK SHIRTS
CHICAGO



Put It There

Into your favorite gun goes your favorite shell. Make sure that into your favorite shell has gone a Hercules Shokeless Shotgun Powder—either Infallible or "E. C."

These powders are the choice of many an old hand at the traps and in the field. They have won the confidence of these men on account of their unusually light recoil, high velocity, and even patterns, and uniformity in quality.

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Smokeless Shotgun
POWDERS
INFALLIBLE *"E.C."*

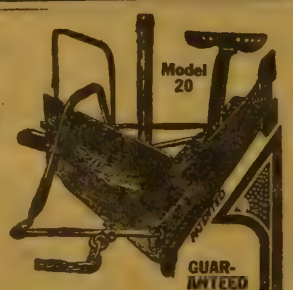
may be obtained in the fourteen different shells illustrated in the column to the left. Your favorite shell is certainly among these fourteen.

You can readily tell whether or not it contains Infallible or "E. C." On the outside of the box in which the shells are sold and on the top wad of the shell itself appears the name of the powder it contains.

Look for the name of a Hercules Powder. If you don't see it, ask for it. You can get it in the shell you shoot.

HERCULES POWDER CO.
1025 Chronicle Building
San Francisco California

Easy Ditching



THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with



THE Martin
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Makes new ditches; cleans old ones; grades roads; builds dykes and terraces. Cuts alfalfa, Bermuda grass or sweet clover roots from ditch banks, without plowing. Does more work and better work than 100 men with old methods.

Made In Horse and Tractor Sizes

All steel. Reversible. Adjustable. No wheels, cogs or levers. More MARTINS now in actual use than all other farm ditchers combined. Warehouses and distributing points in nearly all Western States. Write for free descriptive catalog and nearest distributing point, together with list of MARTIN users near you.

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Federal Farm Loans

Long Term **Low Rate**

All loans made on an amortization plan whereby the borrower repays the principal gradually with each interest payment.
Over three thousand satisfied borrowers in this district.
It will pay you to investigate.
For information apply to the nearest NATIONAL FARM LOAN ASSOCIATION or write direct to

Federal Land Bank of Berkeley
California

larvae will issue from eggs deposited in the very young fruit, and additional adults will appear from the specimens pupating at the time of the application. The second application must therefore be timed to prevent this renewed atatck, which may be expected to reach the danger point in from 10 to 14 days after the first spraying. This second spraying should not be too long delayed, as a comparatively few larvae may, by their persistent habit of feeding in a circle about the base of the fruit, cause considerable injury. Special effort should be made to drench all the fruit as well as the few remaining tender leaves thoroughly, as it is here only that the insects occur.

The third application may be longer delayed if the first two have been thorough and well timed. It generally takes the insects from two to three or four weeks to become dangerously numerous again, as they reinfest the sprayed trees very much more slowly after the second application.

After the third application the fruit rapidly loses its attractiveness, and the insects then find it necessary, in order to secure food, to spread out over the few remaining tender orange leaves and certain miscellaneous food plants. During the later part of August and in early September there is usually another abundant growth of shoots upon which the thrips congregate in great numbers. A fourth application in late August or more probably in September should be timed to catch the insects as soon as they become numerous and before any great amount of leaf injury appears.

The importance of protecting this growth is evident to those familiar with the stunted condition of orange trees in certain orchards of Tulare County as the result of continuous feeding of large numbers of thrips during the first five or six years of growth. The writer has in mind an orchard in which trees five years from the nursery are no larger than the average 2-year-old trees in localities more favorably situated with regard to thrips, and which each year have a very large percentage of the leaves so severely injured that they roll up into tight curls.

In addition to the department publication Dr. A. W. Morrill, consulting entomologist of the state of Arizona, has issued Circular 23 from the press of the college at Tucson.

Water Right Legislation

In order to secure more general utilization of lands and waters of the West, especially of Utah, the experiment station of the state agricultural college has made investigation and now issues Circular 138 on legislation concerning water rights. It is particularly significant that all of these ways of increasing our water supply, and also many others, involve water rights. There is in reality no one factor in irrigation which will have greater influence in future development than that of water rights.

The findings of its commission cover some 28 pages, from which we quote the summary:

Nearly every available means of increasing the water supply of Utah, and of other western states is in some degree dependent on water rights, a factor in irrigation that is likely to influence future development more than any other.

The common law developed in England asserts that rights to the use of water along a stream naturally belong to the owners of land on its banks, that is, to the riparian owners. The civil law, developed in an arid region, maintains that all waters are the property of the crown and rights may be obtained only by grant. The American doctrine of appropriation maintains that waters are the property of the public to which rights may be obtained by appropriation and use.

Legislation concerning water rights, to be complete, must provide for the acquirement of new rights, the defining of rights which have vested through use, and the public distribution of water according to established rights.

Rights to water in the West were originally acquired by diversion and use, later by posting notices at points of diversion, and now by application to a central state office, usually that of the state engineer.

Applicants for water rights must announce the purpose for which water is to be used, and if for irrigation, they must describe the proposed canals and lands to be irrigated, specify the time necessary to complete construction and use the water, and give other information required by the state engineer.

Rights to water which became vested through use before laws governing the acquirement of rights were enacted are now defined by the courts, by administrative boards, and by administrative boards and courts. The first method is called the Colorado system; the second, the Wyoming system; and the third, the Oregon system, because the respective systems were designed and first used in these states.

Eight states including Utah follow the Colorado system of defining water rights; three follow the Wyoming system; three, the Oregon system; and three have not yet provided specific procedure for defining water rights.

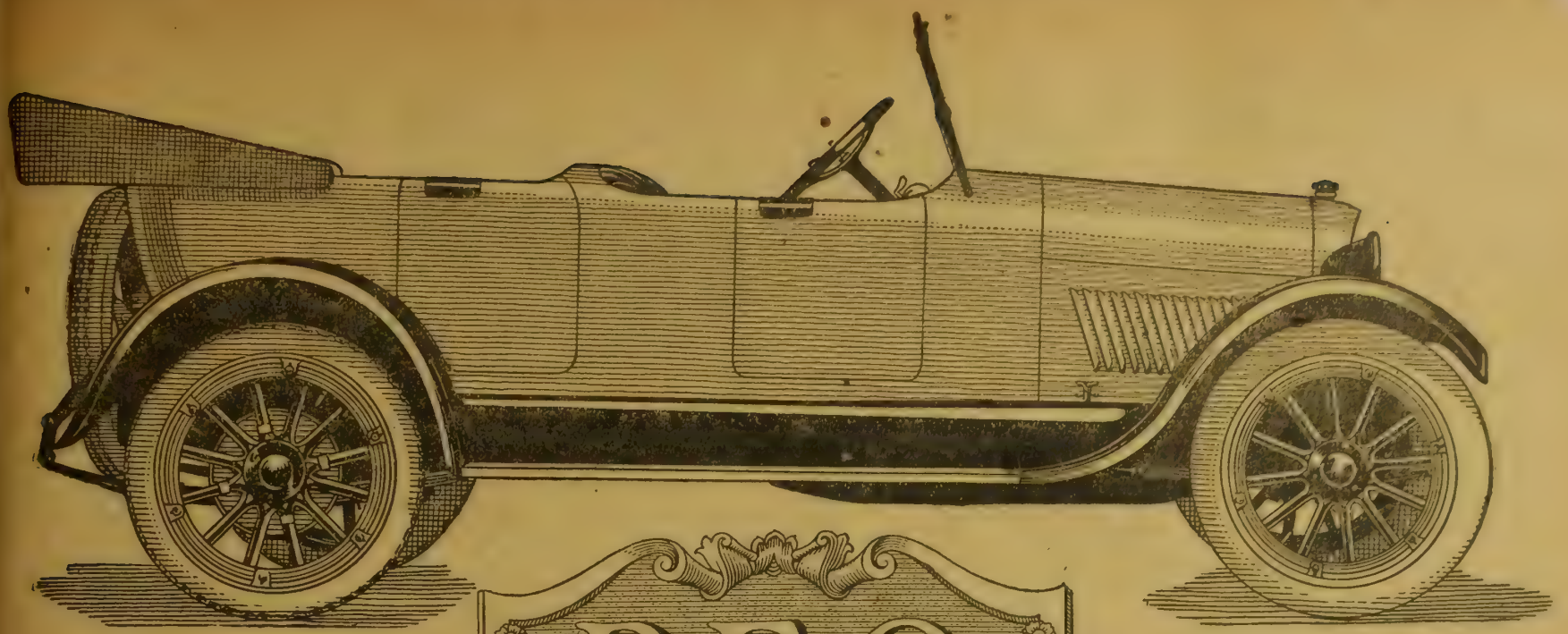
Advocates of the Colorado system argue that it is the only one that is legally sound, but the Wyoming system has been upheld by the supreme courts of Wyoming and Nebraska and the Oregon system has been repeatedly upheld by the supreme court of that state and it was recently sustained by the United States supreme court.

The Colorado system as followed by Utah has been practically inoperative during a period of 15 years, although the state engineer has completed surveys on five of the sttae's chief river systems.

The Colorado system of supervising the distribution of water to those entitled to its use, which consists of dividing the state into a few large divisions along drainage lines and dividing each division into the necessary number of districts, has been followed in general by all but three of the irrigated states.

If the public were represented in all proceedings for the purpose of defining vested water rights, and if the definition of rights were based on long-time, painstaking, unbiased duty of water, and other investigations, it is believed that the permanency, or period of endurance, of each decree could be greatly increased and the ultimate cost of litigation thereby decreased, and also that the interest of both the individual and the public would be thereby better protected.

Public distribution of water, the goal of water rights legislation should be improved (1) by making safe and adequate financial provision for the employment of water commissioners, (2) by preventing divided jurisdiction of streams, and (3) by standardizing and keeping permanent and accurate records of water deliveries.



This Is March!—And History Repeats Itself

SPRING IS ALREADY HERE! We are a little late with our regular annual hurry-up message.

ALWAYS AT THIS PERIOD we find it necessary to warn tardy or indecisive buyers that only those who place their orders early—which means at once—can hope to get Reos for Spring delivery.

REALLY, WE MIGHT save the trouble of writing a new advertisement each year—the same copy would fit just as well one year as another.

THE SAME STORY might be told in the same way—so consistent and so persistent is the year-after-year demand for Reos.

FOR, NEVER SINCE THE DAY the first Reo left the Lansing factory and went into the hands of its delighted owner—never since that time has it been possible to make enough automobiles to supply all who wanted Reos.

ORDINARILY—and to a normal degree—that is from the factory standpoint, an ideal condition.

BUT IN MARCH of each year the condition becomes aggravated by an excessive over-demand that is at times discouraging to say the least.

CERTAINLY WE COULD build twice or four times—or ten times—as many Reos per annum as we do.

BUT THE REO POLICY has never been to build the most automobiles—only the best.

WE MAKE ONLY AS MANY Reos as we can make and make every Reo as good as the best Reo that ever came out of the factory.

THAT'S THE REASON for the tremendous demand that always exists for Reos. Reo quality—Reo low upkeep—due to a strict adherence to that Reo policy.

REO IS FIRST CHOICE of discriminating buyers. That's the kind of folk for whom we design and build Reos.

THEY ARE THE KIND of buyers a manufacturer and a dealer appreciates and therefore most dislikes to disappoint or to offer substitutes.

AND WHILE OCCASIONALLY a dealer who also handles some other line will try to sell a customer his Second Choice, because he can't get enough Reos to supply his local demand, he never really likes to do so.

ALL DEALERS PREFER to sell Reos—because they stay sold. And every Reo sold sells several more.

THEN THERE ARE the repeat orders from present Reo owners.

ALWAYS THESE HAVE constituted a large percentage of the Reo demand. They are getting to be a larger percentage from year to year because of the larger number of Reos that have been many years in service. Longer than any other comparable car.

OF COURSE a Reo owner always wants another Reo—the percentage of re-sales to Reo owners is amazing and a matter of which we are most proud.

TO ALL SUCH, THEN, we issue the usual March warning—see your Reo dealer at once and place your order.

MAKE IT DEFINITE by paying him a deposit and specifying a date for delivery. Else he cannot, in fairness to other buyers, reserve a Reo for you.

THEN REST SECURE in the knowledge that you will be one of the "lucky ones" to get a Reo this season.

THERE WON'T BE—cannot be made—enough to go round. That is now as certain as the same thing always has been certain in all previous years since the inception of Reo.

SO DON'T DELAY. Decide now. Order at once.

TODAY won't be a minute too soon.

Reo Motor Car Company, Lansing, Michigan

"THE GOLD STANDARD OF VALUES"

Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

AND LIVESTOCK AND DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877 Combined with California Cultivator 1914. Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916.

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Saturday, March 15, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

It takes a great deal of feed and water to make 14 tons of milk and over a half ton of butter. More, it takes highly organized efficiency. Such efficiency is visualized on the cover page this week in the photograph of Ormsby Segis Marie. More particulars as to Ormsby's life are given on another page, but just a few figures here to show that she is a handsome doer: Her record of 27,025.7 pounds milk in one year as a senior three year old is a world's record in class, and butter record of 1074.54 pounds is second highest in class. At last freshening she made 30.64 pounds butter in seven days and is now milking as high as 106 pounds per day. She is a granddaughter of King Segis.

GUILT IS PERSONAL

Now comes the German claim that the higher-ups who were responsible for the awfulness of this war are not in any sense guilty, that the government was responsible and that since the government is impersonal it cannot very well be hanged. This sounds much like the problem of some American culprits who have in the past claimed that though their corporations may be steeped in guilt, all individuals connected with it are exempt from punishment. This theory has been pretty well driven out of America; we hope it will be out of Europe.

COST DATA

Secretary Houston reports that he has been unable to give out definite data as to farm production costs. "I am by no means satisfied with our present plan and especially with that part of the work of the office relating to statistics of costs of farm crops."

Prof. R. L. Adams, formerly of the University of California and now in Washington with the bureau of farm management, is giving especial attention to this one matter of farm crop costs.

GREAT FUMIGATION PLANTS

Owing to the great traffic in agricultural plants, seeds, fruits and agricultural products across the Mexican border the department of agriculture has established great fumigation plants for the purpose of preventing the introduction into this country of injurious insects. Some of these fumigation houses will take in 15 railway freight cars at one time. They are tightly sealed and hydrocyanic acid gas is used to destroy every living thing. These are said to be the largest fumigation plants in the world.

FIRMLY ESTABLISHED

The federal land bank of Berkeley announces that its present average monthly loans to farmers is $500,000. This bank has loaned to farmers of the Southwest considerably in excess of $10,000,000. It is now on a self supporting basis, more, it is providing a fund which will in a short time wipe out the initial expense of its establishment.

The system has proven a disappointment to many, especially to fruit growers, who feel that California values are not fully appreciated. We think perhaps this is true and believe that a more liberal policy will be followed as the bank feels its way and becomes more fully established. In a recent statement we note that: "Our income increases every month and our expense remains stationary. It begins to appear now that by April 1st we will have absorbed our entire initial organization expense and the bank will be on an even keel. After this date, therefore, we ought to begin to build up a surplus account, and when this has reached a satisfactory amount, to begin the payment of dividends."

> Let the public demand that their representatives be big enough and broad enough to deal with the facts and nothing but the facts, to interpret them to the best of their ability and conscience and to follow their conclusions regardless of consequences. Democratic government will be sufficiently difficult if we apply this standard. If we permit any other to prevail, its future will be full of doubt. Let us remember the blessings of our institutions and keep before us their real spirit and meaning. Let us see to it that those who come among us from other countries not so favored, whose inheritance makes it difficult for them to understand the meanings and purposes of democratic institutions, shall catch their significance and especially be made to understand that here we have a rule of law and not of whim or of force.—Secretary of Agriculture D. F. Huston.

BONE DRY

The southern end of the state is anxiously watching the clouds and hoping for a soaking rain before the end of the rainy season. In fact, excepting for the heavy October rain this has hardly passed for a rainy season south of the Tehachapi. The total precipitation is little more than six inches. On the other hand the northern end of the state has been blessed with an abundance; in some sections farmers have complained somewhat because of inability to get the ground in best condition. Half of March is yet here and soaking rains may yet come. At this moment the clouds are looking a bit promising.

FARM BUREAU CONFERENCE

Beginning March 17 at the Davis farm school there will be a conference of farm advisers and assistants and farm bureau delegates. Sessions will continue at Davis until the 21st when the attendants will motor to Berkeley to attend the conference until the 25th. On the morning of the 26th the entire delegation will take autos to Southern California, making the trip down the coast. A similar trip last year followed the valley and over the Tehachapi. The party will arrive in Los Angeles March 30 and remain in that county a couple of days, from there taking in points in Orange County, Riverside and San Bernardino Counties. The conference will end with one day at Riverside, April 2.

There will be demonstrations showing methods of handling orchards, farming problems of nearly all kinds, control of insects, scaly bark of citrus trees, etc. At the breaking up of the party at Riverside the northern delegates will proceed home by way of the valley.

President Joyce of the bank at Borkeley is now in Washington attending a conference of presidents of the 12 federal land banks in the United States.

NATIONAL DAIRY SHOW

Since 1914 the National Dairy Show has not been held in Chicago. That show resulted in tragedy for some of the finest herds of pure bred cattle ever gathered together, for it was the occasion of the spread of the foot and mouth disease. Some dairymen vowed they would never again take their live stock to a Chicago show. Since then the dairy show and the congresses which accompany it have been held at Columbus, Ohio, but announcement is made that the next meeting will be at Chicago October 6 to 12. The department of state at Washington has issued invitations to governments of the Old World to unite in this, which it is hoped will be the greatest of shows of dairy cattle and dairy appliances.

WHEAT ON FARMS

California wheat growers are now holding only about 7 per cent of their last season's production of wheat. This is wheat actually on the farms and does not include wheat in the larger warehouses. In bushels California farmers hold this year 531,000 as against 520,000 last year same date and 336,000 in 1917.

The farmers of the United States are holding a much larger percentage. They are still holding 129,000,000 bushels, which is 14.1 per cent of the total production. This is lower than either of the two preceding years.

As to the price, congress has acted and the president has signed the bill which makes provision for carrying out the price guarantee for the 191 crop.

It now appears that California wi harvest this coming season about 750 000 acres of wheat. The liberal rai fall of the Sacramento Valley has pu the crops to the good there so tha conditions are reported as better tha normal. Northern San Joaquin Va ley also reports entirely satisfactor conditions. San Luis Obispo grai fields are reported normal.

WILL PORK BE HIGHER?

This is a big nation which ha been a big factor in the ending of big war. The magnitude of the move ments is beyond the appreciation o most of us and they have create problems which have called for th best thought and effort of our bigges men, and still there is a woeful lac of coordination in all of our activi ties. It seems that this lack ha caused a step which may bring suf fering to producers or consumers o both. The food administration an nounces that the war trade board ha rescinded the regulation by which ap plications for licenses to export pori and its products must have attache certificates from the food administra tion. At the same time the war trad board has removed the pork product from conservation lists. These order became effective March 6. The foo administration announces:

"The effect of this action of th war trade board is to destroy th ability of the United States food ad ministration to further stabilize th price of live hogs. It was the desir and has been the endeavor of the foo administration to continue this stabil ization as heretofore and until March 30, when the normal marketing per cent of hogs farrowed in the spring o 1918 would have terminated. The prices under this stabilization plan have been chiefly on the cash value of the corn fed to the hogs. The whole program of stabilization o prices was the outgrowth of the im perative necessity for stimulated hog production for war needs at a time when a dangerous shortage of fats threatened the entire allied world. The obligation with respect to the pigs farrowed in the spring of 1918 began with the marketing of September and would have been terminated March 31. In view, however, of the action of the war trade board the food administration can make no further effort to stabilize prices. Nevertheless, from 85 per cent to 90 per cent of the hogs destined for market, which were to be the objects of the undertaking, have been sold. The European demand for hog products will increase, rather than diminish, the supply of live hogs coming to market, which in March and April will be greatly reduced in numbers. The European markets are opening rapidly to free trading in hogs and the area to be supplied is being made increasingly accessible. The enemy countries are to be given opportunity to secure hog products and other foods. It is possible that as a consequence of the general situation, the price of hogs and pork products may be higher than the stabilized prices which have been maintained and which the food administration desires to be continued March 31st next."

POISONED GASES

It has been suggested that the great stores of poisoned gases left over from the war operations be turned loose on the insects on American farms. In fact, this suggestion has been taken seriously enough that specialists of the bureau of entomology and the federal horticultural board have been appointed a committee to act with a committee of the bureau of chemistry to investigate the possibilities of such utilization of these gases. Strength to the arm of these investigators.

Citrus Canker

Florida growers are joining the U. S. D. A. campaign for better fruit. Three hundred growers of that state recently met at Clearwater and showed great interest in discussion of citrus questions. The greatest interest, however, seemed to center on citrus canker which, the growers hope, is now completely eradicated from the state. However, very naturally these burned orchardists fear more fire. Two speakers, addressing this meeting, are quoted in the last issue of the Florida Grower as being most hopeful that complete eradication may be maintained.

Wilmon Newell, plant commissioner, state plant board, spoke on "How Will Future Protection Against Citrus Canker Be Insured?" In part, Mr. Newell said: "The campaign against citrus canker in Florida has been remarkable. Many people in the scientific world said the eradication could not be done. There is a vast difference between eradication and control—eradication means 100 per cent clear, and control might mean anything. It has been over a year since the plant board has had any specimens in the laboratory, which shows pretty conclusively that we are getting a strangle hold on canker. There was a wonderful cooperation from all in this battle—support was had from the government, the state, the individual, organizations—and last, but not least, the growers themselves made tremendous sacrifices. The citrus industry at the time represented in figures over $150,000,000, and to save this was a feat to be proud of. Eradication has shown what cooperation can do, and it is better to pay out now than pay toll for all time. The white fly could have been stopped as well as the cottony cushion scale if this method had been adopted on a small scale at their inception.

Frank Stirling, general inspector, state plant board, spoke on "How to Distinguish Citrus Canker from Other Diseases. "Every grower should know what citrus canker is, for it is a fact that there is always a possibility of canker being introduced into a grove." * * * Here Mr. Stirling called attention to exhibit of infected fruit, leaves and twigs. "Scab in its earlier stages resembles canker; but scab wrinkles the leaves while canker does not. Scaly bark also resembles canker, but the difference is that in scaly bark the bark is generally smooth, while in canker it is open and has a rough, crater-like appearance. Anthracnose also resembles it, but this has a sunken appearance, while canker is always raised and has biscuit-shaped pustules on twigs, leaves and branches. A tree affected by lightning shows at times the appearance of canker, but is never corky nor has the raised appearance of canker. It is very difficult to distinguish black melanose from canker, for the appearance does not differ much except that canker is larger, and melanose does not first open as does canker. * * *"

Tractor Men Meet

Pres. H. L. Marsh of the Traction Engine and Implement Dealers' Association of Southern California gives the following information regarding the last regular monthly meeting of the association, held Friday, February 28, at the Alexandria Hotel, with President H. L. Marsh in the chair. Two new members were admitted.

H. M. Bennett of the Pacific Whitney Tractor Corporation, when introduced, spoke briefly of the plans which his company were completing in order to participate in the tractor business in Southern California.

Ralph A. Spaulding, the new manager of the Bean Spray Pump Company for Southern California, was introduced as the successor to T. R. Henderson, who will carry the Bean to Australia.

During the business meeting, which followed the banquet, arrangements were partially completed for a large attendance of the Association members at the demonstration to be held by the Northern Association near Sacramento next May.

Discussion of a committee report regarding an additional appropriation for the work of the University agricultural engineering department at Davis resulted, as on previous occasions, in an enthusiastic endorsement of the good work accomplished by Prof. Davidson and the desire on the part of each and every member of our Association that Prof. Davidson's department be provided with more ample funds by the state.

During the discussion, mention was made of the large appropriation amounting to $100,000 or more which was made to cover the expense of the traveling tractor schools as a war-time emergency. It developed that while the various members of the Association appreciate in full the good work which has been accomplished by the traveling tractor school units, it was unanimously the opinion that it was a mistake in the arrangements of the traveling units to limit them only to tractors manufactured in California. Terminating the discussion, a resolution was unanimously adopted by the Traction Engine and Implement Dealers' Association urging the members of the state legislature, who have the matter in charge, to materially increase the annual appropriation to the department at Davis which has been so ably managed by Prof. Davidson in teaching the use of modern tractors and farm equipment.

RECOMMENDS HOGS ON FRUIT RANCHES

F. W. Gardiner, whose ranch is just south of Sacramento, finds that hogs fit in mighty well on a fruit ranch. Shortly after completing his course in the college of agriculture of the University of California, Mr. Gardiner assumed management of a rather extensive peach orchard.

"When I first went on to the ranch," Mr. Gardiner said, "I decided that there was no real good reason why I couldn't add to my profits by establishing a herd of hogs. My orchards were planted to alfalfa, thus affording plenty of pasture and of course I had more or less unsalable fruit. Then, too, I didn't propose to put all my eggs in one basket so to speak. After considering the matter carefully, I decided that Durocs were my preference, and naturally I knew that pure breds would be more profitable than common stuff. With pure breds, I have two outlets. I can market part of them for pork and can save out the tops and sell for breeding purposes. My plan has worked out very satisfactorily, and I find that it is now necessary to add more brood sows in order to take care of my increased business. There are hundreds of small fruit ranches in this state that should be carrying a few hogs, and I can assure the owners that they will find hogs a profitable adjunct."

At present Mr. Gardiner is carrying between 20 and 30 sows—most of which represent Model Col., Taxpayer, King's Col., and Burke's Good E Nough breeding. Tommy Tucker, by Viceroy 13th, is the senior herd boar and a young boar by King's Col. De Luxe is being developed for a junior sire.

Mr. Gardiner is negotiating with an Eastern firm for a sow bred to the noted Pathfinder.



Top Dressing Talks No. 8

California soils respond promptly and generously to intelligent fertilization. This is particularly true concerning nitrogen, in which important plant food so many soils are deficient. But as is always the case some one form of nitrogen is better than others.

Director Hunt of the Berkeley Experiment Station writes:

"Whether it is Mottle Leaf in orange trees, Little Leaf in peach trees or low yields of wheat, the cause appears to be the inability of the plant to secure and assimilate a proper supply of nitrogen."

Sulphate of Ammonia is mentioned by name among the various Nitrogenous Fertilizers recommended to overcome this deficiency.

Arcadian Sulphate of Ammonia

ARCADIAN Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past. Especially kiln-dried and ground to make it fine and dry. Ammonia 25¼ per cent. Made in U. S. A., THE GREAT AMERICAN AMMONIATE.

For sale by Hawaiian Fertilizer Co., Limited, San Francisco
Pacific Bone Coal & Fertilizing Co., San Francisco and Los Angeles
Pacific Guano & Fertilizer Co., San Francisco and Los Angeles
Agricultural Chemical Works, Los Angeles
Western Meat Co., San Francisco

For Information as to Application, write The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.





The Easiest Riding Light Car Built

Correct spring suspension and proper weight distribution have given the GRANT SIX an unbeatable, world-wide reputation for ease of riding. People who have ridden in other lightweight cars are amazed at its superiority. Get a ride in the GRANT SIX. Prove for yourself that it is really a comfortable light car.

You will find the GRANT SIX has the most powerful overhead valve motor of its size ever built—that every part is accessible—that crank shaft and connecting rod bearings are extra large. In every detail this motor is finely built. It is now in its fifth season, refined and improved, with a splendid reputation for service and reliability back of it.

GRANT SIX owners average 20 miles to the gallon of gasoline, 900 miles to the gallon of oil and 7000 miles to the set of tires. Some do even better than this.

The GRANT SIX typifies the latest style ideas in body lines, in body colors, in upholstery and details of finish. The top has the popular "Gypsy" curtains with oval plate glass lights in the rear. It is made of best grade "Neverleek." The hood fits tightly and neatly on a handsome aluminum ledge. Every detail reflects quality. At the big shows everywhere the demand for the GRANT SIX has surpassed all previous records. For genuine value buy a GRANT SIX.

Select your GRANT SIX from these models

5 Passenger Touring Car $1120—Roadster $1120
Coupe $1625—"All-weather Sedan" $1625
Demountable Sedan $1400

All prices F. O. B. Cleveland

Write for latest descriptive matter and name of nearest dealer

GRANT MOTOR CAR CORPORATION
CLEVELAND, OHIO

There is no argument as to the best and cheapest source of available nitrogen for worn out frosted orchards. Where

Nitrate of Soda

is used the fruit never fails to set. Apply to orchard now for best results.
Mention crops interested in when writing for free information and literature.

Nitrate Agencies Co.
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BIG CUT
IN ENGINE PRICES
KEROSENE — GASOLINE
2 to 30 H-P.
Immediate Shipment
Stationary, Portable or Saw-Rig—all at greatly reduced prices. Best Engine—longest record—strongest guarantee. Choose your own terms. No cut in quality, but a big cut in price for quick action. Write for new cut-price catalog—FREE, postpaid—ED. H. WITTE, Pres.



WITTE ENGINE WORKS
3107 Oakland Avenue, Kansas City, Mo.
3107 Empire Building, Pittsburgh, Pa.

California Cultivator Costs $1 per Year

Labor Problem Satisfactorily Handled

One of the successful operations in handling the labor question of California was that of the Central California Fruit Growers, who formed the Valley Fruit Growers Association. The result last year was that crops were saved and vineyards and orchards kept in better condition than could have been possible without the association. It has now established headquarters at 1836 Kern Street, Fresno. Growers are urged to take advantage of the ability of this office to supply labor, and give assurance that all applications will receive immediate attention. The labor question does not exclusively engage this association, as may be observed by this quotation from the Sun-Maid Herald. The association has its eye on Washington.

Urge United States Aid

Showing the close touch the Valley Fruit Growers' Association keeps with legislative matters, the following telegram was sent to our representatives and the agricultural committee of the senate:

Washington, D. C.—California farmers deplore failure of house to pass department agricultural appropriation for continuance of farm labor work. No other federal department has shown ability to appreciate the special character of the labor problems that confront the farmers now no less than in the past. California farm labor agents' work has unqualified endorsement of the state commissioner of labor as well as that of all farmers. This, leading farmers' organization of California, dealing especially with labor and legislative matters, respectfully urges restoration of this appropriation.

Marketing Association for Figs

"The California Fig Growers' Association is the newest cooperative association of growers in California," says the Sun-Maid Herald. "Organization was effected under a resolution to incorporate at the Fig Institute at Fresno, February 15. The new association purposes to handle the fig crop cooperatively, and will complete organization on lines similar to those of the California Associated Raisin Company.

"The officers elected are J. C. Forkner, president; F. W. Yokum, first vice president; O. G. Brundage, second vice president; C. H. Cobb, treasurer, and E. Newby, secretary.

"The fig institute attracted hundreds of growers. In addition to hearing practical talks by growers and university experts, those in attendance were taken to the fig orchards for pruning, fertilizing, planting and tractor cultivation demonstrations.

Raisin Company Plan

"The resolutions for formation of the association follow:

"That the California Fig Growers' Association organize as an incorporation along the lines of the California Associated Raisin Company for the purpose of getting control, packing and marketing the figs in the state of California; that a committee of ten be elected by this meeting; that this committee of ten shall be the first incorporators of this new incorporation; that they shall hold their new office for one year; that they shall have complete power to incorporate and control the destiny of the new corporation, which shall be known as the California Fig Growers' Association, Incorporated, and that this committee of ten shall proceed immediately to incorporate and to endeavor to get enough fig growers signed up in this new incorporation to control the complete output of figs in the state, or the majority of it.

Committee of Ten

"To carry out the terms of the resolution the following were elected members of the committee of ten: O. G. Brundage, Farmersville; J. C. Forkner, Wylie M. Giffen and C. Cobb of Fresno; E. Newby, Reedley; H. G. Kelsey, Merced Falls; Fred Hansen, Clovis; Gill Summers, Ceres, and W. Sam Clarke of Sultana."

Fig Market Situation

The Fig Growers Association has issued a statement as to fig marketing conditions, from which we quote:

"The California Fig Growers' Association, at the present time, is not in a position to name prices for figs. It has no power whatever, except in an advisory capacity. Therefore, statements issued at this time by the California Fig Growers' Association, its trustees or its executive board, should be taken by fig growers in the state of California simply as advice and as having no other authority.

"During the formative period of the California Fig Growers' Association, it is the desire of the trustees of the association to render whatever service it is within their power, to the fig growers. Therefore, a statement will be issued, from time to time, during the spring of 1919, in regard to whatever information the executive board may have at hand.

"At the present time, the fig brokers of New York city are sending out letters advising the fig buyers in different parts of the United States and Canada not to buy figs at this time for they believe that fig importations from Smyrna will be made this year.

"Some fig packers in California are now offering the 1919 crop of figs for fall delivery, subject to prices at that time, no price now being made.

"At this time, this committee is not aware of any purchases or sales having been made at any definite or specific price.

"The importations of figs from Smyrna determine, to a very large extent, the price of California figs. If a large importation of figs should take place, it would no doubt have the effect of lowering the price of California figs this season. If no importations from Smyrna take place, or if but a small amount is imported, the chances are that the prices for the California figs will remain high during the season.

"This statement is given out so that each grower will be apprised of all the information there is to be had at this time.

"As soon as this committee is apprised of any information that would influence the price of figs, the said information will be published at once.

"In the meantime, the executive committee of this organization will proceed to perfect and complete its working machinery as rapidly as possible."

ROOT PRUNING CAUSES VIGOROUS REPRODUCTION

"It is well known that in many plants there is a marked antagonism between growth and reproduction. In such cases (especially in fruit trees) the reproduction of vegetative growth, e. g., by root pruning, causes vigorous reproduction. The study of the factors influencing these two processes is, therefore, of great importance. In higher plants, however, it presents great difficulties because of the close connection between the various external factors, none of which can be artificially modified without modifying others at the same time."—Blackman, V. H. (Imperial College of Science and Technology, London), in Science Progress.



Co-operation

NO one system of handling grain, or handling anything else, can be successfully carried out, no matter how advantageous it proves to be, unless there is a hearty co-operation among all concerned.

This co-operation starts at the source of supply and extends through every handling until the product is put in shape for the consumer.

Handling grain in bulk has been found practical, advantageous, profitable. The Government Grain Experts advocate it in California; the University Investigators believe in it because facts have proved it to be a big saving over sack handling; railroads are ready for it; every mill in California is equipped to handle grain in bulk, for they appreciate its profit and know the farmer will quickly see it, too, and change from his former costly method of using jute sacks.

Two things are necessary before the grain grower can give his willing co-operation in bulk handling. First, a storage bin on his own farm. The Calco Grain Bin meets that need. Second, a co-operatively operated, centrally located grain station at a railroad siding. The Calco Grain Loading Station meets that need.

Know as much about the Calco Grain Bin as your neighbor. Write for our free booklet. It tells about saving on handling grain.

Let us send you blue prints and estimated costs on a Calco Loading Station in your community—write for them today.

Other Calco Products



CALCO AUTOMATIC DRAINAGE GATE

Model 100

A SENSITIVE, reliable, water-tight, Cast-Iron Drainage Gate, automatically operated. it will drain and convert your flooded land into fertile fields. Diameters from 8 to 84 inches. Write for price lists.

All gates are supplied in connection with rust-resisting Armco Iron pipe in any length required. Replace the old, leaky structure which constantly causes you trouble and money.



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A WATER-TIGHT Cast-Iron Gate for reservoir or levee work. For use under heads of water up to 20 feet. Diameters from 8 to 72 inches—gate frame any height desired. Write for details and price list.



ARMCO IRON FLUME

Lennon Type

GET away from the old, expensive, leaky wooden flume. Armco Iron Flume is a water-tight, semi-circular, galvanized metal flume for conveying water—durable because made from rust-resisting Armco Iron. Simple to erect without skilled labor; greatest carrying capacity account of its perfectly smooth interior. Write for our flume catalog.

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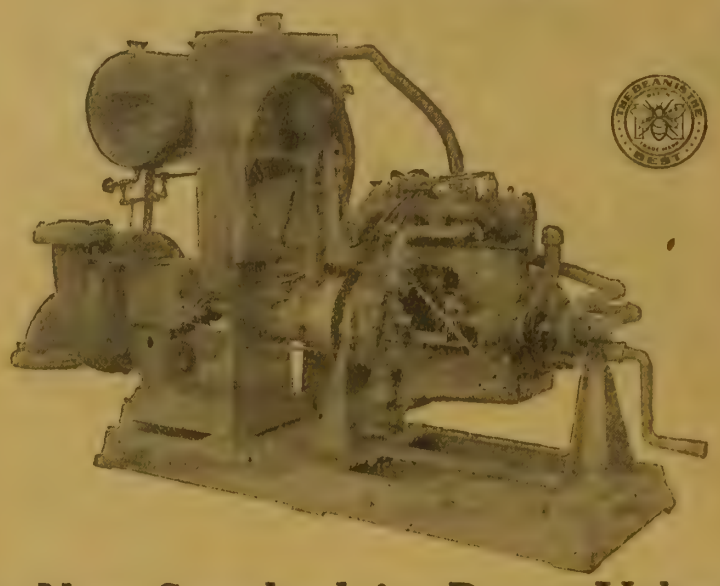
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It's BEAN QUALITY through and through. If you need a portable pumping plant or a stationary unit that will deliver your water supply at a small cost—and keep on delivering it efficiently and economically, investigate this pump. We manufacture and sell

Horizontal and Vertical Centrifugal Pumps, Deep-Well Turbines, Direct Connected Outfits
(both engine and motor driven).

Tell us your pumping requirements and let our pump specialists advise you. Fill out the following. There's no obligation.

1. I desire to pump.....gals. per minute.
2. Suction lift?.....ft.
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Bean Spray Pump Co.
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Learn the facts about "America's greatest farming opportunity



Our big, free, fully illustrated booklet tells all about this wonderfully fertile valley near Tucson, Arizona, where farmers are becoming rich. It contains signed statements by the actual settlers. You can write and verify everything they have said. Only 20 per cent of the food stuffs consumed in Tucson and adjoining mining districts is produced in the valley—the other 80 per cent is shipped in from California and other outside points. Local farmers command fancy prices for everything they can raise. Soil is deep, rich, silty loam; water supply abundant; climate ideal; no drawbacks, nothing but advantages. Land with water $150 an acre; attractive terms. Farmers, investigate!

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Write today for this Free Booklet

Better service is assured by the advertiser if when writing you mention the California Cultivator.

For Deciduous Demonstration

The California Prune and Apricot Growers is urging the passage of a bill providing for the establishment of a deciduous experiment station. We have from the association the following statement of the provisions and aims of the bill:

Senate Bill No. 319, introduced by Senators Benson and Jones of Santa Clara County, is a measure appropriating money for investigation, research and demonstration by the department of agriculture of the University of California in regard to deciduous fruits and nuts, and reads as follows:

"Section 1. The sum of one hundred fifty thousand dollars, or so much thereof as may be necessary, is hereby appropriated out of any money in the state treasury not otherwise appropriated, to be used in accordance with law, for investigation, research and demonstration by the department of agriculture of the University of California, during the biennial period ending June 30th, 1921, in regard to deciduous fruits and nuts, including olives and figs, and to be expended for that purpose by the regents of the University of California."

A considerable committee, representative of several of our fruit organizations and farm bureaus, have interviewed university authorities and are confident we have now the staff in the agricultural department capable of administering this appropriation and securing results for all growers. Professor J. C. Whitten, who has recently taken charge of the department of pomology in the college of agriculture, will particularly supervise this work. His ability and his keen desire to build up the department may certainly be depended on. With the assistance of others of his department he has developed the following list of items requiring attention and it is planned that the appropriation, if secured, will be prorated in attention to these problems: Orchard surveys, modification of soil structure, irrigation of old orchards, water requirements and reaction of deciduous fruits, control of orchard diseases, control of pear blight, orchard insect control, investigation and application of insecticides and fungicides, land, equipment and management, a test of root stock, pruning investigation and demonstration, dried fruit investigation, fruit storage investigation, frost protection, utilization of wine grapes and culls.

All orchardists and other interested parties will be particularly furthering their own interests if they use their best efforts in recommending this bill to their representatives in the legislature. We are especially requesting favorable resolutions of growers' organizations, farm bureaus, granges, and others. We are expecting to shortly have a conference with the governor and board of control and hope to present at this time such unanimous and insistent demands on the part of all growers that will insure their favorable attention to our measure.

The item in the above list, covering land, equipment and management, does not mean the establishment of a large experiment station. It merely means the securing of plots at different points in the state on lease or otherwise, such as may be necessary in attention to the various problems encountered. Anyone interested in the details of the proposed work may make inquiry of our organization department. Through this department we have particularly cooperated with a Grower's Committee in a campaign to secure attention on the part of state authorities, including the governor, board of control and legislature.

1919 Market on Prunes and Apricots

NEVER were people guessing as to coming markets as they are today. The pessimistic take most gloomy views; others think that the reconstruction of the world will call for its greatest activities and greatest prosperity. The prune and apricot growers are asking as insistently as any other class of producers. H. C. Dunlap of the organization department of the California Prune and Apricot Growers Inc. authorizes the following statement after careful investigation of marketing conditions.

When we consider the offering of packers today we are inclined to congratulate ourselves on the success of our organization. Prunes purchased by the packers at 8½-cent basis or better cannot be used to open a cheap market in the trade, and we can have no repetition of the conditions that faced us in 1917. Previous to organization packers paid the growers the very lowest possible price. Today, in their efforts to convince growers of their good will and subservience to their best interests, they are most certainly offering the last fractional value conceivable. Their present activities cause us to recall to mind a similar condition last spring, when packers' offerings bid up the growers' price to an apparently most attractive figure. At that time a number of conservative (?) parties in San Jose considered it advisable to promote such selling and advised growers accordingly. This season, as at that time, we have refrained from all speculation as to prices, in the same manner as we refrain from actual speculation in selling. Such deals are absolutely a gamble and it was the purpose, in the formation of this organization, to take the grower and his crop out of such a market. No one could more easily disqualify himself as a servant of this organization than by foolish remarks in this matter. If the trade in the east will buy futures in the 1919 crop at a price warranting packers' present offerings, they will continue with same up to such time as the price develops beyond the possibility of profit. In any case, they will accomplish their purpose, namely the development in the minds of growers of a hesitation detrimental to our efforts in securing members.

We can only say at this time that our organization will have most economical and efficient manufacturing and sales departments for the handling of the coming crops, and our economies will put us in a position to secure for our members the very best available legitimate prices. We will have an absolutely clean market, and brands of unquestioned quality maintained by the Association this season will have a value not to be compared with the offerings of any competitor. We will have for the first time in two years past, in addition to an excellent domestic demand, an export trade clamoring for our products. The trade has never been interested in the early purchase of futures, except at most conservative prices. Any purchases they may make today warranting the packers' present offerings give us excellent assurance of market prospects. The grower who sold early last season speculated and apparently secured a very good price. In prunes he would have lost had not the food administration persuaded packers to make good with him.

As Association growers we may for the future confidently anticipate that our returns will be not necessarily 8 cents or 9 cents basis on prunes or 12 cents or 16 cents on apricots, but a figure better than the average secured by growers selling independently of the Association. Again we ask you to be a booster and assist us in securing the greater control of 1919 production that will make us all the more a power in the naming and maintaining of prices to which we are entitled.

Application to Apricots

Practically every condition mentioned in this article, and most especially the advantages of export resumption apply and will hold good for apricots. Barring embargo, England will be again in the market for the canned product and Scandinavian markets will with others be a bidder for the dried fruit. The competition between dried and canned markets should insure good returns to growers. The ability to dry puts a grower

in a position to take or refuse a cannery offer. An improved dry market will surely be appreciated.

In the wild scramble of packers to buy prune crops remaining without the Association, a 9-cent basis is now being freely offered, especially in districts where the campaign has developed the competition of the several independent packing concerns remaining in the field. In their efforts to impress growers with the attractiveness of prices offered they are making most rash and illogical statements. They are stating that they have already made vast purchases and so filled up the trade in the east as to make it difficult for the Association to interest the trade at a comparative figure. In the first place, outside of possibly the Southern San Joaquin districts, they have not made any particular purchases of fruit from independent growers. In Tulare and Kings Counties, due probably to isolation of independent growers and their lack of knowledge of conditions, packers have purchased prunes produced by non-Association orchardists. In Santa Clara and elsewhere they have, of course, made some purchases, especially from growers desiring to secure advances. Such growers have at all times been inclined to early sale and have in the past thus established most unfortunate markets for the industry.

Their statements in the matter of having surfeited the trade, making Association sales difficult at a later date, are certainly wild and illogical. The wholesale and jobbing trade is in the hands of grown-up men with some ability to do business on a business basis. The trade does not purchase its full requirements at such an early stage of the game, and whatever purchases they do make are in their estimation at a figure most attractive. If they have purchased largely at the present prices they consider themselves fortunate, and do so for the reason that they fear an advanced market at a later date. If they considered possible crops liable to bring out a lower market, they would be most conservative in the matter of buying.

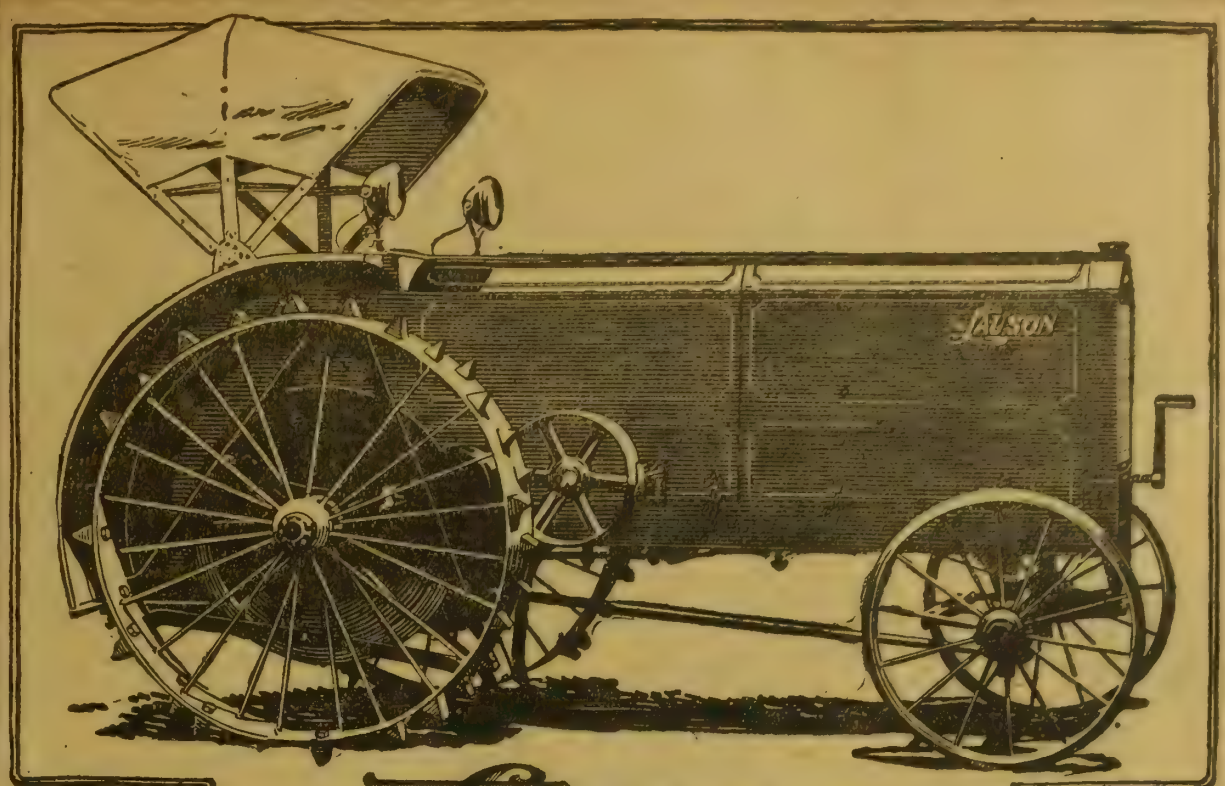
GROW FRUIT STOCKS

The soils of France and America, as well as the souls of those two countries, have been blended—literally.

The most notable instance of the incorporation of American soil into the soil of France was the taking to France of several barrels of American earth in which to bury the body of Lafayette, but French soil has been incorporated into American soil in literally millions of places. Probably every county in the United States has its admixture of French dirt, and it is scarcely too much to say that some particles of it have found their way to practically every farm throughout the length and breadth of the country.

How did it come? On fruit stocks. The aboveground portion of your fruit trees may be pure American, but the underground portion is very likely to be foreign. With the exception of the apple and peach, most of the seedling plants on which grafting or budding is done are imported, and even with the apple considerable progress has been made in producing American grown seedlings. From imported French seed many nurserymen have thus far preferred to import apple seedlings from France and to pay more for them. Just now, however, rather determined attention is turned toward a solution of the problem of fruit stock production in this country. All of the peach stocks are now home grown from seeds produced in this country.

"We are beginning to appreciate more and more," says one of the plant pathologists of the United States department of agriculture, "that our future successful fruit culture is intimately associated with the problem of stocks. With the exception of the grape, no far reaching studies have been made on stocks in this or any other country. We have followed certain empirical practices in the past, but as competition becomes greater and the demand for the highest grades of fruit and plant products increase, we must know more of the actual relation of stocks to quality of product, to the length of life of the tree or plant, to adaptability to soil and climate, to resistance to disease and insect attacks."



The LAUSON 15-25
DUST PROOF-ALL GEARS ENCLOSED

TIME FOR TIME

The farmer will not buy over one or two tractors in a lifetime if he buys wisely. When you buy, you should buy a good tractor like you buy a watch. You ought to know by your tractor that your work will be done on time and all the time, just as you know by your watch the time of day. A tractor out of commission is as useless as a broken watch.

The LAUSON 15-25 is the result of over 30 years manufacturing experience and understanding of conditions under which a tractor has to work.

Like a good watch the Lauson is built dust proof, all the gears being completely enclosed. Nothing prolongs the life of a tractor more than good lubrication, so all the gears and other important working parts on the Lauson run in fine bearings and a bath of oil.

The Lauson is "full jewel." There are 24 Hyatt and Timken roller and ball bearings to insure easy running.

Tractor experts call the Lauson the "Pattern Tractor" because it is a tractor after which many other manufacturers have modeled their machines.

Read these specifications and then call on the nearest Lauson Sales and Service Station to make a demonstration on your farm.

SPECIFICATIONS:

RATING—Drawbar H. P. 15; Belt H. P. 25
ENGINE—4½ inch bore by 6-inch stroke—Valve in head
NUMBER CYLINDERS AND CYCLE—Four
NORMAL SPEED—R. P. M. 950
LUBRICATION SYSTEM—Splash and force feed
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COOLING SYSTEM—Perfex Radiator
BELT PULLEY—18 inch by 8 inch; 475 R. P. M.
TRANSMISSION LAUSON—Selective Type, Sliding gear Oil Tempered Gears
NUMBER SPEEDS FORWARD—Two
SPEED, M.P.H.—Low 1¾—plowing 2½—high 2½
NUMBER WHEELS—Four DRIVE WHEELS—54-inch diameter; 12-inch face GUIDE WHEELS—32-inch diameter; 6-inch face
WHEEL BASE—86 inches TREAD—52 inches
Total weight, less fuel, water, oil and lugs, 6,000 pounds.
Shipping weight, with Standard Equipment, 6,500 pounds.
Sold with or without Christensen starter.

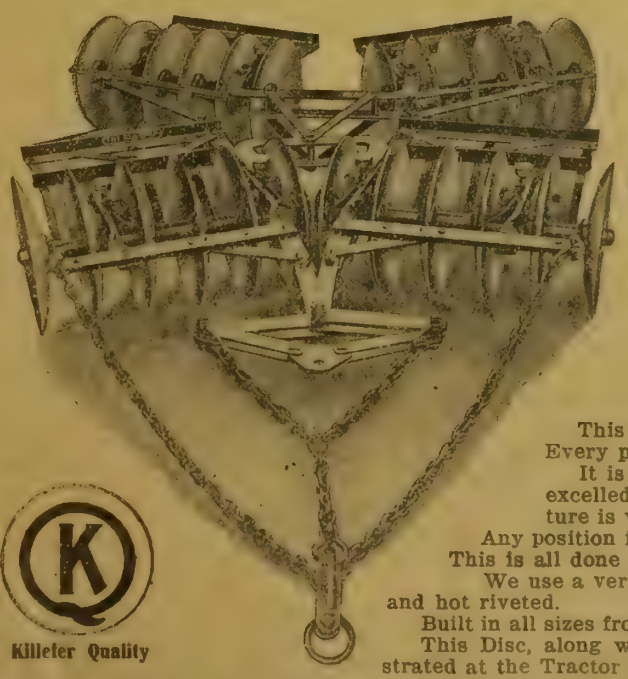
Write for illustrated book on Power Farming and the name of nearest Lauson dealer.
You are sure to find him the leading dealer in your community.

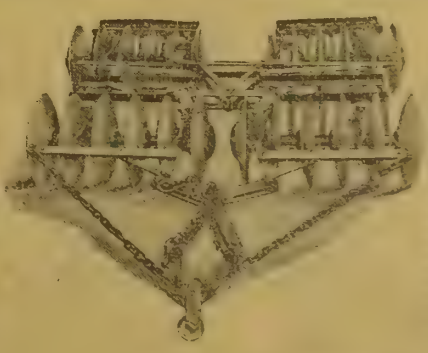
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The John Lauson Manfacturing Company, New Holstein, Wis.

The Killefer Automatic Double Disc Harrow





AUTOMATICALLY STRAIGHTENED

The small cut shows the Automatic Double-Disc Harrow, automatically straightened. To accomplish this, the tractor is backed up until the hook on the draw chains can be placed in the hole on the front end of the adjusting swivel; then, by going ahead about 18 inches, the disc is drawn straight. To set for working position again, pull out the hook and go ahead. This can all be done by the driver from the seat of most tractors.

Killefer Quality

A REAL TRACTOR DISC

This DISC HARROW is built especially for tractor work. Every pound of material in it is in working parts.

It is an Orchard Disc, and a Field Disc, that has never been excelled. It is low down, strong, durable, and the adjusting feature is very simple and positive.

Any position from straight to almost a plowing angle may be obtained. This is all done by the tractor.

We use a very heavy disc and heavy material throughout, well braced and hot riveted.

Built in all sizes from 5 ft. to 12 ft.

This Disc, along with our complete line of Tractor Tools, will be demonstrated at the Tractor Show to be held at Sacramento May 5th to 10th.

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Planet Jrs. increase your production and lessen your cost

You get bigger and better crops with less expenditure of time, labor, and money, for Planet Jr. tools enable you to cultivate easier, quicker, and more thoroughly. They are time-tested tools, so careful, accurate, and substantial in construction that they last a lifetime. Fully guaranteed.

No. 90 Planet Jr. Twelve-tooth Harrow, Cultivator and Pulverizer is a prime favorite with farmers, market gardeners, strawberry, sugar-beet and tobacco growers. Its twelve chisel-shaped teeth and pulverizer leave the ground in the finest condition. Adjustable to both width and depth, making close, fine work easy.

No. 90

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Los Angeles, California

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Probate on Personal Property

If husband and wife file joint declaration of homestead upon real property, in case of the death of the husband, will bank account and bonds also go direct to the wife without probate? The personal property stands in the husband's name.—Subscriber, Pajaro.

The declaration of homestead affects the real property only and a court proceeding is necessary to establish the fact of death of record; this is inexpensive, however. As to the personal property regular probate proceedings must be had.

Tax Title

I hold tax title on land bought from the state five years ago; the state held the land five years before my purchase. The land was patented about 30 years ago but the former owner is dead. Is a Torrens title as good as any other? Will an abstract company insure my title? Is it possible for me to take the usual action to quiet title?—Subscriber, Calexico.

Title companies are very loath to insure these tax titles. The procedure of the Torrens title act is especially advantageous in the matter of tax titles and would doubtless be as good a procedure as you could take in this case; although the usual action to quiet title on the ground of adverse possession might be brought; the former owner being known to be dead would make some complications in this action which doubtless would not arise under the Torrens procedure. The Torrens tite is guaranteed to be good by the state after a judgment declaring it to be good and should be better than any mere certificate given by the average small title company with small private resources.

Home Must Be Probated

Husband and wife own home paid for from their joint earnings; the title is in the names of both husband and wife; the husband has died and there are no heirs other than the wife. In case she wishes to dispose of the property what must she do?—Subscriber, San Jose.

The husband and wife are what is known as tenants in common, each having an undivided interest, according to the presumption of law. The property is community property and the estate must be probated in the usual way.

Payment for Magazine

I subscribed for a magazine about two years ago but found I could not keep up the payments and wrote to the company and asked them to cancel it. They discontinued sending it to me. Lately they have placed a bill for two years' subscription in the hands of a collector. What are the rights in the matter?—Subscriber, St. Helena.

It is doubtless some error in the books of the company. After making a contract of subscription you are not entitled to change your mind and the company could have held you to the contract, but as they stopped their publication on your request the original contract was annulled by mutual agreement, so you are not liable.

Removal of Telephone Poles

In 1911 I purchased certain land upon the south side of which a telephone company has a line of poles placed with the consent of the previous owner without written contract. I now wish to have the pole line removed. What form of notice should I give them and in the event of their refusal what form of action should I take?—Subscriber, San Bernardino.

Having had their line in place for over five years it is possible that a right has been acquired. In any event, you might render yourself liable for damages should you chop the poles down. You should notify them to remove the poles within a certain time, describing the property so they will know it and inform them that unless said poles are so removed that you will take action to enforce the removal. In case they are not removed, then you could doubtless bring an action in the form of trespass and ask for the removal by order of court.

Use of Road

There is a public road along an irrigation ditch; the property line of the westerly owner is six feet east of the east ditch bank; the tenant of the property on the east of the road claims to have the right to stake his cattle throughout the road against the claims of the westerly owner. What are the rights of the parties?—Subscriber, Butte County.

If the public or county has title to the road by purchase of the land there are no rights in either party, except with the consent and order of the board of supervisors. If the public or county was merely granted a right of way over the land for road purposes then the owners of the land remain such for all purposes not inconsistent with those of traffic and they can graze their cattle and plant the roads up to their old property line or to the edge of the traveled road and only so far. If anyone not owning the property should attempt to use it the owner thereof could bring action for trespass.

CALIFORNIA BEAN PRODUCTION BY VARIETIES IN 1918

By E. E. Kaufman, Field Agent, United States Crop Estimates.

Owing to the importance of the bean crop and the difficulty experienced at harvest and thrashing time in many sections of the state on account of unseasonable rains, a special inquiry was instituted concerning the probable production by varieties, together with average "pick" and quality of the crop. Further data on the acreage harvested and average yield per acre was also secured.

The acreage harvested is estimated at 592,000; no change being made from the December figure. The average yield per acre is reduced from 15 to 14½ bushels, making the revised figures on production 8,584,000 bushels—equivalent to 5,150,400 centals. The quality of the 1918 crop was only 85, compared to 97 in 1917. The average "pick" (trash, split and otherwise defective beans) was 10.5 per cent in 1918, compared to 4.3 per cent in 1917. In some counties the "pick" was exceedingly heavy, on account of rain, while hardly any district entirely escaped.

Following is the estimated production by varieties in centals, or 100-pound sacks: Limas, 1,545,000; Small White, 978,000; Large White, 618,000; Pink, 721,000; Red Kidney, 26,000; Black Eye, 463,000; Cranberries, 103,000; Mexican Reds, 154,000; Bayos, 118,000; Teparys, 257,000; Henderson Bush, 134,000; misccellaneous, 33,000.

SAN JOAQUIN VALLEY COTTON

Cotton men of the San Joaquin Valley have pooled interests to the extent of 100,000 pounds of long staple. S. P. Frizelle of the marketing committee has charge of sale of the crop.

DOMESTIC PRODUCTION OF POTASH

Statistics of the production of potash in the United States in 1918, which are complete except for reports from some of the smaller producers, show a large increase of output. The returns now at hand indicate a total production of 192,587 short tons of potash materials containing 52,135 short tons of actual potash.

The production in 1918 was almost double that in 1917. About 75 per cent of the total output came from natural brines, 55 per cent coming from brines in Nebraska alone. Most of the product was in the form of mixed salts and fertilizer materials containing from 20 to 30 per cent of potash. About 24 per cent of it was in the form of muriate and about 6 per cent in the form of sulphate.

For several years immediately before the European war the United States used annually an average of about 240,000 short tons of actual potash. The production so far reported in 1918 is therefore about 22 per cent of our normal consumption. The imports during 1918 were very small. The producers reported that on January 1, 1919, they had in storage 60,426 tons of crude potash, held because of the dull market prevailing during the later part of 1918. These figures represent a minimum, as some producers did not give quantities, but stated they had produced considerably in excess of sales. Most of the potash now held in storage was produced when the price was high, when quantity production was the main object, and when competition with foreign potash was not considered. The price now offered for that material is apparently below the actual cost at which many firms produced it, consequently there is a crisis in the domestic potash industry. Many producing plants have already shut down and others are marking time.

The producing capacity of American potash plants, classified according to sources of raw materials, is estimated roughly as follows: Natural brines: Nebraska lakes, 50,000 tons; other sources, 28,000; alunite 4000; dust from cement mills, 3500; kelp, 5500; molasses distillery waste, 4000; Steffens waste water, 3000; wood ashes, 1000; other sources, 1000, or a total of 100,000 tons.

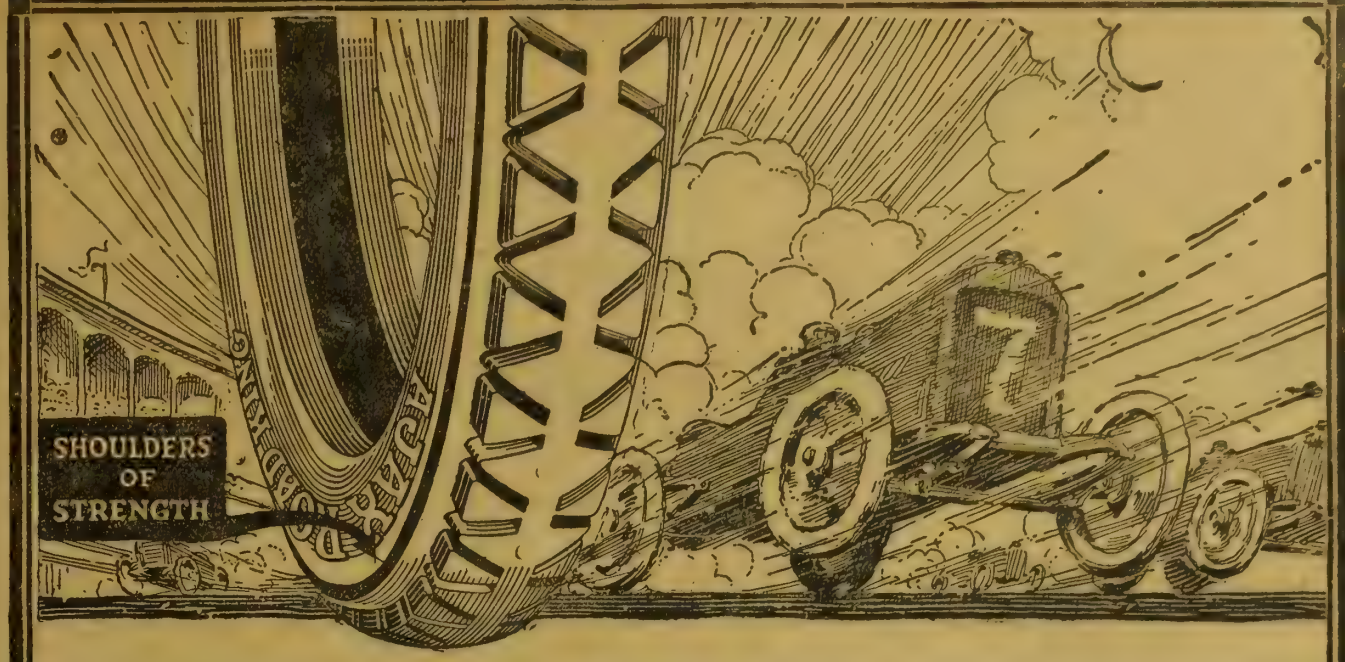
This quantity corresponds to more than 40 per cent of our normal consumption and indicates what may be produced in the United States during 1919 provided the American producers are able to compete with the foreign producers.

W. S. S.

Purchasers of 1919 War Savings stamps should not place them on 1918 folders—technically known as War Savings certificates—is the warning of Samuel Hubbard, director of War Savings for the twelfth federal reserve district. If the 1918 certificate has blank spaces just put the certificate away without filling it with 1919 stamps.

The same thrift stamps and thrift cards are used this year and when the thrift card holding 16 stamps is filled it will be exchanged for the 1919 War Savings stamp on payment of the additional cents which represent the difference between the price of the War Savings stamp and $4, the value of the 16 thrift stamps.

The Arizona legislature has passed a resolution calling upon all boards of supervisors in the various counties to initiate public works as soon as possible to relieve as far as possible the condition of unemployment.



AGAIN-
AJAX WINS!

AJAX Tires—for the second consecutive year, are crowned champions of America's dirt tracks. Gruelling, grinding contests at state fairs all over the country again prove why Ajax Tires stand first in favor with the farmer.

58 Championships For Ajax

Nine World's Championships—49 Track Championships, were won in 1918 by demon auto racers using Ajax Tires. Ajax Tires swept the field in many races. They outstripped competition on dirt tracks. They stood up and won under severest service.

Ajax Tires—the same tires that won 58 great championships in 1918—will give you the same good service they give the dirt track racers. Remember this: they win on the roads you drive on. The dirt track is a country road with a fence around it.



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MORE TREAD ON THE ROAD

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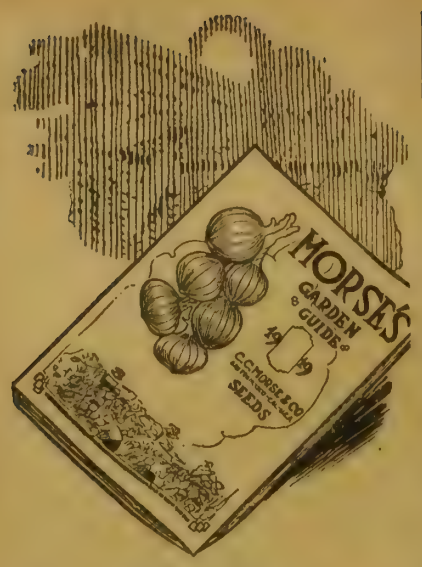
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for 1919

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Every man, woman or child interested in gardening should have this practical book of 100 pages—profusely illustrated. Complete lists of Morse Grand Prize Vegetable and Flower Seeds.

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Corona is still discussing the planting of peanuts.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Ear Tags

I have some pure bred hogs and would like to get some ear tags, but do not know who handles them.—Subscriber, Oxnard.

Any dairy supply establishment advertising in the Cultivator can supply these tags.

Broom Corn Thresher

Please tell me what thresher is the best for broom corn, also the name of the manufacturer and the price.—Subscriber, Calexico.

These threshers are usually home made and are very crude, consisting of a wooden cylinder in which spikes are driven, spaced very much as the "teeth" in the grain thresher. However, farm machinery advertisers in the columns of the Cultivator may be able to supply these threshers.

Home Made Cheese

Can you give me the recipe for making the ordinary store cheese which is called sharp?—Subscriber, Chula Vista.

Directions for the making of cheese are rather too extended for giving in these columns. The Cultivator of August 17, 1918, has a general article on the subject of making cheddar or perhaps what the subscriber means by "store" cheese. The "sharp" or stronger cheese is secured by aging the cheese, also by using certain cultures which call for more skill in handling.

Suffocating Squirrels

Is it possible to kill squirrels by the use of distillate? If not, which is the best poison, wheat or barley?—Subscriber, Red Bluff.

Yes, though it is so much slower in vaporizing than gasoline or carbon bisulphide or the proprietary substance known as Kilmol, that these are usually preferred. Balls of old rags or waste are often used, being saturated with one of these substances and inserted into the hole which is then closed.

Rations for Hogs

Does it pay to feed barley to hogs running on alfalfa, or will they do well enough without it? Have asked this question of a few hog raisers who make quite a success of feeding fall pigs some grain through the winter, turning them on alfalfa without any grain until fall and then finishing them with grain. Would it pay to grind alfalfa hay fine, mixing with it a small proportion of grain, or is it better to let them harvest the alfalfa, saving expense and trouble? If barley is ground is it better to soak it or to feed dry? If soaking is best should it be allowed to sour?—Subscriber, Willows.

Yes, it does pay to feed a small ration of barley to hogs running on alfalfa. Careful tests have shown that a balanced ration for growing pigs makes for enough more rapid growth to justify adding grain to pasturage. Tests made at the Kansas experiment station have shown that hogs kept exclusively on that best of all hog feeds—corn—show least thrift and vastly less growth than hogs kept on alfalfa with small addition of grain feed. Regarding grinding alfalfa it is a question of economy and cost of labor. If hogs are pastured there is saving of labor but waste of alfalfa. That is, the production per acre is much less than where the alfalfa is cut and fed. Again, if made into cured hay and ground the labor increase and the availability and amount of food produced must be considered. Wastage of the stem or coarser parts of the hay is not so great as where ground or finely chopped. The feeder must keep in mind that grinding in no way increases actual feed value but does lessen wastage. We would like to hear from hog feeders who have made tests of these different methods of feeding. Careful investigations have shown a slight increase in feeding value of soaked grain over dried grain. In fact this is reported to be only 2 per cent. The increase in value is more pronounced with old stock than with youngsters. Grinding, or rolling, however, especially of small, hard grains such as barley and rye, does prove beneficial. If soaking is done do not let it sour.

Egg-Eating Dog

In the issue of March 1, I notice that J. H. Armstrong of Stockton wants to know how to cure a pup of eating eggs and thinking perhaps my method might help him I am sending it. We had a very intelligent shepherd pup five or six months old. When he began eating eggs I think at first he just played with them as all puppies play and found they tasted good. Whipping did no good as he was too young, so the next time I found him with one I called him to me and took it from his mouth. I did not dry it of the saliva but very carefully tapped the end, let out some of the white and put in about a teaspoonful of Watkins' Liniment, which is very hot and burns the tongue. I then very carefully pasted a piece of paper over the broken shell and called the pup to me, let him smell his egg and when he opened his mouth to take it I simply shut his jaws on it, crushing it instantly. The liniment burned, so he rolled and howled, but to this day if I show him an egg his ears and tail drop, and he is now five years old. It is well worth trying if one has a good dog.—Mrs. H. C. Wallace.

I found this article in March 1 of your publication and as I am a dog lover thought it worth while to tell my experience. Make a hole in both ends of egg, blow out contents, then cover one end with a piece of paper dipped in white of egg. Make small funnel of paper, place in open end, then fill funnel slowly with cayenne pepper, letting it go in egg, then close egg with piece of paper. Place egg where young dog has been accustomed to stealing them. One egg is usually enough.

If a dog catches young chickens, take the chick, hold the dog firmly and pick his nose with the beak until he whines. Take the chick's feet and scratch his stomach hard until the claws have made marks on the bare skin, all the time scolding him by saying: "You are a bad dog, a naughty bad dog!" The smell of the chick, the scratching, and scolding, make a lasting impression upon his canine mind. I broke one dog in one lesson. Don't whip!—Mrs. J. W. Lyon, Gardena.

Grafting Walnuts

In the foothills of the Burro mountains of New Mexico I have 640 acres of grazing land on which are 50 to 100 walnut trees bearing regularly small black walnuts, not large enough to market. On the other side of the mountains is a ranch where grafting of English walnuts proves very successful, I have heard. These are large hardy trees, and I wish to graft English walnut branches on them if it would be practical to try. How soon do trees bear after grafting? Should

PROFIT comes from fruit, not foliage. Or Citrus fruits use immediately available

Nitrate of Soda

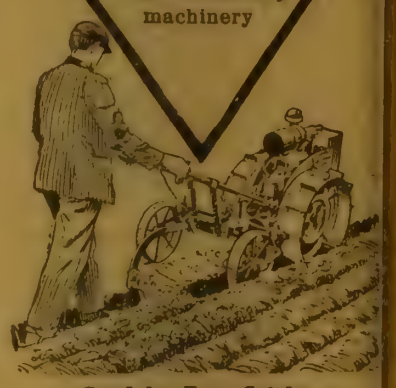
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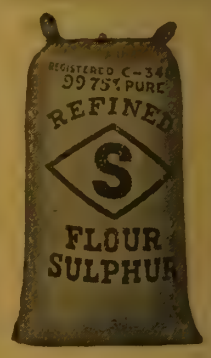


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they be pruned when grafted? How many grafts should be given each large tree? What time of year should the grafting be done? Are grafts placed high or low, preferably? Is it best to use grafting wax? If so, what kind and where obtainable? If grafting wax is not used how is the graft held in place best? About how long should the branch grafted on be? What variety of English walnut is best to graft in this climate, dry most of the year, high altitude, late frosts, trees supplied with moisture from the creek beds, mainly, along which they grow? Please describe the way the branches should be cut which are grafted on and those to which they are grafted. What place can supply what I would need of the variety best adapted of branches to graft and how should I order? What firm is most dependable?—Subscriber, New Mexico.

Be sure and use the grafting wax which may be made according to any good formula, one of which was given in Mr. Neff's article on page 239 of the issue of the Cultivator of February 22. Also see the article on caring for the grafts when once they start, in this week's issue. We believe these two articles will answer all other questions. The scions must have at least one full healthy bud. As to the variety which will do best in New Mexico we can not say at this distance, but presumably it would be of the Franquette or Mayette type. Would suggest the securing of scions from trees known to do well in your own state. Without question your native small blacks will make good stock for grafting on the improved walnut.

Rye for Hay

What is the proper time to cut rye for hay? How soon may cows be pastured on it?—Subscriber, Exeter.

If rye is to be used for hay it should be cut when the grain is in the "dough." Some prefer to cut while in the "milk." Rye will stand for liberal pasturage if done early and before any indication of heading out.

Getting Rid of Stumps

In reply to a question from Marin County as to an easy method of getting rid of stumps (pine, Monterey cypress and eucalyptus) near building, without using dynamite, stump puller or digging out, Jas. D. Seaton of Red Bluff writes:

If stumps are not too close to building bore a hole in each near the ground and use small charge of black blasting powder to shatter them, but if not used to blasting bore a two-inch hole in top of stump down 18 or 20 inches, and another hole from side of stump to meet first hole at right angle at or near bottom. Insert live coals from the top and a few dry chips from stump made by auger. Blow in bottom hole to make fire start, and put in more chips, and, presto, there is no more stumps in a few days. Green stumps (pine or fir) will burn as well as dead ones, if they have any heart. If the first method is used split stumps in quarters and pry out pieces with crowbars. Burning is easiest.

COSTS, BUT IT PAYS

The California Associated Raisin Company has made provision in its budget for 1919-1920 for the expenditure of $440,000 for advertising and sales purposes. The appropriation slightly exceeds that of last year when about $385,000 was voted. There will be somewhat more national advertising in standard magazines and some new advertising in the trade press. A fund was set aside to be used in foreign advertising if this step is found necessary to dispose of part of the coming crop.

APPLIANCES FOR STORING GRAIN

The high cost of sacks is aiding materially in advancing the bulk handling of grain, and this is encouraging the construction of equipment which is making much more satisfactory this bulk handling. It is pointed out that metal grain bins of high quality, rust-resisting metal are comparatively inexpensive when the saving in grain and labor costs is considered.

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is cheaper than second-hand, dollar for dollar of cost. Come in and see what we have to offer you in HERCULES HARNESS and Horse Collars. Our own make and fully guaranteed.
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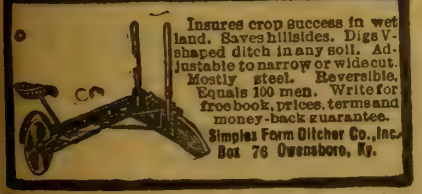
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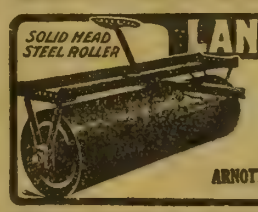
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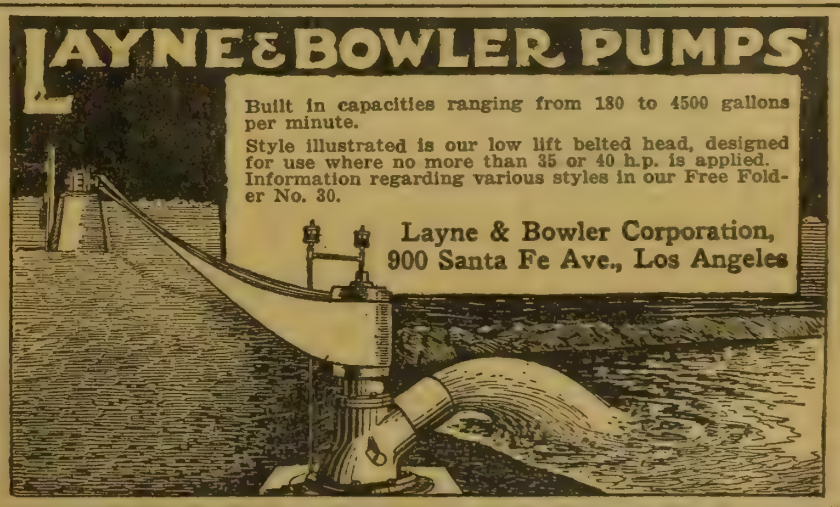
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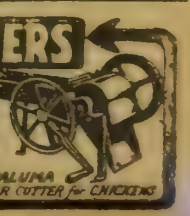
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Expect Less and Get More From Your Tractor

By C. L. Butler.

BY taking a short cut off the line of least resistance we can speed up the success of the farm tractor. The same goal may ultimately be reached by simply letting the farmer find the facts for himself from his own observations, but it is a tedious —yes, dangerous—process. There is the possibility that his findings, if gained without instruction, will be too bitter and he will turn his back on tractor benefits. Tractor manufacturers should not run the risk of letting him go this hazardous way unguided. We can bring the tractor into its own by producing the plain and unadulterated facts and insisting that every user get them before he gets his tractor. The most unsatisfactory buyer in the world is the farmer who expects too much. His tractor so purchased is bound to be a liability to himself and the company that built it. It makes no difference how good a machine may be, if the farmer thinks it should be better he will not be satisfied—and unsatisfied he is a liability on the books of the tractor agent. The mistake made is in permitting the farmer to expect too much. Today's sales may come easier; they may be even forced to greater increase by fanning the already high hopes of the buyer by a little sales eloquence. It's a crime. There will be a morning after.

It is not sufficient to leave out the untruth—and the Lord knows George Washington's blue pencil would shorten most of our statements. It is vital that we go farther and tell the truth—and most of us unfortunately must first learn it. Our job in this tractor industry, our short cut off the line of least resistance, is to conscientiously learn the facts and then rush them forth to the farmer. We cannot talk too loudly nor too eloquently about the facts, provided they are the real facts and not distorted. My mother used to tell me to always tell the truth, but that I need not turn myself inside out to do it. I'll go her one better; I'll say to the tractor industry, "Until the truth becomes better known about the tractor, turn yourself inside out to tell it." The farmer must be convinced, in spite of himself, that a tractor motor must be measured in revolutions, not years, and that a tractor will pull so many pounds at the drawbar, not necessarily so many plows. We can best serve the farmer by teaching him to serve himself. And he will only be able to serve himself when he recognizes these facts about his tractor.

Let's take this matter of pull at the drawbar. After all is said and done, that is all the tractor man has to sell, and if it costs too much, he won't be able to continue selling it. Most tractors are sold to pull so many plows. "Capable of pulling two 14-inch plows at all times: three 14-inch plows under favorable conditions." You have all seen similar statements. Outside of the fact that it gives the farmer a wrong impression, it is quite a liability for any manufacturer to set up. The owner may take it too literally and his lawyer insist that the agent live up to what is practically a guarantee. There are too many factors to be considered to encourage such statements from a cautious industry. We are selling drawbar pull and we had better distinguish between salt grass and loose loam.

The farmer must realize that the biggest part of making the tractor a success lies with him. The industry should do all in its power, in its advertising and in its sales policy, to let him know it. He is buying drawbar pull, which in itself will vary greatly in relation to the traction available—and drawbar pull may mean three fourteens and then again it may not be enough for one. The lay of the land, the soil, the growth in it, the suitability and condition of the plows, the hitch—they are all important factors. Any one may change the pull two or three hundred per cent.

When the agent sells a tractor he invariably turns it over to the farmer to pull so many plows on his ranch. Probably he took his demonstrator out and did a little plowing. Of course his plows were suited for his tractor, his shares nice and sharp, his hitch just right. That is all in order. A man would be a sucker to drag a dead load on a demonstration. But when he left the tractor, did he leave a word of caution with it? Did he build up a defense for the change of conditions, tell the farmer that it would take him a long time to run things as smoothly? Perhaps you, as a tractor agent, can remember the time it took and the grief you had getting your plows lined up to give real service and to turn the land with a minimum pull on the drawbar. Why not get the farmer ready for the same grief? He is going to have it, sure. Whether or not he has the patience to tolerate it is up to you. He will if he anticipates it, and it is up to the dealer to get his mind right. It takes time, even for experts, to adjust a plow properly behind a tractor.

The day the farmer gets his tractor he hooks on to the old plow he was using with his horses because the new one for the tractor hasn't come. Most likely it is too heavy a load. He bought his tractor to pull 3 twelves—furthermore he can't understand why it won't do it. If he had a drawbar scale, could see that the tractor was pulling every ounce it was supposed to pull, he might feel better. But in his mind 3 twelves is 3 twelves. The horses pulled it, why won't the newfangled contraption do it too? So long as he starts that way there is trouble ahead. He bought the tractor to pull the bottoms, but he makes no allowance for the fact the hitch may double the load he is pulling. Most old style horse drawn plows are anchors behind a tractor. This little incident made him sore; had he recognized the difference in the pull he might have felt better.

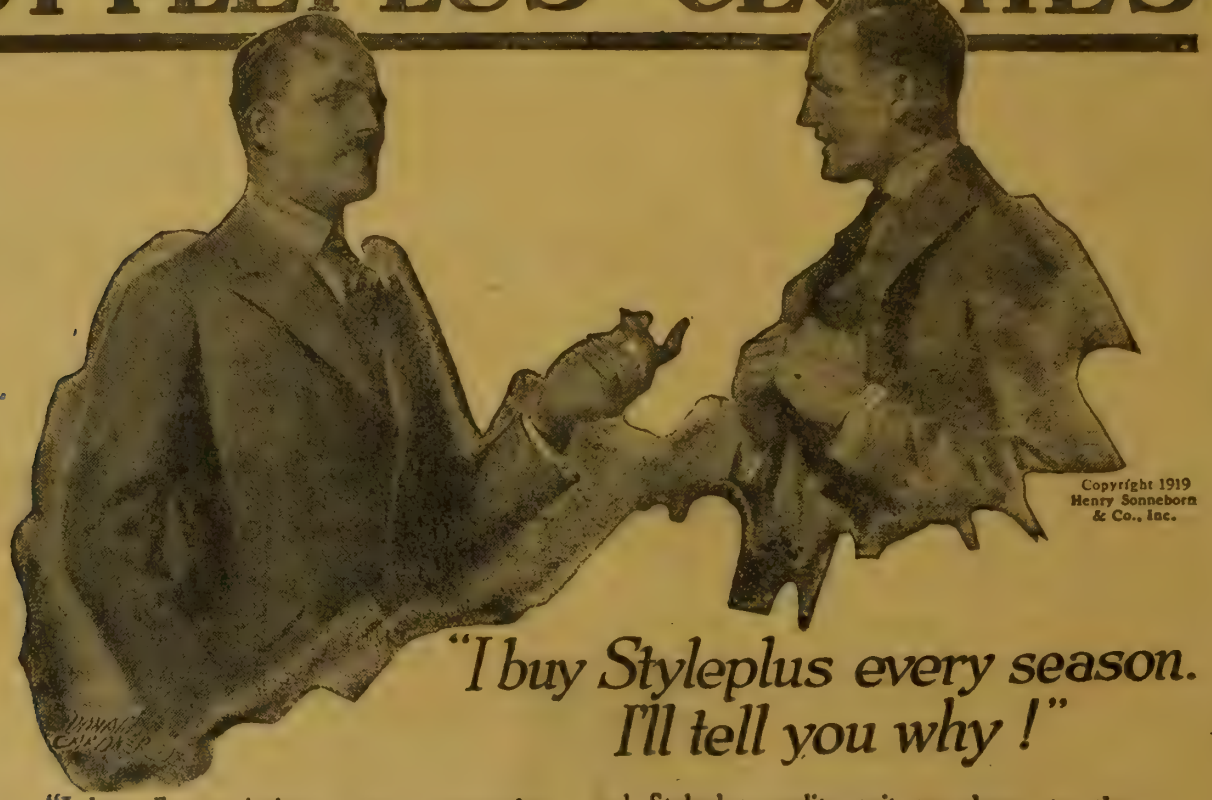
Next he gets the new plow. He hooks it up after considerable difficulty and away he goes, ready to forget and forgive. And again the tractor only handles the load with unquestioned effort. This time the scar on his patience is pretty deep, new plow, nice and sharp, traction good, soil in perfect shape— what's the use? But he overlooked the fact that the plow didn't set quite square with the pull. Here again he was disgusted because he recognized no difference between plow bottoms and drawbar pull. He would have been all right if he could have seen a drawbar scale and realized that even so little a thing as an off line pull may double the work for the tractor.

It is always that way. There may be nothing the matter with the tractor, but the load is not right. There is not one farmer in a dozen who can understand why his tractor stalls on a little morning glory patch or a bit of Bermuda. His horses always walked through it. True, they leaned into the collar, but they never stalled. Right there is the difference. Drawbar pull with horses can be very greatly increased for an instant. They can "lean in" through a tough place but they could not carry the load that way all day. The tractor is not quite so flexible although it can take its proper load on the drawbar for day after day without complaint. It is up to the man selling the tractor to let the farmer in on this secret; if the pull is too great the tractor won't pull it regardless of whether it is three bottoms or only one. And the difference in pull in a single round even on an apparently uniform field is very marked.

If the farmer hopes to have success with his tractor, he must have the patience to get things right and the ability and determination to keep them right. If he understands and properly cares for his tractor, it will always pull its load in pounds on the drawbar. If the implements are suited for the work, kept sharp and in condition and properly attached the work will go on without any grief. The operator is 60 per cent of the success of his tractor.

The tractor sales policy that educates its salesmen and its owners to expect less and know more of their tractor will be the first to cross the line a winner.

STYLEPLUS CLOTHES



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"I buy Styleplus every season. I'll tell you why!"

"I buy all my clothes at one store—the Styleplus Store in town. The advantage is that each suit has the Styleplus label in the collar, the price label is put right on the sleeve by the makers, and they guarantee the clothes.

"See the point? I *know* the manufacturer is back of these clothes and they *must* be good. I *know* that the price is right. Styleplus style and Styleplus quality suit me down to the ground. The prices are always reasonable.

"I never buy a suit of clothes without seeing it first and trying it on. Then it fits right and I get just what I want.

"Be a Styleplus 'regular' and your clothes troubles are over. And you'll always get your money's worth!"

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Sold by one leading clothing merchant in most cities and towns. Write us (Dept. AB) for Styleplus booklet and name of local dealer.

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Founded 1849 ~ Baltimore, Md.



America's only known-priced clothes

Running a Gas Engine

Farmers Bulletin 1013, U. S. D. A., gives some valuable hints regarding handling gas engines. Here are three:

Use All Information Furnished By Manufacturer

All catalogues and directions furnished by the manufacturer should be studied carefully. If none are received with the engine, a request for them should be sent promptly to the manufacturer. It is to be regretted that a few manufacturers are rather lax in the matter of furnishing such material, although it is obviously to their interest to make use of this comparatively inexpensive method of assisting the purchaser to obtain satisfactory service from the engine.

Any instruction book furnished by the manufacturer should be kept in a safe place, but convenient for reference. It is safe to assume that the man who made the engine knows something about its operation and can give some information of value to the purchaser. In altogether too many cases, the instruction book and other literature intended to be of assistance to the user of the outfit are either thrown away or ignored completely, and not infrequently a man is sent from the factory, or a local expert is hired, to make simple adjustments concerning which full instructions are given in literature furnished by the manufacturer but which had never been read by the owner.

Lubrication

A large percentage of repair expenses is due to insufficient or improper lubrication. In far too many cases owners of gas engines use grades of oil entirely unsuited to their engines, notwithstanding the fact that in each case the manufacturer has furnished a long list of various brands and grades of oil which have been tested and found suitable to the engine in question, and which can be obtained practically anywhere in the country.

Another common error is to use too little oil. It is poor economy to try to save on oil. On the other hand, an excess of oil in the cylinder, while better than too little, will cause carbon deposits, followed by loss of power, overheating, and preignition. Heavy, bluish smoke from the exhaust indicates that the cylinder is getting too much oil, but it is usually advisable to furnish enough to give at least a slight trace of bluish smoke.

If the cylinder is oiled from the crank case by the splash system, the lubricant being used over and over again, the oil should be examined frequently, and as soon as it becomes badly discolored or very thin it should be drained out and new oil substituted. Many manufacturers furnish directions as to how often this should be done. Filling the crank case with kerosene after draining out old oil, and then running the engine a few minutes without load, in order to remove dirt and carbon from bearings and other parts, is frequently recommended. This is good practice where the crank case can be drained completely, but on many engines there are pockets which can not be fully drained, and the kerosene remaining in these pockets will thin the new oil. Under such circumstances the rinsing is of doubtful value. After such rinsing is done, the engine should not be run at full speed or under load until the new oil has had ample time to reach all bearings. The dirty oil drained off may be filtered and used for oiling other farm machines, but it should not be used again in the cylinder. If the oil in the crank case quickly becomes thin it is evident that some of the fuel is getting past the piston rings. This seriously affects the lubricating quality of the oil. It should, of course, be replaced with fresh oil, and steps taken to improve the carburetion so as to form a fuel mixture which will burn more completely.

Keep all Nuts Tight

It requires but a minute or two to go over an engine and see that all screws and nuts are tight, at the same time wiping off any oil and dirt which have collected. This should be done at least once every day the engine is used. Such practice will go far towards preventing many operating troubles, since all gas engines vibrate to some extent and this vibration tends to loosen bolts, nuts and other parts. This is always a potential source of breakdowns, if not of serious accidents. Furthermore, loosening of parts often results in a loss of power.

ROAD WORK IN 1919

Expenditures for highway work in the United States this year are likely to amount to a half billion dollars, or even more, according to a statement made today by officials of the bureau of public roads, United States department of agriculture. On reports received from state highway departments the bureau estimates the expenditures for roads and bridges at $385,000,000, or $110,000,000 more than the average expenditures for 1916 and 1917. This estimate does not include, however, the additional federal funds which will be available if the amendment to the postoffice appropriation bill, making $50,000,000 immediately available and $75,000,000 more on July 1, is enacted into law.

Estimated work under control of the state highway departments includes $45,000,000 for the construction of 5,000 miles of road now under contract, $30,000,000 for 4,000 miles of construction ready for contract, $100,000,000 for 16,000 miles of contemplated construction, and $60,000,000 for maintenance of 200,000 miles. Expenditures of counties, townships, and local road districts are estimated at $100,000,000 for the construction of 15,000 miles and $50,000,000 for maintenance of 100,000 miles.

The highest rental price so far paid for land for cotton was that paid recently for several tracts near Mesa, Arizona, the rental price being $50 per acre per year.

"Old Number One" Still on the Job

IT was F. Gasperich, owner of OilPull No. 314, one of the first 30-60's built—and also still on the job—that first told us about "Old Number One."

"There is a bit of sentiment attached to the OilPull machine, familiarily called 'Old Number One,'" he wrote. "It has been in our vicinity ever since its purchase in 1910 and is still on the job, running better than many new tractors of other makes. It is owned by Frank Schultz, of Agar, S. Dak., and I don't believe there is a man in this state who has done more plowing and threshing with OilPull machines. Recently I had an opportunity of witnessing the performance of this old OilPull and I will say that it is still a marvel of reliability."

So we asked Frank Schultz to tell us of his experience with the pioneer OilPull, and he writes as follows:

"I have done more work with my 30-60 OilPull tractor than any other engine around this part of the country. I don't know just how many hundreds of acres it has plowed or bushels it has threshed, but she's always been on the job and never lacked for power.

"Some of my neighbors have so-called oil burning engines, but when they get down to a hard pull, they're a lot better on gasoline. Many a time I've had 'Old Number One' running on heavy load all day without a stop and she never overheats. This I don't believe any other tractor owner in this part of the country can say. As far as burning kerosene is concerned, it is the only real kerosene burner that I know of.

"And the OilPull has a lot of reserve power, which a fellow needs going up steep hills breaking sod in South Dakota. It's the only engine I know that is under-rated.

"The OilPull has more bearing surface and larger shafts than any tractor I've ever seen. I also like the heavy foundation to hold the motor and gearing in place. The carbureter is as simple a mixing device as can be made.

"When you see the OilPull work in the belt you realize the power it develops—how steady the power is and how easily it handles the largest separator.

"In my day I've operated a good many different makes of tractors, but I have yet to see one that will last and stand up like the Rumely OilPull. All the repairs that have been bought for 'Old Number One' would not amount to $200."

What a tractor can do is best told by what it has done. What "Old Number One" OilPull has done during all these years sets a record for tractor performance that anyone can well use as a standard by which to judge any tractor made.

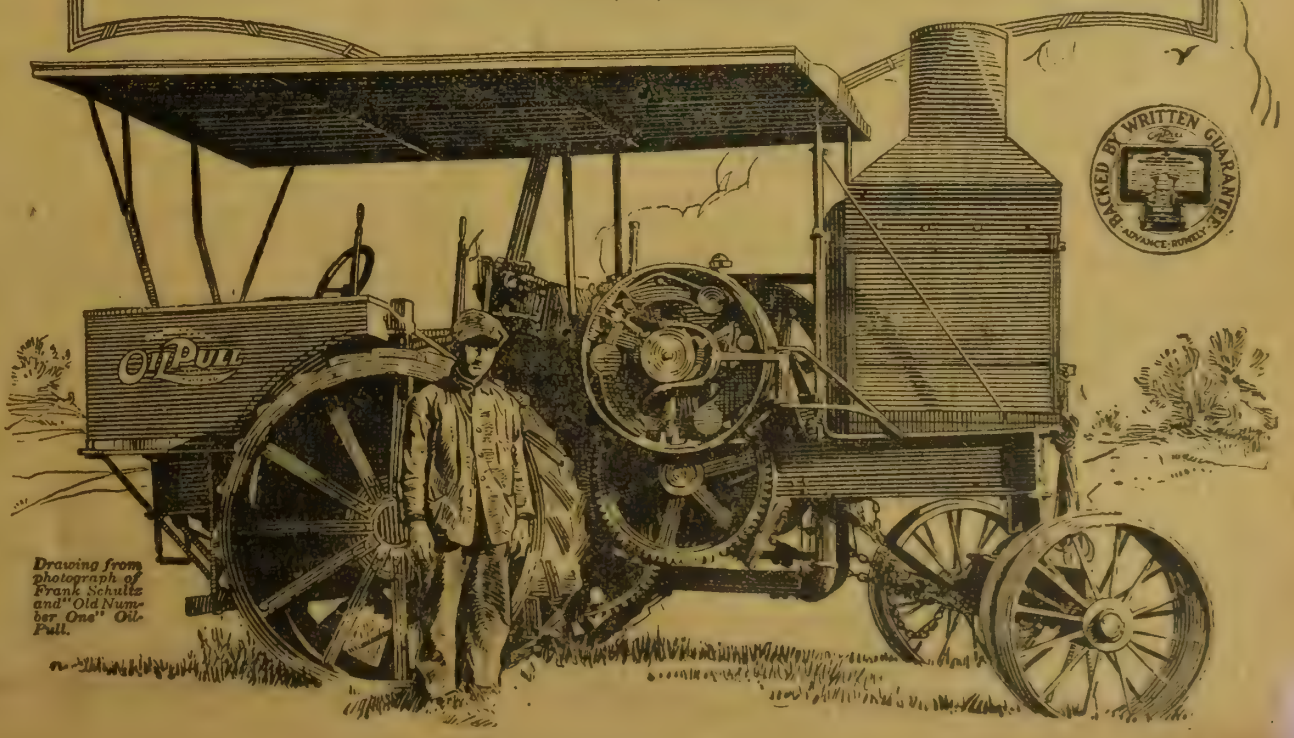
Moreover, into every OilPull is built the same long life, dependability and economy that "Old Number One" has proved out—it's just an example of what OilPull tractors are doing today for over 8,000 owners.

You can get a Rumely OilPull in a size to fit your farm—anywhere from 3 to 10 plows. And Rumely service is within reach of your telephone—no matter where you are—through 26 branch houses, at which are maintained constantly a full stock of machines and repair parts.

Let us send you the OilPull catalog.

ADVANCE-RUMELY THRESHER COMPANY, (*Inc.*)
La Porte, Indiana

San Francisco, Cal., 17-19 Main St.



Drawing from photograph of Frank Schultz and "Old Number One" OilPull.

MOLINE
BEET CULTIVATOR

You can cultivate 2, 3 or 4 rows of beets or beans with this cultivator and do a better job, easier, and at less expense than you ever did before.

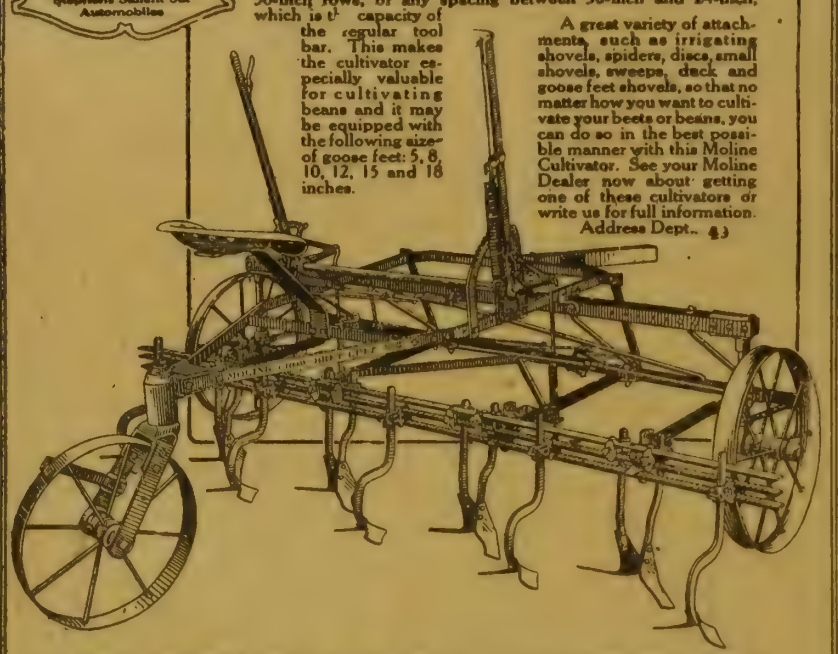
The operator controls the cultivator with his feet by pushing forward upon the foot levers which pivot the wheels and guide the tool bars in the same direction, thus providing the most efficient method for controlling a cultivator which is used to cultivate more than one or two rows at a time.

The tool bar is of sufficient length so that by the proper selection and adjustment of tools, rows may be cultivated anywhere from 16 to 48 inches apart. The tool bars are attached to the frame in a pivotal position. These connecting pivotal bars are in the line of draft and distribute the pull directly to the tool bars, thus getting the draft point as low as possible and making it as direct as possible.

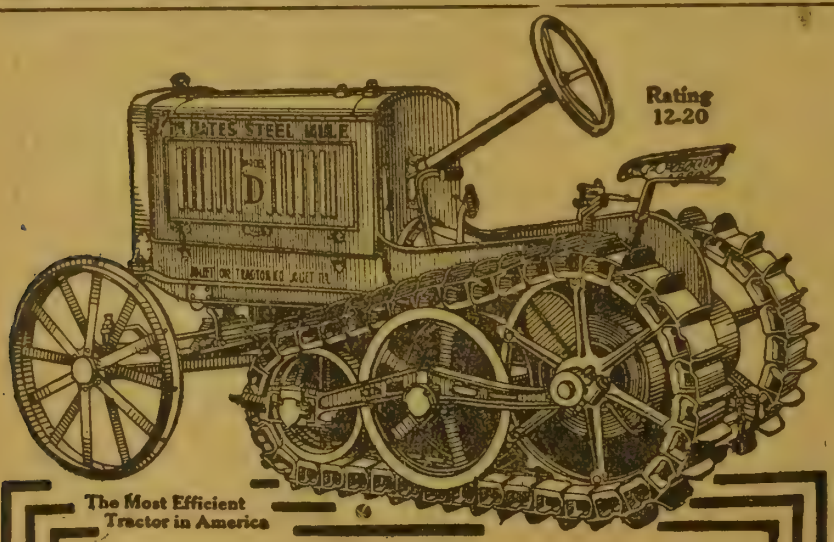
For cultivating beans an extra long tool bar can be provided which is sufficiently long to enable the operator to cultivate four 30-inch rows, or any spacing between 30-inch and 24-inch; which is the capacity of the regular tool bar. This makes the cultivator especially valuable for cultivating beans and it may be equipped with the following sizes of goose feet: 5, 8, 10, 12, 15 and 18 inches.

A great variety of attachments, such as irrigating shovels, spiders, discs, small shovels, sweeps, duck and goose feet shovels, so that no matter how you want to cultivate your beets or beans, you can do so in the best possible manner with this Moline Cultivator. See your Moline Dealer now about getting one of these cultivators or write us for full information. Address Dept. 43

The Moline Line of Implements
Plows (steel and chilled)
Harrows
Planters
Cultivators
Grain Drills
Lime Sowers
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Spreaders
Wagons
Moline-Universal Tractors
Stephens Salient Six Automobiles



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MANUFACTURERS OF QUALITY FARM IMPLEMENTS SINCE 1865



Rating 12-20

The Most Efficient Tractor in America

PROVED CRAWLER DURABILITY

Correct mechanical principles and the knowledge of the proper materials and methods of using them make the crawler shoes of the Bates Steel Mule of great durability. Such is the result of six years of experience with thousands of tractors in the field.

Just as important are the heavy duty valve-in-head kerosene motor, the hardened cut steel transmission gears, the Timken roller bearings and the dustproof working parts.

You will be interested in seeing why the Model "D" STEEL MULE is the most efficient tractor on the market today.

THE ONLY CRAWLER TRACTOR ADAPTED TO BEET CULTIVATION WITHOUT MAKING CHANGES

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417-423 East Weber St.
Stockton, Cal.

When writing advertisers, mention The Cultivator.

Dehydrated Vegetable Industry

THE German submarine may be said to have revived the dehydrated vegetable industry in America, and to have started it upon a career of wide usefulness and importance.

When millions of men were to be fed by transporting practically everything they ate across the Atlantic Ocean, and when ships were anything but plentiful because of submarine depredations, the United States and the Allies realized that anything that would reduce bulk was worthy of consideration. And dehydration does reduce both the bulk and weight of vegetables by from four-fifths to nine-tenths.

But the drying of vegetables had never been generally practiced on a very large scale and, for a long while, even small scale drying had been practically abandoned. Proper methods in preparing the vegetables were not known, and the drying process itself was something of a mystery. Suitable manufacturing plants and equipment were hardly to be found at all. The soldiers had never eaten dried vegetables and army cooks knew next to nothing about how to prepare them.

There were difficulties, but they were overcome. Research by experts of the United States department of agriculture and the sanitary corps of the army resulted in standardizing methods of preparation, drying and packing. It was ascertained that many vegetables could be dried in such a way that they would retain their characteristic flavor and quality and that the process rendered them nonperishable. Millions of pounds of dehydrated vegetables were sent to the armies overseas.

Saves the Surplus

While dehydration was being studied as a means of saving ship tonnage, it gained recognition as a means of conserving the surplus of perishable vegetable crops, permitting increased production and at the same time stabilizing the market, extending the use of vegetables throughout the year, making shipment possible to any part of the country or to foreign countries at no increase in cost to the consumer.

The dehydration of vegetables is a promising industry, but the United States department of agriculture warns that it is not to be undertaken without careful consideration of every factor that may contribute to success or failure. Some of the essentials are, sound fresh materials rigidly inspected and graded, scrupulous care in every detail of paring, trimming, steaming and other preparatory processes, and intelligent oversight of the drying process itself.

Those details attended to, it is possible to use successfully any one of the several types of drying apparatus, though it must be one in which it is easy to obtain steady, uniform air currents over every part of the drying material, while complete control of the temperatures is retained. The dryer must be of the unit type, each unit capable of operation independently of the others. This is necessary in order that the plant may be operated at part capacity, as will often be necessary, without the expense of keeping the entire plant going. The drier must be comparatively inexpensive, as dehydrated vegetables must win their way into popular favor not only by excellent quality but by low cost.

Tunnel Dryer Believed Best

In any given district, a dehydration plant will serve as a safety valve for the fresh vegetable market. Its output will increase or decrease with the rise or fall of prices of fresh materials. Occasionally, because of crop shortage or high prices, it may be necessary to suspend entirely for a season. Such possibilities render large investment in plant ill advised. The department of agriculture believes that the exacting conditions are more nearly met by the tunnel type of dryer than by any other thus far investigated.

Any district which is engaged in general vegetable growing and which regularly produces more of each of its leading crops than the accessible markets can absorb at good prices should look into the possibilities of drying its surplus as a means of extending the market and stabilizing the industry.

Thus far, it cannot be said that any stable market for dehydrated vegetables has been established in this country. Wholesale and retail dealers are waiting to learn more about them, but a few large firms are handling them. A good deal of "selling work" is still necessary, and any group of growers should investigate the possibilities for an assured market before establishing a plant.

The Tomato

By Nellie M. White.

Do not plant in the same ground that you used the previous year. Spade the soil 10 or 12 inches deep and pulverize thoroughly. Tomatoes do well in either sandy or adobe loam.

The Beefsteak is one of the best tomatoes grown for the home table, but do not use it for canning. For this the Stone is better. For very early tomatoes get a plant or two of the Early Stone. If you have room for three or four plants each of the Beefsteak and the Stone, and two of the Early Stone, you will have a great abundance.

Some people claim that three tomato plants will supply an ordinary-sized family, but this is true of only one variety, the Home (or Potato-leaf) tomato.

This plant, if grown on a trellis, and all the side branches pruned off for the first three or four feet from the ground, will produce a wonderful amount of fruit. The plant has been known to grow 18 feet in length.

Select plants that are stocky and sturdy rather than long and spindly. Plant them one or two inches deeper than they were before. It is not advisable to have tomato plants too large, but if they are, plant them nearly up to the neck. Rootlets will form on all sides of the stem under ground. Plant near a fence, building or trellis, or drive a stout stake near each plant to which it can be tied. On adobe soil it is a good plan to mulch the ground around each plant with straw. Plants should be three or four feet apart each way.

Each plant should receive a pint of water when set out, and this should be repeated every other day for a week. Never, in any plant, have the water come in direct contact with the plant. The tomato plant should be shaded for the first week. After the plant is established it should not be watered often. Frequent irrigations and cold soil make blossoms fall off. Three or four irrigations during the entire season are enough.

But in that case you must give frequent shallow cultivation. The tomato roots spread more quickly and over a larger surface than the tops. Consequently, the cultivation must not be deep.

New Grasses For Foliage and Silage

There is never ending inquiry for permanent and perennial pasture grass to suit all soil and climate conditions of the southwest. It is a big problem to find such a grass that will endure both the frosty winters, the hot and dry summers, adobe or sandy soil, the damp meadow or dry mesa, but as difficult as it would seem we are gradually getting closer to the ideal.

Continued experimenting with new importations have brought into prominence several grasses of such merit that to refuse to try them would mean a financial loss to you.

The Napier or Elephant Grass has been so much talked about lately that little need be said here. Now that the seed may be had, although in limited quantities, a packet containing about 3000 seeds may be purchased for 25c, and it requires less than 5000 plants to secure the best results from an acre; within four months there will be enough canes to plant many acres. The crowns survive the summer drought and make an amazing growth with little rain.

It grows readily from joints, which after the canes are hard may be cut midway between the joints, and the joints planted as potatoes. Napier joints may be purchased at $1.00 per dozen, or $5.00 per 100, postpaid.

The wonder forage plant was first introduced by the Aggeler & Musser Seed Company through their 1919 catalog.

It has the sorghum sweetness of sugar cane, and the stooling and heading attributes of the Sudan, one stool having 57 canes with 161 heads and 12 feet tall would indicate full 75 tons of forage per acre, and may be cut several times during the season, and if cut not too late will survive the winter frosts.

Five pounds of seed is sufficient to plant one acre. Culture is the same as for any other sorghum. Price of the seed is 75c per lb., or 5 lbs. $3.00, postpaid.

Smilo Grass is probably the nearest ideal grass for the range of the southwest. It grows anywhere, anytime. Try it. Send 50c for one ounce, or $3.00 for one pound, which is enough for one acre. For other grasses see our catalog.

AGGELER & MUSSER SEED CO.,
620 So. Spring St.,
Los Angeles, Cal.
Telephone: Main 4545.

W. J. Bush
Citrus Products Co., Inc.
National City, Cal.

Manufacturers of
ESSENTIAL OILS AND CHEMICALS

Citrus By-Products a Specialty

We are always in the Market for Lemon Culls

After my tomato plants have reached a little size I prune them severely. I cut off the lower side-shoots and many of the upper leaf stems which do not contain blossoms. I get larger, earlier tomatoes, free from rot, by so doing. Do not allow more than three fruits in a cluster; two are better than three.

If you find that something is eating your tomatoes hunt for the worm. Tomato worms are not hard to find. I think this is better than spraying with arsenic poison.

Spraying with Bordeaux mixture in the fall will prevent blight. Pouring a cup of Bordeaux around the stem at the surface of the ground will prevent root blight.

Garden Snails

Answering the question of a gardener in the National Stockman Farmer as to how to control garden slugs, C. H. Hadley of the Pennsylvania experiment station gives advice which may help some perplexed California gardener in meeting the slug attack on his vegetables—now imminent.

The garden snail, or as it should more properly be termed, the "garden slug," is a most annoying and destructive pest of gardens and vegetable crops in general, especially during a protracted wet spell. Slugs are cosmopolitan pests, being found all over the world, and are easily transported from place to place. In the species most commonly found the adult slug is nearly two inches in length, deeply mottled or greenish grey in color, and its body is covered with a mucus-like slime which exudes from numerous pores scattered over the body. The creature leaves a slimy trail wherever it goes, and the presence of this slimy track indicates where it has been. Comparatively little is known of the intimate life and habits of these creatures. The eggs are usually found in isolated masses, with the individual eggs held together in a mass by a transparent, slimy, gelatinous dressing, each egg being about the size of an ordinary buckshot. The young slugs when first hatched are about one-twelfth of an inch long and reach maturity in from four or five months to a year.

Almost all kinds of vegetables are attacked by slugs, as well as field crops and small fruits, especially during a wet season. The pests feed on their host, usually located just at the surface of the soil; often, however, they are to be found feeding actively on the leaves or curled up in repose. It occasionally happens that decay commences in a plant at the point where it has been injured by the feeding punctures of the slugs. They are quite active at night, the tell-tale trail of slimy mucus indicating their wanderings.

When abundant in the field or garden it is a very difficult matter to control them. The most practical method of attack consists in thoroughly cleaning up their hiding places around the edges of the garden, under old boards and stones, and in any place which gives cool and moist shelter. Consistently following up this practice will in time drive the pests away.

Various methods have been advised from time to time for killing slugs. It cannot be said that any one practice will always be effective, but the following methods have given the best results, according to most authorities. The use of poison bait, as advised for cut worms and army worms, is highly recommended. This is made by mixing dry 20 pounds of bran and one pound of Paris green. Then squeeze the juice of three oranges or lemons in about three and one-half gallons of water; chop the skins and pulp up fine (an ordinary kitchen food chopper is admirable for this purpose) and add to the liquid, together with two quarts of cheap molasses. Wet the bran and Paris green with the liquid thus prepared, using just enough to thoroughly moisten the bran without making it sloppy. The bait should be scattered evenly broadcast over the infested ground at nightfall. Another method is to place a small quantity of the bait near each plant in the garden. When broadcasted the quantity made as above will treat about three acres.

Scattering slices of potato, poisoned with Paris green or arsenate of lead, around the infested area is another method said to be effective. Dusting the plants and surrounding ground with air slaked lime or land plaster will have a tendency to keep the slugs away. As mentioned above, the body of a slug is covered with a slimy mucus; when the slug touches the lime or land plaster it will wriggle into it, becoming covered with the powder. This causes an excessive exudation of the mucus and the creature soon exhausts itself and dies. Spraying the plants with arsenate of lead alone or in combination with Bordeaux mixture may be beneficial. In Europe dusting the slugs with fresh slaked lime is advised; it is suggested that the infested plants be dusted early in the morning or in the evening a little after dusk.

In Italy, it is advised to use a cord or tape, one and one-half inches wide, steeped for 24 hours in a 10 per cent solution of blue vitriol. This cord should be stretched on the ground around the plant or area to be protected, and it forms a barrier over which the slugs will not cross, so strong is their dislike for this material.

GARDEN NOTES
By Ernest Braunton

Lilies-of-the-Valley

The lily-of-the-valley is a hardy plant and so cosmopolitan that it grows wild in the mountains of the southeastern United States, Europe and Asia. Yet few grow it out-of-doors. It is a shade-loving plant and needs a rich cool, moist soil, and if such conditions are provided the root-stalks will spread over a considerable area. The roots are medicinal and in large quantities are poisonous, the extract being used medicinally as a heart stimulant. California air is too dry for this lovely plant but they may be successfully grown in cool places where the soil is retentive of water so that the atmosphere may not become too dry. I have seen splendid plants grown here under shade of large trees.

Chinese Tree Propagation

In "Comstock's Botany" (1832) I find a note credited to "Drummond's Botany," a still older work, in which it states that in China branches of considerable size are rooted while on the parent tree. A circle of the bark two inches long is removed in spring and a ball of damp earth placed about the ringed portion and kept in place by a piece of matting tied securely around it. Over this ball is suspended a vessel of water from which a leak drops onto the ball of earth, keeping it wet throughout the summer. In autumn many roots will be found penerating the ball of earth. The branch is sawed off just below the treated portion and planted in the ground. It is said if a fruiting branch is taken a crop will grow on it the next year, an odd thing as a dwarf fruiting tree.

The custom of decorating churches with evergreens is of very ancient date, and most appropriate are those plants mentioned for such use in the Bible. Why, then, do we not use them? "The glory of Lebanon shall come unto thee, the fir tree and the pine tree, and box together, to beautify the place of my sanctuary." And again, according to the prophet Isaiah: "I will plant in a wilderness the cedar, and the myrtle, and the olive tree; I will set in the desert the fir tree and pine tree, and the box tree together." The plants named should be used for church decoration, unless it be on Palm Sunday. The latter is said to be the anniversary of the day Christ went into Jerusalem and the children strewed palm branches before. The Roman Catholics strictly observe this custom of carrying palm leaves in many countries. All materials here noted are easily obtainable in California.

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These casings know no bounds of mileage but are known by their mileage.
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We have nine distinct styles of Disc Harrows. A Harrow for every use. 3 feet to 12 feet in width of cut. 14 to 20 inch discs, solid or cutaway. No assortment so complete. Call and see them or write for catalogue. We are headquarters.

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ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

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You can make $180 a week with fruit and vegetable apparatus. Write at once. Sahara Drier Co. New way fruit and vegetable drier. 20 Eighth Street, San Francisco, California.

A 31.69 POUND COW

heads the list of 14 A. R. O. cows and heifers that will be included in the sale at public auction of the entire milking herd of

REGISTERED HOLSTEINS

owned by

Walter F. Mitchell, Visalia, Cal.

Thursday, April 3, 1919

You will like the clean, young cattle in this sale, and the good records they have made under ordinary dairy conditions. There are some good candidates for big records in this herd, but they are bound to sell according to their present records.

19 GRANDDAUGHTERS OF SEGIS PONTIAC DE KOL BURKE

are in the sale, and remember that his daughters are making some wonderful records, one of them holding the California senior 2 year old record with a production of 932.25 pounds butter in one year, another holding the California junior 2 year old record with a production of 851.01 pounds butter in one year.

3 DAUGHTERS OF ARCADY PONTIAC WAYNE HENGERVELD

who has the largest list of A. R. O. daughters of any bull yet developed on the Pacific Coast, and a number of his daughters have sold at public sale from $650 to $1075 each.

A BEAUTIFUL DAUGHTER OF SPRING FARM KING PONTIAC 6TH

The daughters of this bull have been making splendid records during the past year, several of them going above 30 pounds butter in 7 days, and this one has the size and capacity that go with great production.

39 COWS AND HEIFERS BRED TO PRINCE HISKE WALKER

This great young sire already has around 40 living daughters, and within a year will no doubt have at least sixty. His heifers are most promising and a good cow or heifer bred to him is worth a place in any man's herd.

PRINCE HISKE WALKER WILL BE SOLD

As Mr. Mitchell is retaining only the young heifers in his herd for future breeding females, and as they are practically all daughters of Prince Hiske Walker, he will part with this splendid young sire in this sale. Consider that PRINCE HISKE WALKER is only just past 4 years of age, now has around 40 living daughters, and probably by sale day over 40 cows and heifers will be in calf to him; that the most of his daughters are in two herds where they will be developed and tested; that he is a son of Prince Gelsche Walker; that he is a full brother to the 34 pound junior 4 year old, Lady Hiske Walker; that he is a very good individual; that he figures as a herd sire of certain transmitting power. This bull will make a fortune for some breeder who has a herd of good females to mate with him.

YOUNG BULLS FOR THE DAIRYMAN AND BREEDER

There are some choice young bulls of good type and breeding in this sale, the kind that are bred in big producing lines.

Catalog free on request.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, California
Auctioneer—Col. Ben A. Rhoades, Los Angeles

Dispersal Sale

45 Registered Holstein Cows, Heifers and Bulls
45 High Grade Holstein Cows and Heifers

Wednesday, April 2, 1919
E. R. Putz Ranch, Near Laton, California

Mr. Putz is retiring from the breeding and dairy business and has instructed us to conduct a complete dispersal sale of his well known herd of profitable producers.

While no official testing has been done in the herd, the blood lines are substantial, representing some of the most popular lines of the breed, and the cattle are practically all young, clean, and good producers. This herd contains

24 Greatgranddaughters of Pontiac Korndyke
3 Daughters of Arcady Pontiac Wayne Hengerveld
3 Daughters of Prince Beauty Pieterje Segis

Besides the desirable young cows and bred heifers in the herd, there is a very desirable lot of unbred heifers and heifer calves that will grow into money fast for someone. Dairymen will also find some choice young bulls in this sale, although there are only a few bulls from this herd have been in strong demand and few have stayed in the herd long enough to reach service age.

The Grade Cows and Heifers

are a well marked lot, young, clean, good producers, and all that are bred are in calf to a grandson of Pontiac Korndyke, the present herd sire. Here is an opportunity to buy some grade Holsteins of high quality.

Prince Lunde Korndyke 2nd

the herd sire will be sold. He is a grandson of Pontiac Korndyke and is a fine individual. See this bull and then look over his calves in the herd and you will find that he is getting some exceptionally promising heifers.

Every animal in the sale over six months of age, both purebreds and grades, is tuberculin tested and sold subject to retest by the buyer.

THE FARM is nine miles north of Hanford on paved County Highway; three and one-half miles east of Laton; ten miles west of Kingsburg.

Write for Catalog to

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, California.
Auctioneer: Col. Ben A. Rhoades, Los Angeles.

Canadian Says California is Beef Makers' Paradise

Written for California Cultivator By R. P. Royce

WHEN a man who has played the cattle game in Scotland, Canada and the United States, states that he considers that California offers the best opportunities for producing high class beef of any section he has ever visited, his opinion should carry considerable weight and his observations should be of interest.

Thirty years ago John Lillie came to the United States from the south of Scotland. In the old country he had been associated with some of the leading breeders and farmers. He had worked for Thomas Elliott, a famous flockmaster, and for Dr. Gillespie in Dumfrieshire, at one time editor of the Galloway herd book and secretary of that association, and who was considered one of the finest farmers and breeders of Scotland.

Lillie went to Colorado and for 23 years was connected with the cattle industry of that state. For some years he operated his own outfit; later he had charge of several large firms. It was John Lillie who fed and exhibited the grand champion steer at the first Denver live stock show.

Seven years ago he was called to Canada and became identified with the development and experiment work in beef cattle management carried on by the Canadian Pacific Railroad.

He is now in California investigating the possibilities of this state with the idea of locating somewhere in the Sacramento Valley. Recently, in conversation with the writer, Lillie said: "I have been connected with the cattle business all my life—in Scotland, Western United States and more recently in Canada, and I have never seen any section that I consider has greater advantages for cattle raising than I have found in California.

"Conditions here are almost ideal and more closely remind me of some of the great producing centers of the old country than any place I recall. At the same time I do not know many sections that have apparently made less progress.

"There is every reason why California should be the greatest producing and finishing section. Because of the climatic conditions cattle can grow every month in the year, and feed grains and grasses can be produced in great abundance. The limiting factor to what can be accomplished apparently is the water supply. But some day most of your great interior valleys will be provided with water. Speaking of irrigation, I am convinced that a more permanent and profitable agriculture can be developed under a system where the supply comes from streams and rivers than from wells. Well water never carries the amount of valuable plant food that one finds in river water, and while that fact might seem small and unimportant, in the end it has a high value.

"So, with irrigation there is no limit to the amount of feed that can be produced and it takes feed to produce cattle profitably. I have fed cattle all my life and mostly my feeding was carried on in cold sections, and I know that if one can feed profitably in those sections, where expensive shelter must be provided, and where a lot of feed is required for bare maintenance, that more money can be made out here where the winters are not severe, where cattle need no expensive shelter and where the cost of maintenance is reduced to a minimum. That fact is as clear as crystal.

"I have heard it said that the California markets have not encouraged cattle feeding, that no premium is paid for grain finished beef over grass stuff; but I want to say that that condition is bound to change. If it does not, I believe that beef can be finished in this state at a cost per pound that will enable the producer to ship to Missouri River markets and compete with Eastern finished stuff.

"Out here, barley, oats and corn can be produced, along with alfalfa, silage and roots. California also produces cotton seed by-products. With such a combination the best of beef can be produced, but there is one weak point in the system, it seems to me, and that is the need for better pastures. I was astonished to find how few cattlemen have attempted to develop pastures. I am a firm believer in making beef on grass and if I were operating out here I would certainly aim to have green grass every month in the year. I see no reason why the average California ranch, with water, could not have the finest sort of pastures. Irrigated pastures are profitable in other sections. We used them in Colorado and in Canada.

"When I first went to Canada few cattle were being fed. My work was along demonstration lines, and to prove what could be done I fed out a lot of long yearling grade Shorthorn steers. These steers were taken from the cows at about six months of age. They were wintered well the first winter—just kept growing, and the next spring they were put on good native pastures and given a little barley and oats. They were fed on grass until September, when they were put in the finishing lot and started on full feed. They were marketed the following May at Chicago, weighing 1400 pounds, and sold for the top price. At the time, they held the Chicago record for price and weight for age. They made money and I am positive that better results can be obtained out here.

"Another fact that has impressed me in regard to the opportunity this state holds for the cattleman is the opportunity for the development of pure bred herds.

"Because of the very reasons that make the commercial cattle business so attractive the pure bred business is full of possibility.

"I believe that one of the reasons that England and Scotland have held their supremacy in the live stock world is largely due to the fact that, for the most part, climatic conditions are such that stock can grow practically every month in the year, and can be maintained on an out of doors plan. In this state conditions are such that I believe more size can be developed, as much bone can be produced, and I believe that as much constitution and vigor can be bred into cattle as in any other section of the world.

"If I am correct in my assumption, is it not fair to expect that some day California will be recognized as a great live stock nursery to which will come much of the best live stock trade?

"And in this connection I want to

The Guaranty Sale

"The Holstein Classic"

Thursday March 27, 1919

State Fair Grounds, Sacramento, Cal.

65 Head of the Very Best

Eight Cows With Records From 30 to Over 37 Pounds Butter in 7 Days

From the Committee who selected these great individuals from fourteen high class Pacific Coast herds, and who know the wonderful combination of individuality and breeding they represent, to the man who compiled the pedigrees of the wondrously bred cattle in this sale, there comes the same comment: "THE HIGHEST CLASS LOT OF HOLSTEINS YOU HAVE YET SOLD IN A PACIFIC COAST SALE."

You too can scarcely fail to be impressed with the tremendous effort, many times made at real sacrifices on their part, the western Holstein breeders have put forth in this sale to give other breeder and beginning breeders an opportunity to buy in a sale composed only of the highest class cattle. Possibly no single feature better represents the extraordinary average breeding in this sale than the figures on offspring of better than 30 pound cows and better than 30 pound sires:

Thirty sons and daughters of cows with official records from 30 to over 41 pounds butter in 7 days.

Forty daughters and sons of sires whose dams have official records from 30 to 40 pounds butter in 7 days.

Then in the matter of high record individuals, all high standards established in previous Pacific Coast sales have been completely surpassed, including

THE HIGHEST RECORD BULL EVER SOLD IN A PACIFIC COAST SALE, his dam having 41.01 pounds butter from 831.7 pounds milk in seven days, 158.31 pounds butter from 3584.2 pounds milk in 30 days, highest combined milk and butter record ever made by a cow in the United States in 30 days.

THE HIGHEST RECORD COW EVER SOLD IN A PACIFIC COAST SALE, the famous cow BOWEDA, 37.61 pounds butter in seven days. She is a great individual, with the size and strength that make her a promising candidate for even a higher record.

Previous announcements have gone into some detail in regard to the various consignments to this sale, and also regarding the various individuals in these consignments. Now consider the fact that out of the 59 cows and heifers in this sale there are about a dozen of the highest class heifers not yet of breeding age, and there will be possibly three or four fresh cows not bred, but all of the balance of the females are bred to the outstanding bulls of the Pacific Coast; among which you will find—

THE WORLD FAMOUS $106,000 BULL, CARNATION KING SYLVIA, owned by Carnation Stock Farms, Seattle.

MATADOR SEGIS WALKER, sire of the latest 40 pound senior three year old, and who now has a 29.64 pound three year old daughter besides a splendid list of high record two year olds. Also owned by Carnation Stock Farms.

JUDGE SEGIS, the mighty proven son of King Segis, owned by Hollywood Farm, Hollywood, Wash. His first daughter tested at mature age made over 37 pounds butter in seven days, he has a fine list of high record two year olds, and he is being given an opportunity second to none at Hollywood.

CHIMACUM SPRING FARM KING PONTIAC, owned by Albert E. Smith, Sumas, Wash. None of his daughters are yet of milking age, but we saw a whole herd of them and they are GOOD. One of them is in this sale, out of a 30 pound junior four year old daughter of a 30 pound cow.

KING KORNDYKE PONTIAC 20TH, the famous $6500.00 bull owned by W. J. Higdon, Tulare, Cal., who is not outranked in popularity by any of the younger sires in California.

"IT," the noted McAlister bull, whose offspring have commanded uniformly high prices wherever they have been offered. See some of his great sons and daughters in this sale.

SIR AAGGIE MEAD DE KOL, owned by A. W. Morris & Sons, Woodland. He has the highest average in the world for yearly butter records of his seven nearest dams, 1093 pounds.

SIR AAGGIE DE KOL ACME, owned jointly by F. W. Kiesel, Sacramento, and A. W. Morris & Sons, Woodland. His dam is the 85 pound cow Aaggie Acme of Riverside 2nd, whose strictly official record of 1331.78 pounds butter in one year is a world's record.

SIR AAGGIE DE KOL ACME 2ND, owned by Alex Whaley, Tulare. Five of the seven nearest dams of this bull average 1105.07 pounds butter in one year, second highest in the world.

KING SEGIS ALCARTRA PRILLY, owned by Bridgford Company, Knightsen. Twice grand champion at California State Fair and he is a 30 pound son of the $50,000 bull King Segis Pontiac Alcartra.

KING SEGIS ALCARTRA ABBEKERK, owned by Bridgford Company. Also a 30 pound son of the $50,000.00 bull, and he has an exceptionally promising lot of daughters approaching milking age.

KING PONTIAC NETHERLAND SEGIS 3D, owned by A. J. Stalder, Riverside. His dam is the twice 34 pound cow Gerben Abbekerk Maid, and three of his daughters to freshen recently as junior two year olds have made over 20 pounds butter each in seven days.

KING SADIE VALE IDYL SEGIS, owned by R. F. Guerin, Visalia. By one of the best sons of King Korndyke Sadie Vale and out of a 35 pound four year old daughter of King of the Pontiacs.

PRINCE HISKE WALKER, owned by W. F. Mitchell, Visalia. Full brother to the 34 pound junior four year old Lady Hiske Walker, and one of the most promising young sires in the state.

THE $4000 BULL, PRINCE GELSCHE WALKER KORNDYKE, owned by F. W. Kiesel, Sacramento. He has a most promising lot of young daughters coming on at Jane Garden Farm.

THE CALVES FROM THESE BULLS OUT OF THE WONDERFUL FEMALES IN THIS SALE WILL BE WORTH SMALL FORTUNES TO YOU, WHETHER YOU WISH TO RETAIN THEM AS BREEDING ANIMALS OR IF YOU WANT TO SELL THEM.

Every animal in the sale is positively guaranteed to be a breeder; every animal over six months of age tuberculin tested and sold subject to 60 day retest by the buyer.

Wonderful Selection of Herd Sires

There are six young bulls in this sale, every one of them out of a dam with an official record of from 30 to over 41 pounds butter in seven days; every one by a sire whose dam has an official record of from 30 to over 37 pounds butter in seven days. They are high record, richly bred bulls of splendid conformation, and selected for this sale because of real herd heading quality.

Contributors to Sale:

McALISTER & SON, Chino, Cal.
BRIDGFORD COMPANY, Knightsen, Cal.
HOLLYWOOD FARM, Hollywood, Wash.
W. J. HIGDON, Tulare, Cal.
ALBERT E. SMITH, Sumas, Wash.
R. F. GUERIN, Visalia, Cal.
FRED W. KIESEL, Sacramento.
A. W. MORRIS & SONS, Woodland, Cal.
TOYON FARM, Los Altos, Cal.
GOTSHALL & MAGRUDER, Ripon, Cal.
CARNATION STOCK FARM, Seattle, Wash.
ALEX WHALEY, Tulare, Cal.
W. F. MITCHELL, Visalia, Cal.
A. J. STALDER, Riverside, Cal.

CATALOG FREE ON REQUEST

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager Sacramento, Cal.
Auctioneers:—Col. Ben. A. Rhoades, Los Angeles; Col. Harry Cranke, Nez Perce, Idaho.



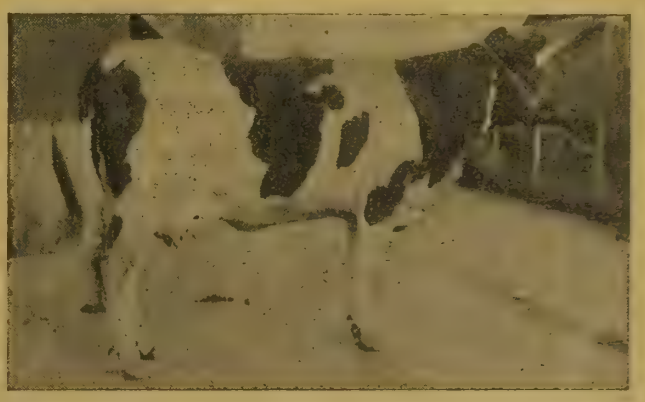
SARAH TOPSY DE KOL—32 pound granddaughter of King of the Pontiacs. Consigned by Bridgford Company.



MISS PONTIAC NUDINE OF SPRINGVALE—31 pound cow that has twice made over 30 pounds. Consigned by McAlister & Son.



RUBY PIETERTJE OF FOREST HILL 2ND—27 pound three year old bred to the $106,000 bull. Consigned by Carnation Stock Farm.



HOLLYWOOD LILITH PONTIAC—22.71 pound two year old out of a granddaughter of Pontiac Korndyke. Bred to Judge Segis Consigned by Hollywood Farm.



SIR AAGGIE WALKER—Son of the 34 pound junior four year old Lady Hiske Walker and by Sir Aaggie De Kol Acme. Consigned by A. W. Morris & Sons.

THE

Consignment Par Excellence

TO THE

GUARANTY SALE

Sacramento, March 27

Will Be—of Course

McAlister & Sons

LOOK AT THESE!

Miss Pontiac Nudine of Springvale, a twice 30 lb. cow right in her prime and one of the nicest individuals you ever looked at.

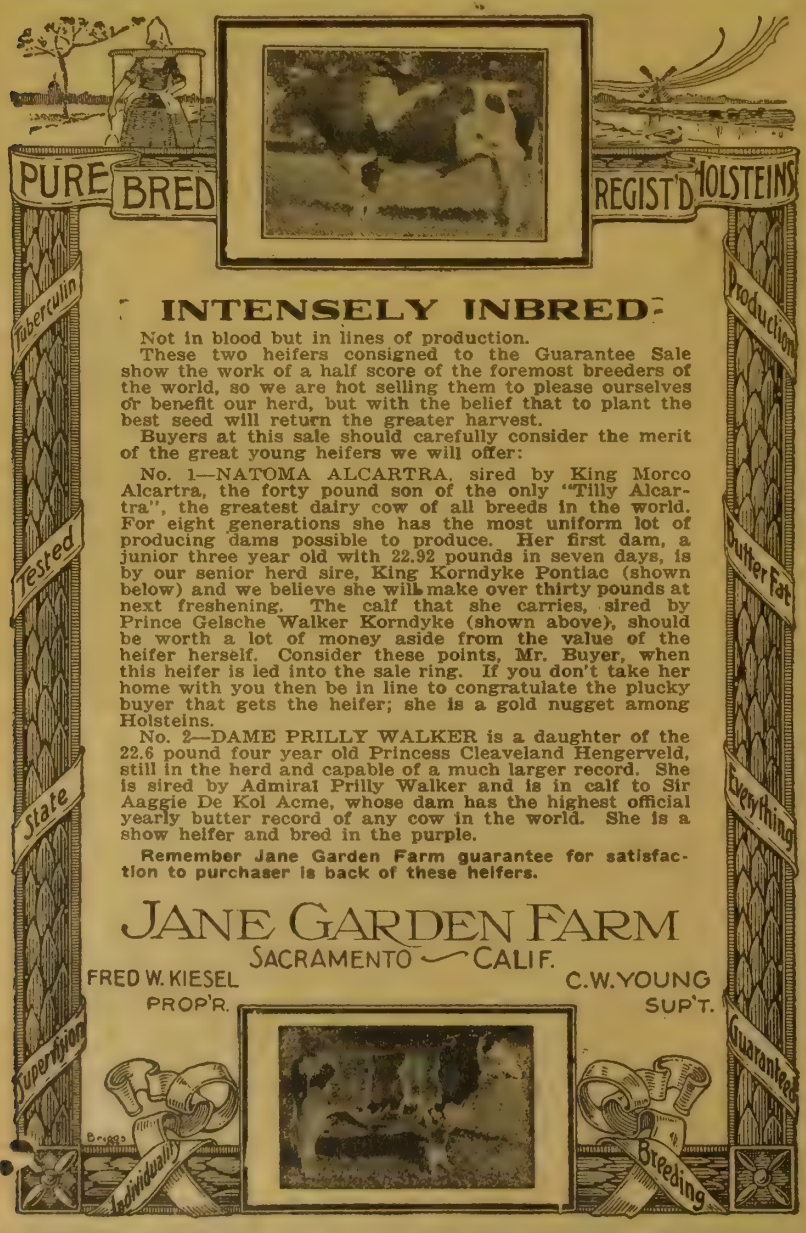
Georgia Pontiac 2nd, a 23 lb. two year old granddaughter of the famous Rag Apple Korndyke 8th. She milked as high as 95 lbs. in one day and her milk record is third highest in the world for age.

Six beautiful daughters of our famous herd sire, "It," whose two nearest dams average over 36 lbs. butter in seven days and were both world's record cows.

Two of these are out of a 35 and a 34 lb. daughter of King of the Pontiacs—one out of a 29 lb. 3 year old daughter of King Segis Pontiac; one from the famous 30 lb. three year old May Korndyke; one from the 32 lb. three year old, Meta Ward Kuperus, and one from the former state champion three year old Etta Changeling Wildwood.

Two sons of "It"—From a 33 and a 31 lb. dam. Future herd sires for some great herd.

Look for this consignment. It is worthy of your attention.



INTENSELY INBRED

Not in blood but in lines of production.

These two heifers consigned to the Guarantee Sale show the work of a half score of the foremost breeders of the world, so we are hot selling them to please ourselves or benefit our herd, but with the belief that to plant the best seed will return the greater harvest.

Buyers at this sale should carefully consider the merit of the great young heifers we will offer:

No. 1—NATOMA ALCARTRA, sired by King Morco Alcartra, the forty pound son of the only "Tilly Alcartra", the greatest dairy cow of all breeds in the world. For eight generations she has the most uniform lot of producing dams possible to produce. Her first dam, a junior three year old with 22.92 pounds in seven days, is by our senior herd sire, King Korndyke Pontiac (shown below) and we believe she will make over thirty pounds at next freshening. The calf that she carries, sired by Prince Gelsche Walker Korndyke (shown above), should be worth a lot of money aside from the value of the heifer herself. Consider these points, Mr. Buyer, when this heifer is led into the sale ring. If you don't take her home with you then be in line to congratulate the plucky buyer that gets the heifer; she is a gold nugget among Holsteins.

No. 2—DAME PRILLY WALKER is a daughter of the 22.6 pound four year old Princess Cleaveland Hengerveld, still in the herd and capable of a much larger record. She is sired by Admiral Prilly Walker and is in calf to Sir Aaggie De Kol Acme, whose dam has the highest official yearly butter record of any cow in the world. She is a show heifer and bred in the purple.

Remember Jane Garden Farm guarantee for satisfaction to purchaser is back of these heifers.

JANE GARDEN FARM

SACRAMENTO — CALIF.

FRED W. KIESEL, PROP'R. C. W. YOUNG, SUP'T.

say that my work has kept me in rather close touch with the leading agricultural institutions of this country and Canada and I will say with all frankness, that at no institution have I found a better class of live stock than I saw on a recent visit to the University Farm at Davis, and I have been wondering if the people of this state really appreciate the value of that institution's accomplishments at the International Show at Chicago. I have heard cattlemen up in Calgary discuss that wonderful calf that was shown at the 1916 show.

"I may seem a bit over-enthusiastic as to the future of the cattle business in this state but for 30 years I have been a close student of the factors necessary for success in this business and when I find them—all in one place—I can't help but feel enthusiastic."

Thus is added more expert testimany from a practical cattleman as to the possibilities of this state becoming one of the great live stock producing centers of the United States.

OFFICIAL TESTING AT TOYON FARM

Toyon Farm Association reports the completion of several good records, including a number of immature animals which are very creditable. Three three-year-olds, Valdessa Clarkhurst Pietertje 2d, Stanislaus Princess Pontiac and May Lilu Hiljaard Segis 3d, have all made records of about 25



Charles MacDonald
Under whose care Ormsby Segis Marie made her world's record. In charge of Toyon Farm Holsteins, Los Altos, California.

pounds on seven-day test. Finderne Jondine Pontiac as a two-year-old has made 22.16 pounds. This record is particularly gratifying to her owners, as Toyon Farm Association has a number of animals of similar breeding, including their herd sire, all being from daughters of King Hengerveld Aaggie Fayne.

Ormsby Segis Marie, illustrated on the cover, has settled down for another year of wonderful production. Though kept on very light grain ration because of the caution of Charles MacDonald, the efficient herdsman in charge of Toyon Farm herd, and not crowded for any large seven-day record, she has repeatedly made 30 pounds per week without the least effort, being chiefly on a ration of alfalfa hay and corn fodder. Last month she produced 123 pounds of butter and is at the present time producing as high as 106.6 pounds of milk per day. On account of her great value as a breeding animal MacDonald is taking no chances. It will be remembered by those who follow Holstein history that this heifer last year in the senior three-year-old class broke the world's record for yearly production with 27,025.7 pounds of milk and 1074.54 pounds of butter, giving on the 365th day of her year's work the remarkable production of 60.2 pounds of milk. Since that time she has been shipped from Washington while in calf, and it will probably be another season before she will be at her best.

SANTA ANITA RANCHO

Anoakia Breeding Farm

Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion, and Don Castano, five gaited saddle stallion, winner in many prominent shows.

Mammoth Jacks

We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

Poland China and Berkshire Boars

Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited

Anita M. Baldwin

Santa Anita - Calif.

W. H. Taylor, Supt.



Life of a Dairy Cow

A Dairy Cow in No Country lasts to above six to ten years. Age, accident and failures constantly cause cows to be sent to the butcher. Cows of the Holstein-Friesian breed are large, weighing 1000 to 1500 pounds, and make an excellent quality of beef.

If interested in

HOLSTEIN CATTLE

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Registered young bulls from best families.

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Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.

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Carruther's Shorthorns and Berkshires

Choice collection of breeding cows—mostly Scotch—and representing the leading families, headed by Count Glory, grand champion at the last three state fairs, and Hallwood Villager. Bulls for sale at reasonable prices. Berkshire herd headed by the noted boar Ames' Rival 100. Correspondence invited.

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Only Bull Calves For Sale

Herefords-Shorthorns

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March 15, 1919.

Messrs. Intelligent Farmer, Wife & Company,
In the forward-looking
State of California.

Friends:—

Dairying is the second largest farming industry. From it comes foods for all the people, all the time. There's a great demand for dairy supplies. But dairying is like any other business, it must be conducted efficiently to make it pay. Feeding must be done wisely and continuously.

The silo offers solution of the green feed question. The Simplex Silo is scientifically constructed; storm proof, wind proof. The interlocking anchor system cannot fail. It eliminates all possibility of vibrating, twisting or collapsing. The Simplex Silo insures your ensilage to the last ounce.

The Simplex Silo is the result of many years of experience and looking into the needs of Pacific Coast ranchers. Dry weather, nor an empty silo, does not affect the Simplex. Each stave is stapled securely to the top, center and lower hoop.

Simplex Silos are constructed of Oregon Pine (Douglas Fir). The hoops are of New Steel. Castings, cable braces, door hinges and hoops are heavy, thus insuring strength and durability.

Efficiency in feeding silage necessitates your own cutter. The forage should be put away at just the right time. With your own outfit the saving is sure and certain.



The Papec Pneumatic Ensilage Cutter is the standard all over America. Its record for fewer break-downs is its best claim to your attention. It is easy to save ten dollars an hour with a Papec. Reliability and the silo filled when you want it, make Papec customers.

The Papec is the easiest cutter to set up and take down, only the pipe has to be erected and removed. There are no bolts or rivets in the frame to get loose and allow the cutting wheel to get out of line.

The Papec has the greatest capacity, the lowest speed, the smallest power consumption and the lowest cost of upkeep of any ensilage cutter manufactured.

A complete stock of Papec Pneumatic Ensilage Cutters and Simplex Silos is carried in stock here ready for immediate shipment.

You are invited to telephone, telegraph, write, or, best of all, call to see us. Let us prove to your satisfaction that you need a Silo, and that the Simplex and the Papec are the outfit best suited to your requirements.

If there are two words which describe them for you, they are: permanence and profit.

Respectfully,

Santa Fe Lumber Co.

by

J. Russell

Please say you saw this advertisement in the California Cultivator.



A Little Thing to Buy; a Big Thing to Have in the Cow Barn.

No dairy is complete without being insured against diseases of the udder and teats—the producing end of the business.

Bag Balm, the great healing ointment, is constantly finding its way into the best-regulated dairies because it is so simple to use and so promptly effective in treating all external hurts, sore teats, bunches, chaps, cuts and any disease of the udder.

Its great penetrating qualities make the treatment of Caked Bag simple. The diseased tissues are quickly restored to a normal, healthy condition. Bag Balm is a great all-round first aid in keeping udder and teats in perfect condition.

Sold by druggists and feed dealers in liberal 60c packages.

Dairy Association Co., Lyndonville, Vt.

MANUFACTURERS OF KOW-KURE AND

BAG BALM

MADE BY THE KOW-KURE PEOPLE

Uneeda Glenn County Herd

The Key Herd of Duroc-Jerseys

This herd produced more champions at the 1918 California and Oregon state fairs than any herd on the coast.

For sale now: Boars; gilts, bred or open; bred sows and a few weanling pigs of either sex.

Glenn County for Durocs

H. P. Slocum and Son

Willows, California

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



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Hanford, Kings County, Cal.

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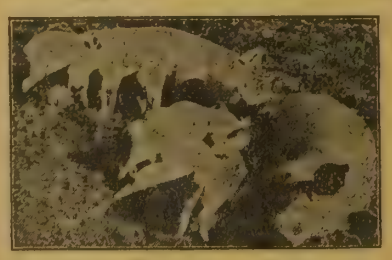
Garden City Sanitarium, San Jose

TUESDAY, MARCH 18

30 - Sows, Gilts and Boars - 30

Best of breeding. Orion Cherry King and Col. strains, 700 pound senior yearling sows, in pig. One 900 pound two year old boar, Orion Model, Jr. Several boars ready for service—perfect in type. Gilts of the very best breeding, bred or open. All of the Mammoth type. The best ever offered at any sale in California. Sale will be held at 1 o'clock. Terms Cash, or its Equivalent.

L. J. BELKNAP, Garden City Sanitarium, San Jose, Cal.



Raising the Standard of California Bacon

MONTELENA HERD

Large Yorkshires

Have large litters. Service boars of exceptional quality, in best breeding condition. They are strong, active, long, deep fellows, with big bone and splendid heart girth. Come and see them, or write to

A. L. TUBBS CO.

Calistoga - California

When writing advertisers, mention The Cultivator.

Neufchatel Cheese

By H. S. Baird in Bulletin of California Agricultural Experiment Station

NEUFCHATEL cheese is one of the common soft cheeses and when properly made is a very palatable food. Its production affords the person who has a small amount of surplus milk an outlet for his product, and its manufacture is practical on a large scale. Neufchatel cheese is not difficult to make when the proper method is carefully followed. It can be made either from goat's milk or cow's milk but goat's milk usually makes a smoother, closer-grained product. The whole milk is generally used and it should be sweet, testing not over 0.18 per cent acid.

The milk may be either raw or pasteurized; pasteurization is advisable, since it will insure a better-keeping and more uniform cheese, as well as destroy disease-producing bacteria which may be present in the milk. If the milk is pasteurized it should be heated to a temperature of 140 degrees to 145 degrees Fahrenheit and held at that temperature for 25 minutes, after which it should be cooled quickly to 72 degrees Fahrenheit.

The milk is usually placed in five-gallon shotgun cans. Even where Neufchatel cheese is made on a large scale the milk is placed in five or ten-gallon cans in order to insure a uniform temperature. After the milk has been pasteurized and cooled to 72 degrees Fahrenheit the water bath should be tempered to the same degree.

Setting

In making Neufchatel cheese "setting" refers to the addition of starter and rennet. Starter (good clabbered milk) should be added at the rate of 25 to 50 cubic centimeters* (about one to two ounces) per 100 pounds of milk. When making large quantities of milk into cheese a commercial lactic starter should be used. A commercial starter is one prepared in a special laboratory and contains a pure culture of the desired bacteria. These starters may be secured from the laboratory or through the dairy supply houses. Directions for handling starters should be requested when securing the first culture. A 25-cubic centimeter pipette graduated to tenths, to be used for measuring the rennet and starter, will also be furnished by any dairy supply house.

Rennet is added at the rate of 2½ cubic centimeters per 100 pounds of milk. Before adding it to the milk it is diluted with twenty times its volume of cold water. Care must be taken not to add too much rennet, as it will cause a coarse-grained, poor-quality cheese. The rennet and starter should be mixed thoroughly with the milk, the can covered and the milk allowed to stand in the water bath for 15 to 18 hours.

Draining

The curd is ready to drain when a thin layer of whey appears on top and at the sides and the acidity of the free whey tests from 0.3 to 0.5 per cent. The curd, at this time, should be rather firm. A low acidity at the end of 18 hours indicates too low temperature or insufficient starter. If the acidity is too high it is probably caused by the opposite conditions.

When the curd is in proper condition it should be poured into drain sacks, without cutting, using a separate cloth for each can of milk. Cloth used for draining sacks should have a mesh similar to that used for flour sacks. Ordinary cheese cloth is too coarse and will allow too much curd to escape. The sacks of curd should be hung in a cool place to drain, which usually takes about eight to ten hours. While draining, the curd should be rolled in the sacks and thoroughly mixed, occasionally, in order to prevent the cheese next to the cloth from drying. Failure to do this may cause a lumpy cheese. In some cases the curd may be sufficiently dry after draining but ordinarily it requires pressing to remove the excess whey.

Pressing

A pressure from one or two bricks for each sack of curd is sufficient. The sacks of curd may be placed between two boards and the bricks placed on top, or it may be placed in a cheese hop with a follower and bricks placed on top. The time required for pressing will depend upon the condition of the curd, ordinarily it requires about 12 to 14 hours.

Salting

After pressing, the curd is removed from the sacks and salted at the rate of two ounces per ten pounds of curd. After thoroughly mixing the salt with the curd it is run through a food grinder twice. The grinding gives it a fine, smooth grain.

This cheese is usually eaten while fresh, although it may be cured for a month or six weeks. Good Neufchatel cheese should have a mild, clean flavor and a smooth, buttery texture and body. It should contain about 55 to 60 per cent moisture. A cheese which is too dry will usually be grainy and lumpy, while one containing too much moisture will be very soft. When marketing the cheese it is molded and wrapped in special forms or placed in special containers.

Molding

Neufchatel cheese is commonly molded in a cylindrical form, 1¾ inches in diameter and 3¾ inches long and wrapped in tinfoil lined with parchment paper. Very often the cheese is tamped in a small cylinder made of tin and having a diameter of 1¾ inches. After the cylinder is filled the cheese is forced out and cut in desired lengths.

This cheese is also marketed in paraffined paper boxes, although this is not a common package. Any package which is used should be practically air-tight and one which will not absorb water from the cheese. An air-tight package prevents shrinkage and keeps the cheese in good condition for a longer period than one which is not air-tight.

After it is manufactured the cheese should be kept in a refrigerator until sold.

The yield of Neufchatel cheese will depend upon the kind of milk used and upon the butterfat test. From ordinary cows' milk testing 3.6 to 4 per cent fat, the yield will be about 12 to 14 pounds per hundred pounds of milk.

Neufchatel may be used as a vehicle for various flavors such as pimento, nuts, chili, etc. These should be added in sufficient amounts to give the desired flavors.

*One teaspoon level full contains 3½ cubic centimeters.

NEWS NOTES FROM NEVADA

Hon. H. F. Danberg of Minden, in the Carson Valley, has just purchased a carload of excellent Hereford females to place on his fine home ranch.

The present legislature has just passed a bill authorizing a veterinary examination board and providing for the licensing of veterinary practitioners.

The bureau of animal husbandry of the University has just sold a Von Homeyer Rambouillet ram lamb to head Mr. George Wingfield's pure bred flock of Rambouillets.

The first annual meeting of the Southern Nevada Cattle Owners' Association was held at Goldfield Saturday, February 22, with 22 members of the association present. Many subjects of interest to the industry were discussed at the meeting. The officers elected for the ensuing year are: J. B. Humphrey, Goldfield, president; C. W. Love, Alamo; L. P. Kimball, Pioneer; David Patterson, Fish Lake; B. F. Rogers, Round Mountain, and George F. Dugan, Keystone, vice president; Ira Murdock, Goldfield, treasurer; C. Curley, secretary.

Nevada legislature has appropriated money for the state fair to be held at Fallon, thus disposing of the fight made by Reno to have the fair moved back to Reno.

Arizona Dairy Law

Written for California Cultivator By M. E. Bemis

AT A SPECIAL session of the Arizona legislature held last summer a dairy bill creating a state dairy commission became a law, and W. A. Barr, formerly agricultural agent for Maricopa County, was appointed state dairy commissioner. Under the provisions of the law the commissioner was empowered to make and enforce regulations looking to the more sanitary production and handling of all dairy products.



Makes Possible Appetizing Product

Model sanitary milk house recommended by the Arizona state dairy commissioner.

Among the rules for the sanitary handling of dairy products is that milk must be immediately cooled in a room free from dust and a certain distance from the barn or corral. That these rules may not work too much of a hardship on dairymen Mr. Barr has had plans for an inexpensive milk-house made, and has at his office a model of such a house. This house is 10x14 and requires the following bill of lumber:

Sills and plates—4 pieces 2x4-10.
Sills and plates—4 pieces 2x4-14.
Studs—8 pieces 2x4-14.
Rafters—14 pieces 2x4-14.
Siding—360 feet ⅝x6.
Flooring—140 square feet.
Sheeting—30 pieces 1x6-14.
Three windows—30x30 inches.
One screen door.
Screen wire for three windows (12½ sq. ft.).
Nails—6 pounds 6d.
Nails—3 pounds 4d.

Livestock Meetings and Sales

University Farm, April 7 to 12

During the week of April 7-12 the live stock interests of the state will center their activities at the University Farm, Davis. During the week the California Cattlemen's Association will convene, with delegates puresent from 49 counties. The California Shorthorn Breeders Association and the Pacific Coast Hereford Breeders' Association will each hold sales, and on Thursday the California Swine Breeders' Association will meet in annual session.

The cattlemen have recently effected one of the strongest live stock organizations in the country and it is expected that the association will discuss plans that will put the business on a much firmer basis. The marketing question will receive careful attention and it is announced that H. T. Watter, who is familiar with the cooperative live stock marketing system in operation in Hawaii, will detail the plan that has proven successful in the islands. H. A. Jastro, chairman of the marketing committee of the American National Live Stock Association, will be present and outline the work of his committee. O. M. Plummer, manager of the Pacific International Show at Portland, and who has recently announced a plan for organizing all the live stock interests of the Northwest, will appear on the program.

The cattle sales promise to set a high mark in the development of the pure bred industry. Each association is making a special effort to assemble an offering that will represent the best that Western herds afford, and either sale provides an opportunity for the breeder or the range man to select breeding stock that will add strength to his operations. It is not too much to say that there was never so keen interest manifested in beef cattle as exists in California at the present time.

Following the cattlemen's meeting and the sales, the members of the California Swine Breeders' Association will meet.

This association has been the biggest factor in the development of the swine business of this state—first in stimulating the production of more and better hogs and second, through President C. B. Cunningham, a member of the live stock commission of the food administration, in meeting the government's plea for more pork.

At present plans are being considered that, if they mature, will go far toward improving the markets of this state.

California is making progress in the development of her live stock resources, but before making great headway it will be necessary to solve several problems affecting the business, and these important problems can only be solved satisfactorily by all interests working together.

Pork Prices Cut Loose

A press dispatch from Washington, under date of March 5, announces that pork and pork products have been removed from the export conservation list, and that the War Trade Board will no longer require that applications for licenses to export pork products be approved, as to price, by the food administration.

This removes the prop that has been used by the food administration for stabilizing pork prices. Since October, the minimum of $17.50 for average packer's droves, agreed to by the producers and packers, has been made possible through the fact that, because of controlled orders, the administration was able to buy pork for export at a price that justified the $17.50 minimum.

Just how the market will be affected remains to be seen. If the embargo in operation against Germany is raised, thus bringing a fat-hungry nation into competition with an already short rationed world, it is more than likely that higher prices will result. If on the other hand the packers simply take advantage of the situation and proceed to hammer the market without a corresponding decrease in prices to the consumer, the producers will doubtless have something to say.

SURE DOOM SEEN FOR CATTLE TICK

The cattle fever tick will be permanently driven from American soil within the next few years. That is the belief of officials of the bureau of animal industry, United States department of agriculture, who have returned from the conference of tick eradicators at New Orleans.

Dr. J. R. Mohler, chief of the bureau of animal industry, set 1923 as the last year for the tick's residence on American soil. He called on the tick fighters to clean up 90,000 square miles of territory this year, a third of the area still under federal quarantine. He mentioned 1923 because the new state-wide law in Texas does not become effective in the last of the three zones in that state until 1922. But a report from Texas said that with proper state and county cooperation the "Lone Star commonwealth" may be placed in the freed area by the end of 1922.

Pacific Coast Hereford Breeders'
—Second Sale—



University Farm, Davis, Cal.
Wednesday, April 9, 1919

80 Registered Cows, Heifers and Bulls

Many of the most successful and profitable pure bred breeding herds had their beginning in the purchase of a few head of registered animals and the gradual replacement of the common cattle with pure bred increase.

Why not add one or more good registered cows or heifers to YOUR herd now, and secure greater and quicker returns from your investment of labor and money?

You will find the right sort of registered Hereford cows and heifers in this sale for foundation stock, and bulls fit to mate with them.

Rangemen will find in this sale a good selection of young bulls with the size, ruggedness, and breeding that qualify them for range service, the kind whose offspring make greater weights and mature earlier than common cattle with the same feed and care.

A catalog of this sale will be mailed free on request.

Please mention CALIFORNIA CULTIVATOR.

Sale under auspices of
PACIFIC COAST HEREFORD CATTLE BREEDERS' ASSOCIATION
W. R. Madden, Secretary, Dixon, Cal. H. H. Gable, President, Esparto, Cal.

Auctioneers
Col. Fred Reppert, Decatur, Ind.

Management
CALIFORNIA BREEDERS SALES & PEDIGREE CO.
C. L. Hughes, Sales Manager, Sacramento, Cal.

The Great Opportunity For Stock Owners

During the immediate future the stock owners of America will enjoy the greatest money-making opportunity of a generation. *There is an acute world-shortage of animal products.* The investigators of the U. S. Food Administration report that the flocks and herds of Europe are so reduced that they must be kept for breeding purposes in order to make good these losses.

America must supply the hungry nations with animal foods. This insures a ready market and good prices until Europe's animal population is restored.

Pratts Animal Regulator

will help every American stock grower "speed up" every producing animal and secure his full share of this profitable business. It increases growth and production and reduces feeding costs. This fact has been convincingly demonstrated by leading stock growers during the *fifty years* since the original Pratts was placed on the market.

Its regular use overcomes the evil effects of heavy feeding, confinement and lack of exercise, conditions which of necessity accompany modern methods of stock production. It keeps stock of all kinds *healthy* and *vigorous*, and *prevents losses* from the common profit-destroying disorders.

Give Pratts to your horses, cattle, sheep and hogs and watch your profits grow! Give it a careful test at our risk.

Our dealer in your town has instructions to supply you with Pratts Preparations under our square-deal guarantee—*"Your money back if YOU are not satisfied"*—the guarantee that has stood for nearly fifty years.

Write for Pratts Stock Book—FREE

PRATT FOOD COMPANY Ltd
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Milky-Way Farm

Contributes to

THE GUARANTY SALE

Sacramento, March 27, 1919

AVA MODEL HENGERVELD 2ND; 21,222.3 pounds milk and 971.56 pounds butter last year on semi-official test; at last freshening made over 30 pounds butter from 708 pounds milk in 7 days, and now on semi-official test again, promises to go well over 1000 pounds butter for the year. She is bred to Judge Segis. She is by a good son of Colantha Johanna Lad and out of a granddaughter of Hengerveld De Kol.

Her daughter, AVA HARTOG PIETERTJE, is full sister to Korndyke Model Hartog, first prize 3 year old at National Dairy Show last year, and who made 30.84 pounds butter in 7 days as a junior 4 year old.

Her granddaughter, KORNDYKE MODEL HARTOG 3D, is by our great young herd sire Chimacum Spring Farm King Pontiac, and out of Korndyke Model Hartog, the 30 pound show heifer. This heifer is of show quality herself. Both this heifer and the one mentioned above are due to drop their first calves in April to a son of 31 pound 2 year old.

Her half sister, DE KOL BUTTER BOY BELLE 2D, made 28.08 pounds butter from 700.7 pounds milk in 7 days last year, and is due to freshen the day after sale to Chimacum Spring Farm King Pontiac. She is a very large cow, weighing close to a ton, of excellent type, and a fine prospect for a much larger record.

PRINCESS JONGE BUCKEYE, a great yearly producer;

TOBE MANOR DE KOL, a young show cow and a great producer;

JESSIE HENGERVELD JOHANA, a great 27.70 pound cow now milking around 95 pounds per day on semi-official and bred to the $106,000.00 bull Carnation King Sylvia .

We expect to have our cattle on the sale grounds two or three days before sale and you are cordially invited to come and look them over.

Our Herd is Under Federal Test

ALBERT E. SMITH

SUMAS, WASHINGTON



25 Years of Silo Building Experience Backs

IDEAL GreenFeedSilos

—Built by a firm closely allied with the Dairy Industry, handling superior dairy equipment exclusively

SUPERIOR FEATURES

Refrigerator Doors *Leak proof—won't stick or bind—come flush with inside wall of silo*
Leak Proof Stave Joints
Leak Proof Foundation Joint
Self-Supporting Roof
Extra Heavy Hoops
Straight Pull Lugs
Selected No. 1 Tank Stock *used from foundation to roof*

We want to sell you more than merely a bill of lumber. We want to equip you with a good, sound silo that will return to you in good silage every pound of good feed you put into it and do it for years to come, without re-building it every time you want to fill it.

Silo Catalog and Dairy Hand Book FREE upon Request

De Laval Dairy Supply Co.

61 Beale St., San Francisco



REGISTERED DUROC-JERSEYS

You can bank on this breed of hogs. The demand is greater than the supply. Every point the buyer demands for a profit-making hog is found in the Duroc. We can supply you with weaning pigs, either sex. Our herd boar has the blood of Ohio Chief, Defender, Crimson Wonder, Jack's Friend, Joe Orion, etc.

THE GARDINER RANCH

ROUTE 4, BOX 735. SACRAMENTO, CALIF.

Live Stock News Notes

Dairy Cattle Congress, Waterloo, September 22-28

The Dairy Cattle Congress will be held at Waterloo, Iowa, September 22-28 instead of the October date announced last fall.

Chester White Sow Sells for $4200

In the recent sale of Chester Whites held by W. F. Barr of Ames, Iowa, the sow Leonora 4th sold to B. M. Boyer & Sons of Farmington, Iowa, for the world's record price of $4200. In the same sale 40 head of bred sows and gilts made an average of $557.

O'Connor to Go East

J. Francis O'Connor, owner of the Castleview herd of Berkshires, Santa Rosa, is planning a trip East and while away will visit a number of the leading Berkshire herds of the Middle West and Eastern states. It is probable that O'Connor will make several additions to his already good herd.

Visiting Eastern Hereford Herds

Chas. Rule of Duncan Mills and W. J. Bemmerly of Woodland, two of the leading Hereford breeders on the Pacific Coast, are now in the East attending many of the important sales. It is probable that both breeders will make selections of breeding stock for the purpose of strengthening their herds.

National Dairy Show October 6-12

The National Dairy Show will be held at Chicago, Illinois, October 6-12. The last time this event was held in Chicago was in 1914—the year of the foot and mouth disease outbreak. In 1916 the show was taken to Springfield, Massachusetts, and in 1917 and 1918 it was held at Columbus, Ohio.

State Jersey Breeders to Meet at Davis

The annual meeting of the state Jersey breeders will be held at the University Farm in the near future—either the latter part of March or early in April.

It is expected that several important matters relating to the progress of the breed in this state will come up for discussion. For that reason, every breeder should make a special effort to attend.

254 Shorthorns Average $785

During the Shorthorn Congress show and sale held at Chicago, February 18-20, 254 head of bulls and females sold at public auction for $199,500, an average of $785.

The top price recorded was $5000, which was paid for the yearling bull Hercules Diamond, shown by Day & Rothrock of Sprague, Washington.

Hercules Diamond is a son of Gainford Perfection.



Carnation King Sylvia

The $106,000 son of May Echo Sylvia, as he looked at 11 months of age weighing 1085 pounds. Some great heifers and cows bred to him will be sold at Sacramento, March 27, by Carnation Stock Farm, Seattle.

Wide Interest in Pig Clubs

Frank B. Anderson, Sacramento, secretary of the Western Berkshire Congress, has been asked by the farm adviser of Sacramento County to assist in locating at least 50 head of weanling Berkshire pigs to be placed among the members of a recently organized pig club.

Anderson says that from reports reaching him there is a growing interest in pig club work throughout the state and that several hundred pigs will be required from swine breeders.



Chimacum Spring Farm King Pontiac

Heading the choice herd of registered Holsteins owned by Albert E. Smith, Sumas, Washington. Several high class cows bred to him, and a beautiful daughter of his out of a 30 pounds junior four year old daughter of a 30 pound cow will be sold in the Guaranty Sale, Sacramento, March 27, by Mr. Smith.

Orland Jersey Breeders' Meeting

Dr. H. W. Hand, president of the Orland Jersey Cattle Club, announces that the annual meeting will be held at Orland the evening of March 26. Following the usual custom, a banquet will be served. An interesting program has been arranged, a feature of which will be an address by a representative of the American Jersey Cattle Club.

Dr. Hand will make an address which will be illustrated with colored lantern slides.

Slocum Goes East for Durocs

Clayton N. Slocum, junior member of the firm of H. P. Slocum & Son, Duroc-Jersey breeders of Willows, is now in the East for the purpose of selecting a carload of bred sows. Slocum brought out a carload of Durocs last spring and was so successful in placing them among his neighbors in Glenn County that that section is now one of the leading Duroc centers in the West.

Slocum expects to visit many of the leading herds of the Middle West and South. He will return about April 10.

New Firm in Horse Business

The horse breeding interests of the state will be interested to know that H. C. Merritt, owner of the Tagus Ranch, Tulare, and C. W. Bowers, Davis, one of the best known horsemen on the Coast, have associated themselves together and propose to engage in the business of breeding and importing draft horses.

The headquarters of the new firm will be at Tulare, and, it is understood, will operate under the name of Merritt & Bowers.

Bowers was formerly associated with A. C. Ruby of Oregon.

Black Patti Going Well on Yearly Test

Black Patti, an unusually good registered Holstein cow, owned by Walter F. Mitchell, Visalia, has finished her first 100 days on test and has 343.76 lbs. butter and 7855.3 lbs. milk to her credit. She is being continued on test. This great cow has twice made above 26 lbs. butter in 7 days, and is such a choice individual that she was selected for the Guaranty Sale by the Committee of Selection and will be sold at Sacramento on March 27. It is to be hoped that she will go into the hands of some breeder who will continue her on yearly test to complete the record on which she has made such a promising start.

New Hog Feeding Facts

Professor J. I. Thompson of the animal husbandry department of the University of California announces that he will close a hog feeding test during the week that the California Swine Breeders' Association will meet at the University Farm and that the results will be given out at that time.

The test has been carried on for the purpose of determining the relative efficiency of several protein concentrates, including tankage, fish meal, and prepared buttermilk feeds. A similar test was carried out last fall and the conclusions to be drawn from the two trials should prove of great interest to all hog raisers.

Percheron Colts at State Farm

Professor J. I. Thompson of the animal husbandry department of the University of California writes that the first colts sired by that institution's new Percheron stallion, Aiglonel, have arrived, and that they are quite the best colts foaled at the farm.

Professor Thompson is of the opinion that values for big, sound draft horses are certain to touch high levels in the next few years, owing to the fact that the number of mares that have been bred during the past few years has shown alarming decreases each season.

More colts will be foaled on the University Farm this spring than in any former year.

Another 30 Pound Record in Higdon Herd

The newest 30 pound cow developed in the herd of registered Holsteins owned by W. J. Higdon, Tulare, is the great young cow Leda Hengerveld De Kol Korndyke, who has just completed a record of 30.87 pounds butter from 648.9 pounds milk in seven days, milking as high as 107 pounds in one day. She is a daughter of Korndyke Queen De Kol's Prince, and out of a half sister to Tilly Alcartra. She had a previous record of 27.42 pounds butter in seven days as a senior four year old, and was purchased by Mr. Higdon in the 1917 guaranty sale at Sacramento from A. W. Morris & Sons, Woodland. This richly bred young cow is only one of the many examples of the sound business principle that it pays to buy the best even if the initial investment is larger.

Phillips Buys Ormsby Heifers

J. P. Phillips, Fresno, recently made a notable addition to his herd of registered Holsteins through the purchase of a group of heifers carrying a large percentage of Ormsby blood. One of the most richly bred among them is a daughter of Sir Ormsby Banostine Champion, whose dam is the world's record cow Duchess Skylark Ormsby. The dam of this heifer is a 16.30 pound two year old daughter of Sir Korndyke Hengerveld De Kol, she in turn out of a 29.28 pound cow. The balance of the group is composed of daughters of Sir Ormsby Hengerveld Segis, Sir Korndyke Hengerveld De Kol 37th, Butter Boy Beets Banostine, Champion Johanna, and Colantha De Kol Pietertje 3d. Several of these heifers are in calf to a son of Duchess Skylark Ormsby, and the offspring should give Mr. Phillips something exceptionally good to work with. The Phillips herd is headed by a good son of Sir Pietertje Ormsby Mercedes, the greatest sire of yearly record daughters of the breed.

Poland Breeder Back from Army

J. H. Cook, the young Poland-China breeder of Paradise, has returned from his enlistment and is again in active charge of his Poland-Chinas.

When he enlisted the greater part of his herd was disposed of. He retained a couple of boars and seven or eight good sows. The boars retained are: Cook's Hancherdale Jones, a grandson of Gerstdale Jones, and Big Ben's Wonder, a son of the Pfander boar, Big Ben.

Among the sows retained Mollie Wonder 2nd is the outstanding individual, being an excellent specimen of the breed and entitled to rank as one of the best Poland-China sows on the Coast.

Mr. Cook's particular fancy, however, is Long Jumbo Fashion, a sow very similar to Mollie Wonder 2nd, but a trifle smaller. She has regularly farrowed from eight to ten pigs and raised them all.

Mr. Cook is planning some decided improvements the coming year which include the removal of the herd from his Forrest View Ranch to another, just south of Chico, on the National Highway. This new location he believes will put him in closer touch with the markets, and be more accessible for those desiring to visit his herd. Additional animals will be added to the herd from time to time, and with no bad luck he will have a show herd at the Sacramento State Fair this fall.

The proposed bill to revise the livestock brands has now passed the Arizona legislature and become a law.



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25 Head High Class Females

Auctioneer: Fred Reppert of Decatur, Indiana

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Horse Still a Going Concern

Horses are hardly maintaining their number on farms in this country, in consequence of the auto truck, the automobile, and the needs of war, and yet there are nearly as many in the country now as a year ago, according to the bureau of crop estimates of the United States department of agriculture. Furthermore, there are now one-third of a million more than at the beginning of the war. It was expected that the war would stampede the horse market in this country and would send prices high enough to rob the farms of a large number of much needed work animals, but there was no such shock as was expected. From 1910 to 1915 horses on farms increased a little each year, usually over one per cent, and since 1915 the increase of four years has apparently been over 300,000. The present total, according to the estimate, is 21,534,000 horses. The exports of horses during the war to December 31, 1918, have been slightly more than 1,000,000; at the prewar rate the normal exports would have been about 1?0,000. As far as covered by domestic exports, the war made an extra demand on farmers for almost 900,000 horses. To this must be added the extra demand of the United States government. By January 11, 1919, the war department had shipped overseas nearly 39,000 horses, and on November 2, 1918, that department had in this country nearly 165,000 horses. The apparent figures of extra demand on the farmers of the United States by this country and the allies for horses on account of the war make a total of about 1,100,000 horses in exports and in the service of the war department. The actual number is greater by the normal exports, and hence about 1,200,000 horses are indicated as the horse contribution of the farms to the war, not including private purchases and the United States government outside of the war department.



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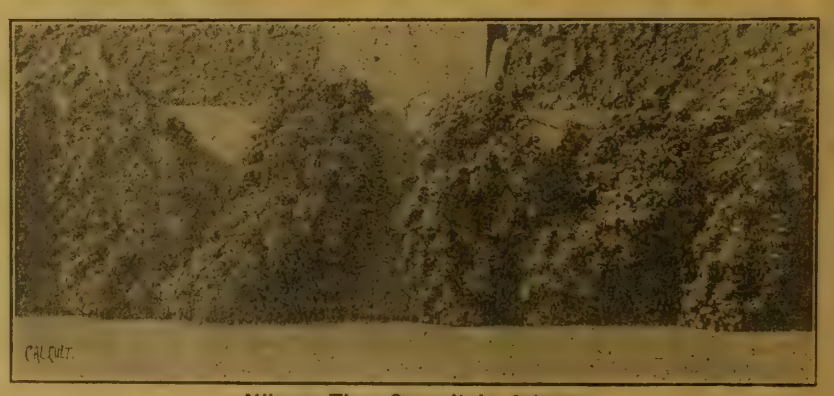
Hogs in Salt River Valley

Written for California Cultivator By M. E. Bemis

ALFALFA and hogs always makes a good combination. In the Salt River Valley alfalfa grows to perfection. There may be places where alfalfa will do as well as here, but nowhere will it do better. Records of ten to twelve tons of hay are frequently reported. Pasturing alfalfa is not commonly considered good practice, but less injury results from pasturing here than in most places. This is due to favorable climatic conditions which induce a rapid growth of the plant, and therefore the tendency is to soon recover from any injury which it may receive from pasturing.

From 14 to 20 shoats may be carried on each acre of alfalfa, or two sows with pigs. With reasonable care there is not much injury to alfalfa in pasturing to this extent, though it should always be borne in mind that alfalfa that is pastured will deteriorate more rapidly than fields that are not pastured. All hog growers in the Salt River Valley agree that there is good profit in growing hogs up to about 150 pounds each. With high priced feed there is some question among hog growers regarding the profits from fattening. Some figures obtained recently from reliable sources throw some light on this question.

County Agricultural Agent H. C. Heard, cooperating with W. E. Schneider, swine specialist for Arizona, of the United States bureau of animal industry, conducted the experiment on the farm of K. S. Townsend, south of Phoenix. In this experiment two groups of hogs were fed approximately 60 days. The purpose of this experiment was to show the relative value



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of milo and hegari. This was ground in the head, that is the unthreshed grain.

The feed used with one lot was 80 per cent ground milo, 15 per cent ground barley and five per cent cotton seed meal. The other lot received 80 per cent ground hegari, 15 per cent ground barley and five per cent cotton seed meal. Approximately no difference was found in the food values of these two grains. Incidentally this proves the advantage of hegari over milo as this grain sorghum produces somewhat heavier yields usually, while the forage has considerable more food value. It was found that it required 450 pounds of the above grain rations to produce 100 pounds of pork.

The cost of these feeds was: Hegari and milo, $2.50 per cwt., ground barley $3.00 per cwt. and cotton seed meal $3.00 per cwt., making the cost of the mixed feed $2.60 per cwt.; and the cost of producing 100 pounds of pork $11.70. As the pork sold for $16 per cwt. this shows a good profit in finishing.

Further light on the question of profitable hog raising is shown by the reports of the boys' pig clubs. In these clubs very accurate records have to be kept regarding the weights of pigs at the beginning and the close, the cost of feeding and profit. In these clubs it was found that the daily gain ran from six-tenths of a pound to two pounds per day. The cost ran from eight cents a pound to 16 cents; the average cost was 10 cents a pound and the average daily gain was eight-tenths of a pound. The average profit per pig was $9.44. The combination of skim milk, ground milo and cotton seed meal has also proved profitable.

It has been found that one pound of cotton seed meal for each 100 pounds of pork and about four to five times the weight of the cotton seed meal in ground milo, together with what skim milk will be consumed, has produced a profit of about 14 cents a day for the period of finishing.



Rustling Their Own

A husky bunch of porkers that with the right chance—which means plenty of milo—will make pork at a profit.

Eczema

Eczema in farm horses is a non-parasitic disease of the true skin, caused by pressure or chafing of saddle or harness, especially at the time of change of coat; extremes of heat or cold, exposure to wet, want of cleanliness, bad feeding and constitutional disturbance. These produce inflammation of the underskin or dermis, as distinguished from the outer skin or epidermis. The symptoms are small nodules on which the hair stands upright and becomes knotted; scabs form, which become detached, and leave bare patches; the irritation is great, and rubbing makes it worse. Eczema may attack the mane or tail, while grease and mud fever are simply forms of the same disease. The scabs should be softened with glycerine, then washed with warm water and hard soap. After drying thoroughly, a lotion composed of one part each of lead acetate and zinc sulphate in 40 parts of water should be applied. If this does not cause a change, an application of oil of tar is recommended by a veterinary surgeon. A change of food and provision for shelter should be made. As the system is generally out of order, a ball should be given and followed up by soda hyposulphite one-half ounce twice a day. If the system is badly deranged, Fowler's solution of arsenic, two to eight drams, may be given, and sulphur, two ounces to four ounces, added to mash of gruel once a day. The horse should be kept clean during treatment by grooming. —The Australasian.

Wire Gause Inefficient

According to reports from about 40,000 farms, wire-gauze strainers are in more general use than any other kind, but studies with the microscope show plainly that the meshes are much too large to hold back any but the very course impurities. One thickness of cheesecloth or other cotton cloth is only slightly more effective than a wire-gauze strainer, but when the cloth is folded to about eight thicknesses its ability to remove dirt in milk increases somewhat, but is still inefficient as compared to absorbent cotton or filter cloth.

Filter cloth, a specially made cotton cloth, smooth on one side and "fuzzy" on the other, is reasonably effective. This cloth can be obtained from leading dairy supply houses. The milk should be poured on the fuzzy side, the fibers of which stand up like the nap of a carpet and remove all but a small percentage of the solid impurities. The most effective strainer of all, however, according to experiments, is a layer of absorbent cotton placed between two thicknesses of cheesecloth.

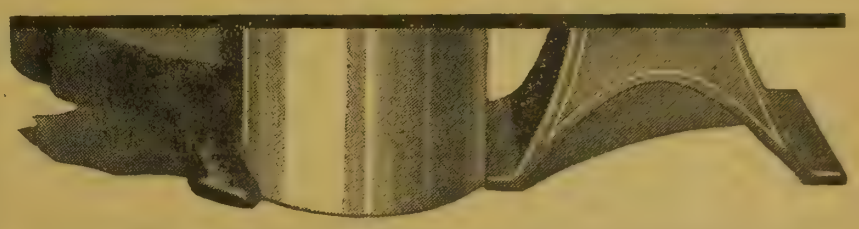
Clean Production Recommended

At best, straining milk is a practice that makes milk appear clean and therefore more easily salable, but no strainer removes either the bacteria and objectionable flavors, or the very fine dirt. As a consequence straining milk fails to improve its wholesomeness to any noticeable degree. Clear milk is best obtained by sanitary methods which prevent, so far as possible, the entrance of dirt into the milk. This can be done best by having clean cows in a clean stable and milking with clean hands into sterilized small-top pails.



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Manzanillo and Mission Olive Trees selected stock. Free from scale. One inch and over. Thirty-five cents each at nursery. E. E. Barnes, Highland, Calif.

Walnut Trees, Artichoke Plants, and Wagner Rhubarb plants for sale cheap. Mammoth Walnut Nursery, P. O. Box 826, Watsonville, California.

Sacks and Burlap for balling trees; before you buy sacks or burlap see me or write. Boyle 1800. J. Ross, 313 N. Boyle Avenue, Los Angeles.

Olive Trees—Mission, Manzanillo. Propagated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, California.

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For Sale—1 Holt 75 H. P. Engine. Been used about 3 months; also 1 Holt 45 engine, the old type but in good shape. Also 46 acres of land. R. MANGOLD, Orange and Long Beach blvd., Compton. Phone Compton 23.

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A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D. Co. California.

For Sale—40 H. P. Fairbanks-Morse gas engine in first class condition—used two seasons. P. O. Box 251, Santa Ana, California.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

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REDWOOD TANKS—New, used, all sizes, 3 new 1500 gal., $32.50 ea.; 25,000 gal., $135; 50,000 gal., $250; 100,000 gal., $350.
NEW GALV. TANKS—1000 gal., $39; 2000, $53. USED galv. tanks, 4500 gal., heavy galv., with cover, $95; 3000, $75; 6000, $125; 7000, $145; 1000, $29.
RANCH TOOLS—2 h. R. & V. gas engine and pump jack complete with 70 ft. 2 in. pipe rods and brass cylinder, all like new, for $95. This is a SNAP; be quick. Don't write next week and expect to get it. 6 H. Lambert engine, $95; 1-ton ranch wagon, springs under bed, nearly new, $48; 10 ft. grain drill, $95; mower, $45; Fresno beet drills, $35; Avery tractor, fine shape, $450; brand-new P. O. power-lift tractor, 4-gang disc plow, $230; 3-gang disc, $85; 4-gang disc plow, $120; double-disc harrow with pony truck, $65; potato planter, $75; single disc harrow, $45; spike harrows, $7 to $18; Planet Jr. new potato digger, $20; slip scraper, $5.50; fine galv. water trough, $7.50; 10-ton McDonald wagon scales, $150; 2-row bean cultivator, $35; 4-in. irrigating pipe, $14.90; 6-in., 25c; 10-in., 43c; sundries.
PUMPS—No. 3 Double-Acting Ames pump, with double 24-in. stroke, $250; 1-in. centrifugal, 2-in. American, $35; 2½ B. & J., $45; 6 hor. Gould, $110; 4 two stage, $150; 7 vert. Krogh, $150; single Pomona plunger pump, $50; large Bulldozer, $98; small size, $49; many others. 50 brass cylinders. Checks, Liberty Bonds accepted. DEMMITT CO., upstairs, 120 N. Main. Yards, 816 Yale, Los Angeles. Phone 15191. Also buy first-class used material.

For Sale—Pomona Deep Well Pump. This plant is installed in a well in the Victorville district and has been run less than five hours. It consists of a forty-horsepower pump head with an 11 by 110 inch pump barrel on 250 feet of 12 inch O. D. discharge pipe. Cost over $3000 installed. Will sell as it stands for $2000. Address R. N. Ferguson, Box 368, Taft, California.

For Sale—Bargains in used S-25 Samson Tractors. One used 4 months on 60 acres good as new $1050.00. One used one season just overhauled $850.00. One Mod. R-12 just overhauled $400.00. C. J. KROELLS, Dealer and Factory Chief Inspector, Lindsay.

For Sale—65 H. P. Holt Caterpillar engine. Overhauled, No. 1 condition. Phone E. 62. Flag Station Garage, Ave. 20 and Davton Ave., Los Angeles.

Retiring from Dairy Business—Will sell one eight unit Calf-Wax milking machine, only been used six months. Address J. Devlin, Box 291, Napa, California.

For Sale—Pomona Pump, 28 Head, nearly new, with 25 hp Bean Distillate Engine. W. F. Phillips, Terra Bella, California.

3-Inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2.

For Sale—1918 Bean Tractor. Apply John Stirrat. E. North St., Anaheim.

TURKEYS

Giant Bronze Turkeys — Gold Nugget strain. Prove their superiority by winning Gold Special Sweepstakes for best turkeys at the following great shows: Arizona State Fair, 1916; Texas State Fair, 1917; California State Fair, 1917-1918; Los Angeles Show, 1917-1918; Pacific Coast Land and Industrial Exposition, Oakland, 1918. An unequaled record. Large turkeys can be raised at practically the same cost as small ones. Toms for sale that will increase size and improve any flock. I am the originator of the Gold Nugget Strain. J. Will Blackman, 607 East Third St., Los Angeles, California.

Giant Bronze Turkey Eggs. Can fill orders for latter April and May delivery. Other eggs sold. M. M. Reiman, Planada, California.

For Sale: Mammoth Bronze baby turkeys with hints as to rearing. Palo Pino Turkey Ranch, Box 503, Monterey, California.

For Sale: Bourbon Red Turkeys.—Eggs for hatching $5.00 per setting of 13 eggs. Book your orders early. Albert E. Balmer, Martinez, California.

For Sale—Eggs from Mammoth Bronze turkeys "Gold Nugget" strain. CARRIE ANDREWS, 121 Sonora Street, REDLANDS, CALIFORNIA.

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IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches. ARNOTT & COMPANY, INC. The Yellow Front. Established 1892 112-118 S. Los Angeles St. Los Angeles.

HOGS

O. I. C. BREEDER'S NOTICE
I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLITS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

HOGS

Castleview Giant Type Berkshires are the thrifty, typey, quick-growing kind that will make larger profits for you. Prizes and Championship honors are awarded—by the greatest judges in America—only to animals possessing the essential qualities for economical meat production, viz.: heavy bone, good feet, broad strong backs, large hams and easy feeding qualities. Our grand champion herd includes Riverby Princess, grand champion sow of the world; Rookwood Lady 100th, 1917 grand champion of America; Mayfield Laurel 15th, 1917 grand champion of California. Bred sows, bred gilts and fine weaned pigs for sale.
Castleview Ranch, Santa Rosa, Cal.

BERKSHIRES BERKSHIRES
ANCHORAGE QUALITY
We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

BERKSHIRE BOARS AT 2c
SPECIAL OFFER
To introduce my world and national grand championship blood to farmers and breeders, I will sell a limited number of boar pigs, 6 to 9 months old, at two cents above the market price. They are by Baron Duke 201st, national grand champion, Winona Lee Champion 6th, first prize junior yearling 1917 State Fair, and from 650 pound prize winning sows. We will sell nothing that we would not use ourselves. Sandercock Land Co., 906 K St., Sacramento, California. In charge Natomas Land Sales.

BERKSHIRES GUERNSEYS
GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
A. B. HUMPHREY,
Escalon, San Joaquin County, California.

We are sold out of Durocs all except two dandy boar pigs, six months old, sired by the great King Orion and out of King's Pride, a daughter of Kings Col., who won more prizes for get than any sire in the country. These pigs are big, long, high boys, cholera immuned, tuberculin tested and guaranteed right. Send for full information about them. Elliott-Brant Rancho, Owensmouth, California.

Billiken Chester Whites, are all sold except one yearling boar. Am booking orders for spring pigs to be shipped at weaning time. Can still accept a limited number of orders. My boars and sows are of the best blood and most approved type and the pigs I will have to offer will be equal to the best that can be obtained anywhere. C. B. Cunningham, Mills, California.

For Sale—Master Gabriel No. 200943, my Berkshire herd boar, weight about 650 pounds and is in fine working condition, a true breeder and is very strong in the blood of Masterpiece. Master Gabriel being closely related to my herd is the reason for offering him for sale, prefer personal inspection of boar and offspring. Geo. A. Stingle, Garvey Ave., one mile west of El Monte, California.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

For Sale—Poland China — Quality type. Young stock of boars and gilts for sale at all times. At the head of our herd stands some of the best blood—Superba and I. B. A. Wonders, the World and State Champions. Poland China Ranch, C|o H. B. Peake, Mgr., 358 11th Street, San Bernardino, California.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

For Sale — Berkshire boar Pacific Star Masterpiece 2nd 241131—2½ years old. Nil Goethes Masterpiece 198190, dam Star Belle Betsey 226782. Splendid herd header. J. E. Moltzer, Van Nuys, California. South Sherman Way, corner Rita Street.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

Bargains in Poland China Sows. All immune. Good mothers and prolific. Registered stuff. Also boars. Write for details. N. C. Hansen, Coachella, California.

MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Duroc-Jerseys — We breed the champions. Peter, Lamson & Walker, Devore, San Bernardino County, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

FOR SALE: REGISTERED POLAND-CHINA BOARS. J. R. CARHART, FULLERTON, CALIFORNIA.

GOATS

Largest Herd Swiss Toggenberge on the Coast. 100 grade does bred to my $1000 Buck, Captain No. 256, A. M. G. R. Association, due to kid in February and March, $40.00 each, lots to suit. Crating $2.00 extra. Stamp. Rae P. Williams, Oakland, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. Our chix are doing fine where others are not. Will hatch 1500 to order for May 7th at $180 per 1000. Hatching eggs by the thousand $75. A few settings from our high record hens at $5.00 per 15. Only about ten dozen of our second season hens yet to sell. Eleven of these hens and a 200 egg male will make you a good breeding pen, $25 f.o.b. ranch. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 488 Seventh St., Petaluma, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially Interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs $2.50 per 15. Chicks March and following months 30c each. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose.

Super Quality White Leghorn Chicks, hatched right in Jubilee machines from best strains of foundation stock. Our customers come back each season, we can refer you to them. Write at once before we are all sold out. Newton Poultry Farm, Los Gatos, California.

Baby Chix — Barred and White Rocks, Reds, Buff Orpingtons, Black Minorcas, Buff and White Leghorns from Hoganized stock bred to lay. Reasonable prices and pleased customers our aim. Tobener Hatchery, Washington Avenue, San Jose.

S. C. R. I. Reds Exclusively. Pacific Coast Aristocrat strain. Baby chicks and hatching eggs from high class exhibition Hoganized stock. Order early. Rosedale Poultry Farm, Route A, Box 200D, Ceres, California.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Sly's Rhode Island Reds—Exhibition quality Hoganized stock. Hatching eggs from six grand matings. Catalog free. Albert Sly, 1642 Middleton Place, Los Angeles.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

Hatching Eggs — Oregon Agricultural College Barred Rocks, from 200-egg hens, $1.50 per 15, $2.50 per 30; $7 per 100. W. M. Tetherow, Central Point, Oregon.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California.

White Wyandottes fine cockerels for sale. J. C. Fishels & Son Strain, $5 and $7 each. Eggs $3.00 per 15. J. W. Nicholson, Wasco, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Choice White Wyandotte breeding cockerels, $5.00; eggs $3.00 and $5.00 per 15. Baby chix. R. W. Stawetski, Route B, San Jose, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Schellville, California.

Save the Baby Chicks—Write today for our valuable free booklet "Making Every Chick a Chicken." Box 593, Modesto, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

White Wyandotte setting, 15 eggs, $1.50. Mission 281. G. O. Tetley, 190 Edgewood Place, Riverside.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

For Sale—Pit game cocks. Address F. B. Pritchard, Clarksburg, California.

POULTRY

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns, CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Setting Eggs from the Sunny Slope Poultry Ranch is sufficient to warrant quality of production. We will sell setting eggs only during 1919. If you want birds that will produce quality and quantity, place your orders with us. You will then ever be a satisfied customer. Sunny Slope Poultry Ranch, Longden Ave., Box 789, San Gabriel, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for twenty years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Hatching Eggs—White Leghorns, Light Brown Leghorns, Dark Brown Leghorns, White Rocks, $2.50 per 15; $10.00 per 100. All bred to highest possible standard of beauty and utility. Mahajo Farm, P. O. Box 597, Sacramento, California.

Baby Chicks Every Week. Order early and get the date you want. White and Brown Leghorns, Rhode Island Reds, Barred Rocks, Anconas; also hatching eggs. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

Finest Hatchery in the World. Chicks, White Leghorns, Rhode Island Reds, 10s, 1000s, hatched right in our $60,000 brick and concrete hatchery from our Hoganized heavy layers. Stock, eggs. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

Book Your Orders with the Stevenson Hatchery, 19 Center Street, Watsonville, California, for Day Old Chicks Black Minorca, Barred Plymouth Rocks, White Leghorn or Anconas from first class utility stock.

Wanted—1000 Poultrymen to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Imschweiler, Box 70, Inglewood, California.

White Wyandotte hatching eggs from high testing Hoganized hens and cockerels. Selected winter layers. $2, $3, $5 per setting. S. Reyner, Lathrop.

DUCKS

For Sale—One pen Thoroughbred Buff Ducks, fine large birds and wonderful layers; $3.00 each. Mrs. M. Lopez, Lathrop, California.

CATTLE

We have one or two Guernsey bull calves left old enough for service and several youngsters. All out of A. R. cows with big records and sired by the best blood in the country. You need a Guernsey bull to put color, flavor and butter fat in your milk. Herd free of tuberculosis by state test. Write for full information. Elliott-Brant Rancho, Owensmouth, California.

SHORTHORN CATTLE, SHROPSHIRE SHEEP. Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., California. W. P. Dwyer and W. S. Gulford, Owners.

12 Head Grade Holstein Heifers and Cows, nicely marked, good breeding; also some very fine registered bull calves, sired by grandson of "King of the Pondacs." Sunnybrook Ranch, Willits, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAllister Sons, Chino, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Keep On Herd Jerseys, bulls and heifers are going. Buy the good ones while they last. Dr. H. W. Hand, Orland, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

Ayrshires—Pure bred bull calves ready for service. Redwood Ayrshire Farm, La Honda.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

MISCELLANEOUS

Country Board Wanted—Middle aged retired business man from the East would like board for the spring and summer on good ranch. Will try and make myself handy and agreeable and pay reasonable price for ordinary accommodations among good all round United States people. Do not want to live in town and am not particular about being near or far from a church. Am able to take care of myself and have money enough to pay my bills. Who wants me? Best of references as to private character. Address Boarder, Care California Cultivator, 112 Market Street, San Francisco.

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The cheapest, best and most practical silo on the market. Write for booklet.
THE LEWIS COMPANY,
Dept. C,
1st Nat'l Bank Bldg
San Jose, California.

For Sale or Trade—Half interest in well established motor machine work, repairing and welding business, including agency for well known lines. Present manager taking other half. Will sell or trade for ranch and some cash to get outdoors. Consider half worth $25,000. Address T. E. B., Care California Cultivator, Los Angeles.

Tennessee Homegrown Red Leaf Tobacco, aged in bulk; best chewing or smoking; 3 pounds $1.75, 6 pounds $3.40, 10 pounds $5.25. Grade 2 smoking, 10 pounds $4.00, postpaid. Address McWherter & Ladd Tobacco Co., Martin, Tenn. Reference, Peoples Bank.

You are Losing Money if you farm without a soil analysis. Write me today for free proof of this statement. I can show you. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, California. Phones: Office Pico 843, Residence West 702.

BEST OF BUSINESS TRAINING.
Munson School
for
Private Secretaries.
600 Sutter St., San Francisco.
Send for catalog.

For Sale—Virginia Peanuts from high yielding field, 40 lbs. or over, 15 cents lb.; less, 18 cents lb. J. H. Parker, Hemet, California.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Bats—I will give Thrift Stamps for information as to location of bat roosts. B. Howell, Covina.

For Sale Ten Thousand Nursery Stakes, ⅝x¾ inches, 3 feet long. Address 508 West Grove Street, Visalia, California.

WANTED

Wanted—Have You Any Stumps to Remove, boulders to break or any farm blasting? I am a competent, licensed "Agricultural Blaster" recommended by leading powder companies. Also have very powerful stump puller. Cannot accept very small work as transportation and lost time eat up all profits. If you have work to warrant, however, I am your man. Frank Butler, Box 454, Oxnard, California.

Wanted—Salesmen and Agents. Exclusive territory granted. Powerene is equal to gasoline at 5c a gallon. Is guaranteed to be harmless, to remove and prevent carbon, doubling the life of all gasoline motors, saving repairs, adding snap, speed and power. An amount equal to 20 gallons of gasoline will be sent to any address in the U. S. for $1.00. W. Porter Barnes, Santa Rosa, California. Dept. A-11.

Wanted—To correspond with local sales representatives, residents in small towns and country districts who have spare time, or any others who are receptive to a good sound money-earning proposition where pleasant work, acquaintance and a good selling proposition combined will yield a good income. Address: J. H. Yetter, Sales Manager, 115-117 North Broadway, Los Angeles.

Wanted—to Rent, ranch suitable for both farming and stock in Sacramento Valley or San Luis Obispo or Monterey Counties. Would prefer some equipment and stock. Box 240, R. F. D. 1, Redondo Beach, California.

Wanted—Man or Woman Manager, Every community, town and country, to furnish information, etc. No selling. State your occupation and references. CALIF. DEVELOPMENT LEAGUE, 321A West 3rd, Los Angeles.

Wanted—Man With Some Capital For manager of one of our hog ranches now being put into shape for production; excellent opportunity for right man. Call 1013 Hibernian Bldg., Los Angeles.

Wanted—To hear from owner of good farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minnesota

Wanted to Do Hoit 45 Tractor Plowing. Might take part trade in farm implements. John Boyd, 503 Sonoma St., Los Angeles.

Wanted—To hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

Wanted—Two Pea Hens. Give age, price and where they may be seen. Todos Santos Rancho, Daggett, California.

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

RABBITS

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

CAPON SPECIALIST

Every Farmer can make money by caponizing his cockerels. Instruments $4.50. Caponizing cockerels 25c each. Send stamps for reply. Mrs. H. Ament, 423 Kerckhoff Building, 6th and Main, Los Angeles.

FERTILIZER

For Sale—Chicken manure in carloads. Cheapest and best fertilizer. MacDonald Sons, phone 101, Watsonville.

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SPECIAL

DISSOLUTION OF PARTNERSHIP

20 Acres High-Class Orchard, Only $15,000

15 acres in French prunes, 5 acres in apricots, all full bearing. Located 1 mile from the station on a creek bank with large frontage on a prominent county road. The soil is all first class sediment and the whole place is under irrigation. Property must be sold to settle partnership account; cannot be exchanged; terms can be arranged.
WILLIAM P. WRIGHT
Mountain View, Santa Clara Co., Calif.

ALBERTA THE WHEAT GRANARY OF THE WORLD AS CALIFORNIA IS THE FRUIT-BASKET.

We own and control several thousand acres in the choice farming districts of Alberta. Our improved lands are in farms of from 500 to 1600 acres and each farm has considerable acreage ready for spring crop. Our raw lands are in proved districts, surrounded by improved farms. Prices range from $15 up. Small cash payments, balance long time yearly and crop payment. The F. W. Anderson Mtge. & Investment Co., 501-5 Hutton Bldg., Spokane, Washington.

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IF YOU ARE looking for an independent income for the balance of your life, call for details regarding 160-acre tracts and our co-operative farming plan; soil deep and fertile with perpetual water; no hardpan, no alkali, no frost; climate ideal. Call room 501 First National Bank Bldg., Oakland, Cal.

30 Acres ½ mile from State Highway, ¾ mile from point where local trains stop, and 3½ miles from Arbuckle. This place partially improved; 11 acres six years old almonds, 1 acre six year old fruit and 5 acres one year old Thompson Seedless; 13 acres to be planted to almonds this spring. Fine location. Will make a dandy home. Write us.
NELSON REALTY COMPANY,
Pioneer Dealers in Almond Land,
ARBUCKLE, CALIFORNIA,
THE HOME OF THE ALMOND.

Bargain If Taken at Once. Get In Before the Raise. Work on State Highway Started Last Week. 43 acres of orchard land located in Owens Valley, west of Bishop. Pear and apple land, 6 inch cement pipe line across same. Free gravity water with established ditch rights. Cleared of brush and partly plowed last year. $1200 cash or $1300 on time. No agents. Walline Bros., R. D. 2, Bishop, California.

For Sale at a Bargain—1 acre, 3-room new frame house, garage, chicken coop, water, short ways from city. I go on the jitney 10c, street car line ½ block. Paid $600 for acre, want $900 for all or $650 cash, balance $300 on contract at 6 per month all clear title. I need the money for my 10-acre ranch. I have chickens and pigs here now. Mr. C. O. Young, RFD No. 3, Box 101, Sacramento, California.

For Sale—560 acres land, Government Patent in San Luis Obispo County, 12 miles from Santa Maria. Good grazing and timber land. Four room house, big barn and outbuildings. Fruit trees, vines and berries. Stock and growing crops go with place, nearly all fenced and cross fenced, well watered, soft water at house. All farming tools go with ranch. For full particulars address: W. W. Palmer, Santa Maria, California.

Near Earlimart, Tulare County, 40 or 80 acre tracts, very best alfalfa lands, shallow water, $100 an acre, on easy terms. Near McFarland, 160 acres alfalfa land, $50, terms. Owned by an estate. Write for full information. JOHN RUPP, 318 Story Bldg., Los Angeles, California.

Equipped Central Oregon Wheat Farm—Fully equipped 800-acre ranch; 5 miles to railroad, Opal City, Jefferson County, Oregon; 550 acres cultivated; 225 seeded; 100 ready to seed, plowed up alfalfa; 100 more can be plowed; running water in each of six fields; 9 miles of woven fence. Immediate possession. $45,000, half down, balance crop payments. G. Springer, Culver, Ore.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

For Sale—40-acre ranch, in good condition, 18½ acres bearing prunes, 5 acres almonds, 5 acres alfalfa, balance in other crops. Cement piping for irrigating. Electric pumping plant; abundance of water. Close to town. Good location. Address Owner, Box 346, McFarland, California.

For Sale—The famous Bane Almond orchard at Orland. On account of labor conditions, as well as physical condition, I have concluded to sell my almond orchard, either in subdivisions of 10 acres, or as a whole. For particulars address P. D. Bane, Orland, Glenn County, California.

For Sale—$1000. Clear, 160 acres, 30 mi. N. E. of San Diego. 25 acres tillable, rolling; 15 bottom, 3 plowed, balance grazing. Small new house. Well, spring, abundance soft water; timber. Fine bee, cow, pig proposition. No trades. E. T. Gray (owner), Petrolia, Humboldt Co., California.

Do You Want a good small ranch—37 acres—under irrigation? Plenty of water. Good income property. For sale at a bargain. For particulars address: J. B. Kroetch, Willows, California.

For Sale—11 acre alfalfa ranch, good buildings, good electric pumping plant, 1¼ miles from Escondido, San Diego County, Cal. Might exchange for Wasco or Shafter land. Address Box 635, Wasco, California.

Wanted to Sell, trade or exchange 80 acres of alfalfa land in Imperial Valley for a dairy having 40 to 100 cows with lease on place to keep them. Address Frank C. Dias, Holtville, California.

FARM LANDS FOR SALE

For Sale—At Lindsay City, 10 acres olives, also fitted for raising chickens, 6 miles west of Strathmore. Owner: J. D. Evinger, Selma.

SEEDS AND PLANTS

I Will Have One or Two Tons of Sorghum seed, especially selected for syrup making qualities for sale as long as it lasts. Send for list of different varieties, with description, prices and instructions for planting to get best results. Can send seed by parcel post. MARION GRABER, Hawthorne, California.

Dwarf Milo Seed for Sale—This seed was grown in the San Jacinto Valley and is the best from 400 sacks that was raised on 10 acres of land which is an average of a little over two and one-half tons per acre. This seed is large plump grain and well matured. Price $6.00 per hundred, f. o. b. San Jacinto. W. L. Helwig.

Your Garden Will Not Be Complete unless you have a few hills of the world's finest muskmelon, "Casad's Special," a heavy yielder, vigorous grower, long season, grows where others won't. Send for seed package, 25c. Roland C. Casad, originator and grower, Covina, California.

Sudan Seed First Class in Every Respect, grown in Napa County, and free from Johnson grass. Price 12½c per pound in sack lots or more. Prices quoted on carload lots. Address: T. H. Stice, M. D., Napa, California.

Positively Thornless Mammoth Blackberry, found native at Mountain Pass Ranch, Jamestown, prolific, ripens early. Berries mammoth size, practically seedless. Plants ½ doz. $1.50. G. S. Wills, Box 125, Jamestown, California.

For Sale—Sudan Seed, government tested for Johnson grass, 18c per pound or $15.00 per hundred. Free delivery until April 1st. G. A. Spencer, Jamacha, California.

Everbearing Strawberry Plants. Americus, $1.50 per 100. $3.00 per 250. Send for catalog. F. L. Moffet, Ellensburg, Washington.

Peruvian Alfalfa, Amber Cane, Milo Maize, Sudan Thousand-headed Kale, Artichokes, Seeds. Write for circular. Box 501, Fowler, California.

Onion Plants—1,000,000 California Red, 75c per 1000. Now is the time to plant. Monroe, The Tree Man, Orland, California.

Our New Hardy Hybrid Alfalfa beats the best, don't compare with others, but write for facts. J. L. LAWSON, San Jose, California.

Write for our
PLANTING GUIDE
WESTERN SEED CO.
116 E. 7th Street, Los Angeles, California.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees, Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

Rhubarb Plants — Wagner's Giant Crimson Rhubarb plants, extra clean, 50 cents per dozen, $3.0 0per haundred. Currier Bulb Co., Seabright, California.

For Sale—Florida Sour orange seed and California sweet seedling orange seed. Order early. Milo Hunt, Whittier. Phone 250.

Giant Sudan or wonder plant seed. Greatest, best ensilage producer known. C. H. Benedict, Riverside.

For Sale—Yellow sweet potato plants. $5 per thousand. W. L. Lutz, R. 3 bx 7, Santa Ana.

PIPE

"TESTED" and "GUARANTEED" Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.
PACIFIC PIPE CO.,
Main and Howard Sts., Est. 1906, San Francisco.

For Sale: 5400 feet No. 14 10-inch riveted steel pipe, 2500 ft 11-inch, 2800 ft. 12-inch 2000 ft. 4-inch. L. B. Vollmer, Monrovia, California.

LIVE STOCK

20 Work Horses, Saddle Horses, mares and colts at a bargain. Ira E. Brown, Montague, Calif.

UNIVERSITY FARM PICNIC

The annual picnic staged each year by the student body of the University Farm will be held Saturday, April 26. Eleven years ago the few students at the Farm decided that it would be a good idea to set aside a day and invite their families and friends to visit the new institution and see what was being done. From that modest beginning the affair has grown to be one of the largest public gatherings held in the state. Last year it was estimated that 18,000 people visited the Davis institution.

The idea back of the picnic is to provide an opportunity to acquaint the public with the many activities carried on by the various departments of the college of agriculture.

GOOD REASON

During the lesson one afternoon a violent thunderstorm arose, and, to lessen the fright of the children, the teacher began telling of the wonders of the elements.

"And now, Johnny," she asked, "why is it that lightning never strikes twice in same place?"

"Because," said Johnny confidentially, "after it hits once the same place ain't there any more."

CITRUS FERTILIZATION

Continued from Page 357

relationships and moisture conditions undergo improvement. At the same time the solubility of the plant food constituents already in the soil becomes increased, notably so in the case of calcium, an element that has especially important functions in the physics of soils as well as in the physiology of citrus trees.

Vital Processes

In addition all of the vital processes going on in soils are closely related to and, in most cases, utterly dependent upon, organic matter, but it should be clearly understood that organic materials to be effective, physically, chemically or biologically, must be susceptible of being decomposed by the bacteria and fungi of soils, and that, too, at a somewhat active rate. For, as intimated above, it is not so much the organic materials as such as it is the products formed in their decay, that are important

In this connection cover cropping naturally suggests itself. The value of cover cropping depends largely upon the organic matter furnished by the cover crop. It is true legumes probably also add considerable nitrogen, an element much needed, but one of their greatest values lies in the physical and chemical effects produced by the soluble products formed in their decomposition and the fact that a part of their organic structure actually grows and penetrates into the subsoil, where it later decays, thus tending to open up the subsoil and improve its physical nature. This quality especially recommends cover cropping for the interior valleys. Other things being favorable, I consider that leguminous cover crop to be most valuable, whose root system is most extensive and which sends down the greatest number of comparatively large roots to the greatest depth.

Under the present system of summer cultivation a considerable part of the cover crop that is produced above the ground, even though it be thoroughly plowed down or otherwise worked into the soil, becomes dissipated, owing to the fact that the decay processes take place out of reach of citrus roots, and the physical effects are produced in that portion of the soil that ordinarily least needs it. The plowsole zone is where the decomposition ought to take place if possible. Herein lies the fundamental reason why I believe in the incorporation of organic matter, whether it be grown as a cover crop or applied as manure, bean straw, etc., to a depth below the usual summer cultivation.

Importance of Physical Condition

It must be evident that my purpose in referring to these matters is to point out and emphasize the importance of decaying organic matter in the maintenance of good physical condition, the results of which make it possible for other fertilizers that may be applied, or the plant food contained in the soil, to become as effective as possible. It may be possible to secure satisfactory results under some conditions without the addition of any organic matter, at least for a time, but later the need for it is almost certain to be felt and without it the efficacy of inorganic materials will depreciate.

In my opinion the use of commercial fertilizer should always be coupled with the use of organic material, and the permanent prosperity of the fertilizer business, so far at least as citrus culture is concerned, hinges in a large measure on the active cooperation between its use and the use of organic material. I wish to state here that I am a strong believer in properly chosen commercial fertilizers and frequently recommend their use, but I also wish to call attention to the necessity, either at present or in the near future, of replenishing the organic content of soils also, and if this be not done the efficacy of the commercial fertilizer will sooner or later depreciate. In my opinion the fertilizer business should be combined with the manure business or cover cropping and with such a union there is a definite field for the use of fertilizers.

Nitrogen—More Nitrogen

Concerning the use of nitrogen, phosphoric acid and potash as such, I have very little to add to what has been stated and repeated before citrus growers many times already. Among those constituents nitrogen is by far the most important, and its use is indispensable to the permanent well-being of practically all citrus orchards. Citrus trees absorb large amounts of nitrogen; the unavoidable losses of nitrogen from soils are considerable in spite of all precaution; the response of citrus trees shows the beneficence of available nitrogen. All the evidence, in a word, bespeaks the use of nitrogen. As a source of nitrogen leguminous cover crops will make their contribution, but in my opinion it is not probable that any system of cover cropping can be devised that will fully meet the nitrogen requirements of a citrus orchard, I am sure that the usual winter cover crop, at least, does not accomplish this purpose. Manure and bean straw, where used liberally, will provide much of the deficiency, but in addition to these, unless they be provided in liberal amounts, the application of a concentrated, commercial form of nitrogen will also produce good effects.

As a source of commercial nitrogen I believe there is very little choice between ammonium sulphate, dried blood, tankage, guano, fish and meat scraps and possibly a few others. The price should largely regulate the choice. Ammonium sulphate will probably become effective a little quicker than the others. In regard to the use of nitrate of soda it can be positively stated that the plant food element, nitrogen, which it contains, is not only the most needed of all the elements of fertilizer for this section, but it actually exists in nitrate of soda in its most available and effective form. The only reasons, so far as I am able to see, why nitrate of soda is sometimes objectionable, lie in the fact that its use tends to accelerate the ever present tendency in many soils toward the formation of compacted and otherwise unfavorable physical conditions and, secondly, it contains soluble sodium, the base of the greater part of objectionable alkali. It is certainly desirable to avoid the addition of any further amounts of alkali producing material and to delay as far as possible the development of unfavorable physical conditions. There is little room to doubt that the use of nitrate of soda has in some cases actually produced injury through these very means.

Phosphorus—A Little

The next most important constituent in fertilizer is phosphoric acid. It is desirable to use some phosphoric acid over a large part of the citrus area, but the needs for phosphoric acid are by no means as great as for nitrogen. I am not prepared to state whether the amount of phosphoric acid provided in the liberal use of manure or bean straw will suffice, but where neither of these materials are used either superphosphate or high grade tankage are suitable. Considering phosphoric acid, pure and simple, it appears probable that superphosphate would be superior to other forms, but in view of the nitrogen which it contains, tankage is probably just as economical and possibly more so.

Potash?

Finally, regarding potash. I regard the evidence to be conclusive that there is very little if, indeed, any reason for applying any potash whatever to the citrus groves of California.

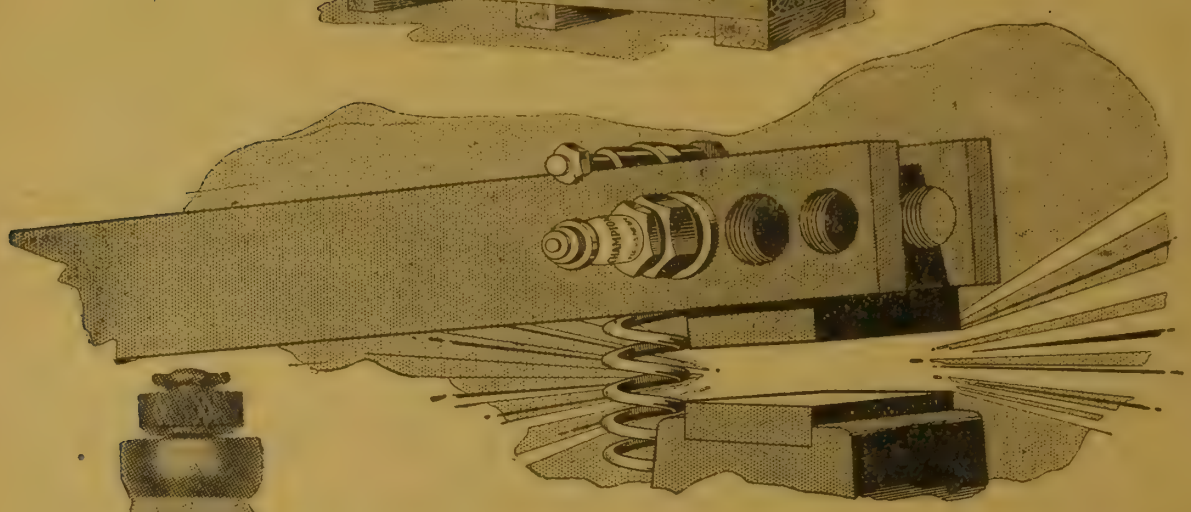
LACK OF LUBRICATION IS EXPENSIVE

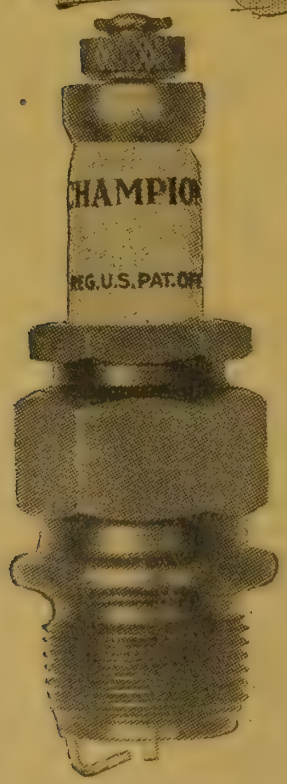
Watch the lubrication on your automobile and tractor if you would avoid cost of repairs. It is cheaper to buy oil than to buy machinery, says E. W. Lehmann of the University of Missouri college of agriculture. Use only lubricants of best quality. The manufacturer will advise you which brand of oil is best for the particular machine. Keep oils and greases protected from grit and dust. See that all oil containers are cleaned before using. Carefully follow oiling chart in lubricating your machine. A small amount of oil at regular intervals rather than an excess of oil occasionally is best for all machinery.

CHAMPION TRADE MARK

Champion Dependable Spark Plugs







Champion 7/8-18
Price $1.00

Withstand Shocks of 300 Sledge Hammer Blows Per Minute

The results of various exhaustive factory tests imposed upon Champion Spark Plugs completely demonstrate their ability to endure every punishment your car's engine can impose.

The test illustrated here is known as the "shock test." The shock, which the Champion Spark Plug must survive without injury, is the equivalent to a weight of 3½ pounds, dropping with the rapidity of 300 times per minute.

The qualities that enable Champion Spark Plugs to successfully withstand such severe trials are largely a result of ten years' study and experimenting that developed our patented gasket construction and our Number 3450 insulator.

This superior Insulator offers 2½ times the resistance to shock and vibration compared with the best previous insulator. That is one of the several reasons why Champion Spark Plugs are more durable and dependable than ordinary spark plugs.

There is a Champion Spark Plug for *every* type of motor car, motor truck, tractor, motorcycle and stationary engine.

Champion Spark Plug Company, Toledo, Ohio

Champion Spark Plug Co., of Canada, Limited, Windsor, Ontario

HOW TO USE CARBON BISULPHID IN GROUND SQUIRREL CONTROL

The rodent control division of the state horticultural commission gives out the following information regarding the use of carbon bisulphid for killing squirrels:

Carbon bisulphid applied to ground squirrel burrows when the ground is fully saturated with moisture, is by far the most satisfactory material to use. Wasteballs soaked in this liquid are sufficiently loose to allow vaporization of the carbon bisulphid. Diffusion is thereby accomplished, after which the gas can be exploded in order to force the products of such combustion to the farther recesses of the burrow. Every burrow must be treated with one soaked wasteball, and following the explosion be covered with one or more shovelfuls of earth. This earth covering must be tightly tamped. Exploding is accomplished with a match or a torch after allowing from four to ten minutes for vaporization of the carbon bisulphid, depending upon temperature and weather conditions. On a cold, foggy day eight or ten minutes should elapse before exploding.

Carbon bisulphid is most easily handled in an open bucket or pail. Fill the pail about three-fourths full of the liquid carbon bisulphid and place in same enough jute wasteballs to be covered by the liquid. To prevent evaporation a thin film (¼ in.) of water can be poured over the carbon. Each wasteball holds enough carbon bisulphid which, when vaporized and mixed with air, forms a gas of sufficient concentration and strength to kill a squirrel.

Wasteballs can be taken from the liquid by means of a hook, pointed stick or forceps, using one wasteball to each burrow. After introducing the wasteballs, a period of time should be allowed to elapse to insure proper vaporization of the liquid. This will depend upon weather conditions, for instance, a warm day would call for four or five minutes; a cold, damp day as long as ten minutes. This period can be utilized by placing balls in other burrows. Following the waiting period a match or torch can be applied to explode the gas formed. A good torch can be made by hooking a wasteball on the end of a stiff wire and dipping in carbon bisulphid or kerosene. Such a torch will burn for some time. This explosion will tend to force the gas to the more distant recesses of the burrow, hence insuring better distribution of the gases formed by the explosion.

Immediately following this treatment every burrow should be sealed with damp earth and very tightly tamped to prevent the gas from escaping. Carbon bisulphid should be used only when the ground is sufficiently damp to prevent the gas from escaping, through cracks or porous earth. When properly applied it will produce a killing not approached by any poisoning method.

Exceptional precautions must be observed to keep fire away from containers holding carbon bisulphid in view of the extremely explosive nature of the material.

VICTORY LOAN

The following telegram from Secretary of the Treasury Carter Glass explaining tax exemption features of the Victory Liberty Loan Act has been received by Governor James K. Lynch of the federal reserve bank:

"It is perhaps not generally understood that under the terms of Section 2(a) of the Victory Liberty Loan Act, the interest received on and after January 1, 1919, until the expiration of five years after the termination of the war, on an amount of bonds of the First Liberty Loan converted, the Second Liberty Loan converted and unconverted, the Third Loan and the Fourth Liberty Loan, the principal of which does not exceed $30,000 in the aggregate, owned by an individual, partnership, association or corporation, will be exempt from surtaxes, excess profits and war profits taxes now or hereafter imposed by the United States, upon the income or profits of individuals, partnerships, associations or corporations.

"Not only is this exemption in addition to all other exemptions heretofore conferred, but it is independent of any subscription to the Victory Liberty Loan, and is immediately effective. The Victory Liberty Loan Act also contains a provision authorizing the secretary of the treasury to extend the privilege of converting four per cent bonds of the First Liberty Loan converted and four per cent bonds of the Second Liberty Loan into four and one-quarter per cent bonds, the higher interest rate to be effective from the semi-annual interest payment date next succeeding the date of presentation for conversion.

"Having recommended that this conversion privilege be so extended, I shall of course very promptly exercise the authority thus conferred upon me and issue regulations covering the details."

"KAISER" PEA CHANGES ITS NAME

Farmers who want to buy quantities of the variety of field pea introduced several years ago by the United States department of agriculture from Germany, and then known as the "Kaiser" pea, will save trouble by not using that name any more. These peas are now known as "McAdoos," and they are as widely distributed through the Northwest as "Liberty bonds," which caused the substitution in nomenclature.

A NEW MORNING GLORY SPRAY

An arsenical spray has been evolved by Prof. Geo. P. Gray for the control of the morning glory pest. Examination after spraying shows that the arsenical has been absorbed by the roots to a depth of one foot underground and is still working downward.

From reports received the results are encouraging and the remedy promises to prove efficacious. The proportions of the spray ingredients are given as follows: White arsenic (arsenic trioxid 99 per cent), 12 pounds; caustic soda (lye), 6 pounds; water, 3 gallons. Dilute this stock solution to 300 gallons for spraying.

CANNERY TOMATOES IN ALAMEDA COUNTY

Mr. Fred Drew, manager of a cannery at Niles, asked as to the most desirable varieties of tomatoes for canning, says:

"The most desirable tomatoes for canning are the San Jose Stone, as the skin is very smooth and free from wrinkles, making them easily handled and there is practically no waste. They bear big crops on heavy black soil. Around Niles 30 tons to an acre has been the yield at times. Last year (1918) the yield was light on account of a midseason rain that damaged the crop. Tomatoes in 1918 brought $18 a ton.

"We used some tomatoes from the San Joaquin Valley (Manteca). As the soil was sandy the fruit was small but firm and ideal for catsup or hot sauce."

NEW COUNTY HORTICULTURAL COMMISSIONERS

Several new appointments of county commissioners were made during February. They are:

Amador County, Commissioner J Marchant, Ione. Calaveras County, Commissioner J. B. Luddy, San Andreas. Mendocino County, Commissioner E. W. Dutton, Ukiah; inspectors, J. S. Cotton, Fort Bragg; E. R. Herbert, Albion; S. E. Brooks, Hopland; Will Van Dyke, Ukiah. Solano County, Commissioner G. M. Gates, Vacaville.

IMPORTATION OF AMERCAN APPLES

With 600,000 cases of apples in cool stores in Australia, the importation of American apples will not be permitted, says the London Times.

All Praise the Essex—$1,395

A New Car That Men Have Long Wanted

Thousands Ride In It—Will You?

Note what all are saying about the Essex.

In hundreds of cities it has awakened a greater motor car interest that anyone has seen in years.

Close to a hundred thousand have ridden in the Essex. Ten times as many have been to see it.

The qualities in the Essex which appeal most are those very qualities that are most attractive in the light, cheap car and those of the large, costly one. They are comfort, riding ease, endurance, and elegance at a moderate cost for purchase and operation.

Every Essex Sales Room Now Holds Motordom's Interest

People instantly admire Essex beauty. They speak of the detail and care with which it is finished. They note its lines and talk of features that have been exclusive to costly cars. They are enthusiastic over its riding qualities as shown over rough roads and worn-out pavements. The Essex does not pitch its passengers about. It remains rigid and firm and free from rattles and squeaks no matter how rough the service. There is no need to drive miles out of the way to avoid a rough stretch of road. It goes over the worst roads like a big, costly car.

The Essex is demonstrated on the same steep hills that are used to prove climbing ability by high-powered and costly cars. Speed is shown over the same course that fast cars are demonstrated. Its acceleration is compared to the few cars noted for such performance.

Buyers Being Placed On Waiting List

Dealers have already booked orders for more cars than they are scheduled to receive before midsummer.

It is doubtful if anyone will be able to get an Essex as promptly as he may want it. But by ordering now the delay won't be quite so long.

ESSEX MOTORS

(E-25)



This CONCRETE Manure Pit *will cost you nothing*

The horses and cows will pay for it.

Unless stable manure is kept so that the valuable liquid contents are saved, 50 per cent of the fertilizing value of the manure is lost. An average horse or cow produces annually manure worth $35. The liquid portion is worth nearly half of this. ***A concrete manure pit will save it all.*** So you see how the horses and cows can present you with a concrete manure pit free of charge.

Build one now and get the profits from this form of saving.

Ask for our free booklet telling how to build Concrete Manure Pits. Write our nearest district office.

PORTLAND CEMENT ASSOCIATION

Offices at

Atlanta, Chicago, Dallas, Denver, Detroit, Helena, Indianapolis, Kansas City, Milwaukee, Minneapolis, New York, Parkersburg, Pittsburgh, Salt Lake City, Seattle, Washington

Concrete for Permanence

Los Angeles Market

Los Angeles, March 12, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price, 58 lb.; prices to retail merchants in 1-lb. squares, 61@62.

Dairy exchange prices last week on extras:

Mar.	5	6	7	8	10	11
'19 ...	59	59	59	59	58	58

CHEESE

Brokers' prices:
California fresh, lb. 30½

EGGS

Fresh extras, Produce Exchange closing price, 37 doz.; price to retail merchants, 40@42 doz.; case count, Produce Exchange closing price, 35 doz.; price to retail, 38@40 doz.; pullets, Produce Exchange closing price, 34 doz.; price to retail merchants, 37@39.

Dairy exchange prices last week on extras:

Mar.	5	6	7	8	10	11
'19 ...	37	37	37	37	37	37

POULTRY

Prices to producers: Hens, 34; broilers, 42@50; fryers, 42; roasters, 34; old roosters, 20; ducks, 34; ducklings, 34@35; geese, 28; turkeys, 36@37; squabs, 40@43.
Belgian hares, 16.

LIVE STOCK

By F. P. Allen, Bureau of Markets, Los Angeles

At the prices now paid for current receipts of beef cattle, which are only half fat, finished beef or even three-quarter fed beeves would bring a price about in line with what the average producer considers his herd worth. Prices quoted on the Eastern markets show a $20.00 top but scarcely more than one per cent of the receipts measure up to that standard of quality known as prime. The bulk of sales are made at $14.75 to $17.00 in Chicago and the cattle that sell for these prices are coming from the corn belt states, but are only half fat. So it can easily be seen why this market will not stand a higher price level for steers under present conditions, unless export orders are allotted to local killers and cattle are offered that will qualify to fill those orders. The local market is steady for steers and firm for good cows.

The market is adequately supplied with hogs, and the quality of the receipts is fair. No. 1 hogs of the desired weights still sell for $16.50 f. o. b. Los Angeles.

A few lots of spring lambs have arrived and their quality is very good, but they do not sell very readily on account of the high price that is naturally expected of them. Retailers declare that their trade will not pay the price no matter how good they are. Other lambs are steady for good to choice and weak for lesser grades. Yearlings and wethers are in light receipt and sell steady to strong.

Ewes receipts have been liberal and only light weight good quality are able to make a good clearance.

Reports compiled by the bureau of markets indicate that Los Angeles City is an important live stock market. The following figures represent the receipts of live stock by classes for the month of February, 1918.

Steers 4339, cows, 5776, bulls 435, total beef 10,550; calves 2142, hogs 19,794, lambs 15,156, wethers 909, ewes 3197, total sheep and lambs 21,454; goats 11. Total head

Good steers	13.00@14.50
Medium steers	11.00@12.50
Common steers	9.00@10.50
Good cows	11.00@12.00
Medium cows	9.00@10.50
Common cows	6.00@7.50
Hogs No. 1, 175-225 lbs.	16.00@16.75
Hogs No. 2, 250-400 lbs.,	14.50@15.50
Lambs No. 1, 65@80 lbs.	16.00@16.50
Wethers No. 1	11.00@12.00
Ewes	8.00@10.50

POTATOES AND ONIONS

These are the actual prices obtained March 11 by Los Angeles wholesalers in in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.
on walk.

Demand and movement moderate. Stockton, Burbanks, quality and condition generally good; sacked per 100 pounds, fy., 2.50; resorted, 2.65; ch., 2.00; Idaho Russets, quality and condition fair, 2.25; rurals, 1.75; Oregon, seed stock, White Rose and Red Rose, sacked per 100 pounds extra fy. 2.60@2.65; fy. 2.35@2.50; ch., 2.10; Idaho Russets, quality and condition fair, 2.00@2.10; Oregons, seed stock, White Rose and Red Rose, sacked per 100 pounds 2.85@3.00; Homegrowns, White Rose, best mostly 2.75@3.00.

Carlot sales to jobbers: Stockton Burbanks, sacked per 100 pounds, extra fy. 2.40. Fancy no sales reported. Choice, 1.90@2.00. Idaho Russets sacked per 100 lb., 1.90@2.00.

Sweets, lug box best 90@1.00; sacked 3.00@3.10 per cwt.; poorer, 2.50.

Onions: Demand and movement moderate. Little change in prices. Stockton, sacked per 100 lb.; Browns, best from cold storage, 4.50@5.00; White Globes, 9.50@10.00. Homegrown Green Onions, 15 bunch.

VEGETABLES

These are the actual prices obtained March 11 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz.	1.35@1.60

Cabbage: Sales to retailers, best cabbage, 1.25@1.50 crate.

Carlots: Shipments increasing. Demand good, little change in prices. Quality and condition good. Carloads f. o. b. cash track. Early Winningstadt, California crates, 30.00 ton, crates extra.

California stock ranged 2.75@3.50 per crate in the Middle West. Saturday's shipments of old stock were heavy, of new stock moderate.

Carrots, doz.	45

Cauliflower: Best in cabbage crates, 1.75@2.00; poorer 1.25@1.50.

Carlots: Heavy movement over. Demand moderate, little change in prices, quality and condition generally good, carloads f. o. b. cash track, best stock in pony crates, 1.30@1.35.

California stock was steady at 1.25@1.35 crate carloads f. o. b. cash track at shipping points and was stronger in Northeastern markets at a range of 1.75@2.25 and showed an even more marked gain in the Middle West, advancing there to 1.65@2.25.

Celery: Homegrowns, best, 8.00@8.50; poorer, 5.00 per crate.

Carlots: Supplies practically exhausted. Quality and condition very poor. No carlot sales reported.

Lettuce: Wide range in prices. Sales to retailers: best in cal bage crates, 2.25@2.50.

Carlots: Demand and movement good, little change in prices. Quality and condition generally good but mostly small. Carloads f. o. b. cash track: Iceberg, California crates, Imperial Valley district, 4s and 5s best, 3.75, smaller, 3.25@3.50, Los Angeles district, few sales, supplies scarce, best 3.25.

Imperial Valley stock was firm at shipping points and held steady at 5.00@5.50 in most leading terminal markets, but declined to 4.50@4.75 in Chicago and advanced to 5.00@5.50 in Kansas City.

Parsley, doz.	20@25
Peas, Imperial Valley, lb.	13½@14
Peppers, Chili, lb., best	25
Bell, lb., best	30
Pumpkins, lb., best	1½
Radishes	15
Rhubarb, Crimson, box	1.85
Spinach, doz.	15
Squash—Hubbard, best, lb.	2½@3

Tomatoes, Mexico, condition generally good; best, 3.25@3.50 lug bx.

Turnips, doz.	25

FRUITS

These are the actual prices obtained March 11 by Los Angees wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Bellefleurs, fy. best, medium size, 2.25-2.50; loose, 5-6c lb. Yellow Newtowns, fy. medium size, 3.00@3.50; loose, 7 lb.; Oak Glen, Rome Beauties, Pearmains and Winesaps, large 3.50. Yucaipa, Delicious, fy., 3.00-3.50; King Davids, 2.50-2.75.

Pears: Winter Nellis, lb., 6@7.

Lemons: Fy. packed, 4.00@4.25; local pack, 3.00@4.00; loose, some tree ripe, 1.75@2.00.

Oranges: Navels, medium and large size, fy., 4.50@5.00; local packed, 2.75@3.00; loose, 3½@4 lb.; Tangerines, 6@7 lb.,

Grapefruit: Local fy., 2.50@3.00 bx.; Imperial Valley, 3.00@3.25.

HONEY

Practically no demand or movement. Supplies practically exhausted, prices lower. Carloads f. o. b. usual terms, Los Angeles, and common rate points. Asking prices: Extracted, lt. amber, alfalfa, 17@18; white orange, and lt. amber sage, 20 lb., Comb, lt. amber, alfalfa, fy., case 5.50; No. 1, 5.00; No. 2, 4.00 case. Beeswax, bright yellow and yellow, 37½@40 lb.

BEANS

Demand and movement slow, prices slightly lower. Warehouse cash to growers, choice recleaned basis, sacked per 100 pounds, Limas, best 6.25@6.50; poorer, 6.00; Small Whites, 6.25@6.50, quality and condition ordinary. Large Whites, quality and condition poor, 5.25@5.50; Henderson Bush, best 6.00@6.25; Black Eyes, quality and condition ordinary, 3.00@3.10; Tepary: no sales reported.

GRAIN AND FEEDS

For government prices on wheat see San Francisco market.

Carlot prices on local grain exchange.

Corn, sacked Yellow, 2.57½; White	2.50
Wheat	38.00@38.50
Milo	2.83¾@2.36¼
Barley	2.02½
Egyptian corn	2.50
Feterita	2.52½
Middlings	44.00
Bran	36.00
Standard Alfalfa	18.00@20.00

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat	20.00@25.00
Barley	18.00@23.00
Alfalfa	16.00@20.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:

No. 1 dairy	24.00@25.00
Standard dairy	21.00@22.00
Standard Alfalfa	15.00@19.00

San Francisco Markets

San Francisco. March 11, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale dairy produce exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extras	59
Prime Firsts	Nominal

Prices extras past week and year ago:

Mar.	4	5	6	7	8	10
'19 ...	61	60	60½	61	59	59
'18 ...	50½	50½	51½	..	51½	..

Rcts. wk. ending March 10, 317,200 lbs.

CHEESE

Dairy exch. quotations:

Cal. Flats	30½@32
Cal. Y. A. fy.	30½
Ore. Triplets	28½
Jack, full cream	25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	40½
Extra Pullets	37½

Prices extras past week and year ago.

Mar.	4	5	6	7	8	10
'19 ...	42	40	40½	40	40½	40½
'18 ...	36	39	39	..	39½	..

Rcts. wk. ending March 10, 13,429 cases.

POULTRY

Heavy arrivals of young stock in the local market Tuesday caused the prices of broilers and fryers to drop. Hens also declined from 1 to 2 cents. Dealers now state that this week will see a decline from the abnormal prices which have prevailed for several weeks. Indications point to continued increased receipts in the small chickens.

We quote to producers, lb.:
Hens, 37@40; broilers, 56@58; fryers, 60@61; old roosters, 23@25; young roosters, 39@41; turkeys, dressed, 41@44.
Ducks, 29@31; geese, 29@31.
Belgian hares, live, 16@18.
Jack Rabbits, 3.00@3.50.

POTATOES

Sales to jobbers—California Burbanks sacked per 100 pounds, fy., 1.90@2.00. United States grade No. 1, 1.65@1.85. Idaho Netted Gems, United States grade No. 1, 1.65@1.75. Rurals, United States grade No. 1, 1.50@1.65.

ONIONS

Storage cwt.,	4.00@4.25.
Australian, Brown	4.25@4.50

VEGETABLES

Wholesale selling price:

Artichokes, doz.	50@1.00
Asparagus, lb.	15@25
Beets	1.50@1.75
Brussels Sprouts, lb.	6@8

Cabbage, 50@75; street sales, Early Flat Dutch, bulk per cwt, 1.00.

Carlots: Demand and movement moderate, demand improving. Quality and condition generally good, prices higher. Carloads f. o. b. usual terms and cash track: Early Flat Dutch, California crates 27.00@30.00 per ton.

Carrots, sk.	1.25@1.50
Celery, cr.	8.00@8.50
Cauliflower, doz.	50@75

Carlots: Demand and movement good, quality and condition good, prices unchanged, carloads f. o. b. cash track, pony crates, 12s to 14s, 1.20@1.35.

Cucumbers, hothouse, bx of 30	4.00@4.50
Egg Plant, lb., local,	5@10

Lettuce: Demand and movement moderate, little change in prices. Quality and condition generally good. Street sales: Imperial Valley Iceberg, California crates, 5.50@6.00; Los Angeles Iceberg, California crates, 3.25@3.50.

Mushrooms, bx.	15@50
Peppers, Southern	12@15
Peas	11@15
Pumpkins, sk.	1.00@1.10
Rhubarb, bx	3.0@3.50
Strawberry, lb.	8@10
Squash—Cream	90@1.00
Spinach, lb	3@5
Tomatoes, Mex., cr.	3.00@3.50
Turnips, bag	1.50@1.75

FRESH FRUITS

Wholesale selling price:

Apples: Demand and movement good, little change in prices. Quality and condition generally good. Street sales: California Yelow Newtowns, fy., 3.00@3.25. Oregon, Yellow Newtons, extra fy. medium to large 3.50. Washington, Winesaps, extra fy. medium to large 3.50@3.75.

Bananas	6½@7¼
Olives, lb.	10@12½
Pears—Winter Nellis	3.00@3.50
Common	1.50@2.00

CITRUS

Box: Lemons, 3.00@4.25; Lemonettes, 2.00@3.00; grapefruit, 2.50@4.00; Mandarins, half orange bx., 2.50@3.25; tangerines, half orange bx., 2.30@3.25; Navel, 3.50@4.75; Mex. limes case, 8.00@9.00.

RICE

1918 crop, per 100 lbs: Paddy rice, Nos. 1 and 2, 4.32; 3d and 4th grades, 4.16; clean, fy. Japan, 7½ per lb; choice Japan, 7¾ per lb; screenings, 5⅝ per lb; brewers, 5¼ per lb; rice polish, 60.00 per ton, car lots; rice bran, 30.00 per ton, car lots; early prolific, 4.47. All other grades are to be sold on proportional basic value and proper differentials are to be added for the cost of double pockets.

SEEDS

Flax	8@8½
Millet	5@5½
Rape	2¼@
Hemp	5@5½

GRAIN

Barley: Feed, 1.85@1.90 per cental shipping, nominal at 1.95@2.05.

Oats: Red feed, 2.00@2.15 per cental seed, do, 2.50@2.75; recleaned, 3.00@3.10.

Corn: California yellow 2.50@2.6 per cental; Egyptian, 2.80@3.25 for dry



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ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

and 2.30@2.60 for rain damaged. Milo maize, 2.60@2.75 for dry and 2.30@2.40 for rain damaged.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Cental
No. 1	2.20	$3.62 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58½
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran, 42.00; shorts, 42.00; middlings, 42.00; rolled barley, 48.00 @50.00; alfalfa, 32.00@34; scratch feed, 3.75 per cental.

Citrus Fruit Market

Los Angeles, Cal., March 12, 1919.

The orange market is still exceptionally fine. New York had a flurry during the week owing to strike preventing receipt of the usual supply. When shipping situation was corrected, over half a hundred cars were thrown on the market in one day. The entire supply was taken with scarcely a ripple.

The lemon situation is still indifferent with very limited shipment going forward.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 9706 cars, lemons 2543, total 12,249. To same date last season, oranges 4709, lemons 1283, total 5992. Central California this season, oranges 2959, lemons 338, total 3297; last season to same date, oranges 1897, lemons 108, total 2005. Northern California, oranges 244, lemons 2; last year same date, 202.

AT THE AUCTIONS

March 5

New York: 5 oranges, 4 lem. Nav. higher, 5.40-6.55, Bloods 5.75-6.55, Navelencias 6.30, Tang. halves 3.70-3.95, lem. 2.70-4.15.

Boston: 7 oranges, 1 lem. Lem. higher. Nav. 5.00-6.55, lem. 4.90.

Cleveland: 5 oranges, 4 lem. Nav. 4.50 -6.10, lem. 2.00-3.85.

St. Louis: 9 oranges, 1 lem. Nav. 4.60 -6.10, lem. 2.00-3.85.

March 6

New York: Owing to strike, impossible to get fruit across the bay. Only one car Nav. sold. Nav. 4.45-6.15.

Pittsburg: 6 oranges, 2 lem. Nav. 4.10-6.10, lem. 3.30-3.75.

Boston: 5 oranges, 3 lem. Nav. 5.50-6.70, lem. 3.90-5.05.

March 7

New York: 1 orange, 1 lem. Nav. 6.20, Sweets 6.05, lem. 3.50-3.95.

Pittsburg: 3 oranges, 1 lem. Nav. 3.70-5.50, lem. 3.45.

Boston: 10 oranges, 2 lem. Nav. 5.30-6.25, Bloods 3.45, Tang. halves 3.20-3.95, whole boxes 5.00, lem. 3.95-4.65.

Cincinnati: 2 oranges, 1 lem. Nav. 4.60-5.60, lem. 3.35-4.05.

St. Louis: 7 oranges, 1 lem. Nav. 4.35-5.75, Bloods halves 2.45, lem. 3.25-3.30.

March 10

New York: 54 oranges, 10 lem. Nav. 4.70-6.40, sweets 6.05, Bloods halves 2.35-3.20, Tang. halves 3.30-3.60, whole boxes 5.75, lem. 3.40-4.50.

Boston: 14 oranges, 5 lem. Nav. 4.95-6.50, lem. 3.55-4.25.

St. Louis: 8 oranges, 2 lem. Nav. 4.30-4.95, lem. 2.75-3.25.

Philadelphia: 9 oranges, 2 lem. Nav. 4.45-5.95, sweets 5.60-5.80, lem. 3.15-4.40.

March 11

New York: 33 oranges, 6 lem. Oranges, slightly lower. Nav. 4.80-6.25, sweets 6.05, St. Mikes 6.35, Jaffas 5.35, seeds 5.90, Bloods 6.00, Bloods halves 2.95-3.10, Tang. halves 2.80-3.85, lem. 2.50-4.30.

Boston: 10 oranges, 2 lem. Nav. 4.80-6.15, lem. 3.65-4.20.

Philadelphia: 6 oranges, 2 lem. Nav. 4.25-5.35, lem. 3.00-4.10.

MARKET NOTES

Lent affects the demand for meat but does not this year at least affect the prices.

Colorado reports owing to open winter and good feed livestock gains have been far better than usual. At Denver, present indications are that the eastern half of this feeding district will not market their bulk of fat steers until April and May, while the western half will be short of pulp and will sell their cattle earlier. Market prices of fat cattle will determine to some extent this movement, as they will influence the amount of concentrates that can be fed.

One day's shipments of carlots of mixed vegetables aggregated 26 cars as follows: Denver, 2; El Paso, 3; El Centro, 2; Fort Worth, 2; Baltimore, 1; Chicago, 1; Coalinga, 1; Kansas City, 1; Oakland, 1; Portland, 3; Prescott, 1; Pittsburg, 1; San Francisco, 3; Toronto, 1; Wichita, 1; New York 2.

The first spring lambs of the season were offered Thursday. Their quality was the best this market has had for many seasons.

There has been quite a noticeable decrease in the total kill of Los Angeles slaughterers, yet the supply of dressed meats has been adesuate. The unaccountable decrease in the demand for all classes excepting veal resulted in a rather dull market throughout the week.

The loadings of all classes of live stock during February, 1919, were 14 per cent more than those of the same month a year ago. This increase, however, was very unevenly distributed among the different classes of stock, cattle and hogs showing increases of 9 and 25 per cent respectively, while sheep decreased 1 per cent.

The artichoke crop is very late owing to unfavorable weather conditions. The quality and price are high. About half of the available stock is absorbed by the local demand. Eastern shipments are averaging five express cars daily and would materially increase with milder weather. Fields generally are looking good, but short crop is expected on account of lateness of season. Eastern shipments should be heavy about March 15.

A few small shipments of asparagus from Central California have already been made, but production will begin to count following a few warm days and nights. Beds are in good shape, indicating heavy yield as soon as weather gets warm. The recent cold rain storm was preceded by heavy white frost.

Cabbage in the Fullerton district shows a condition of 60 per cent. The quality is improving and carlot shipments have been increasing each week, but a light cutting is expected this coming week on account of the lower prices and slow demand. Growers expect better prices later.

Following is a preliminary estimate of the acreage of cantaloupes for western states for 1919: California: Imperial County, 13,822 acres; Los Angeles and Riverside Counties, which are carlot districts, 915 acres; Central Section, Turlock and other parts of the San Joaquin Valley, 7,130 acres; total California, 21,867 acres; Arizona, 4,560 acres; Nevada, 150 acres; New Mexico, 975 acres; and Colorado, 4,800 acres. This large acreage is subject to revision, especially in the districts not yet planted. The material increase involves some uncertainty in yields due to inexperienced growers and untried districts, but present indications are for a big production this year.

PARTIAL LIST CALIFORNIA FRUIT AND VEGETABLE SHIPMENTS

From post card reports to the Los Angeles branch of the bureau of markets, report is made of the following shipment of cars of products from California for the week ending March 10: Apples, 24; cabbage, 114; cauliflower, 144; celery, 15; dried apples, 16; dried apricots, 2; dry beans, 77; dried figs, 3; dried olives, 4; dried peaches, 10; dried pears, 1; dry peppers, 2; dried prunes, 36; lettuce, 148; mixed vegetables, 103; mixed fruit and vegetables, 20; mixed dried fruit, 8; onions, 34; pears, 1; peppers, 1; potatoes, 101; raisins, 81; spinach, 15; sweet potatoes, 1; turnips, 2; Mexican tomatoes, 13.

COTTON SEED EMBARGO

Imperial Valley planting of cotton for next season will be seriously reduced unless early relief is secured in the present cotton seed situation. Oriental grown peanut oil is taking place of cotton seed oil at 2 cents lower price per pound. Effort is now being made to secure action by federal war trade board. The L. A. Times reports:

"The situation became so critical that W. E. Keller came to Los Angeles and conferred yesterday with United States Senator Phelan. The result of this conference was a telegram to the war trade board, in which quick relief was asked. This telegram stated in substance, Mr. Abbot said:

" 'The Globe Mills in the Imperial Valley shut down and decline to make any further seed purchases, as they are blocked with over 5,000,000 pounds of oil on hand and no market. Cheaper low grade oriental oil is being imported and is glutting the market, although the California farmers had an understanding with the food administration representatives that when high price was placed on cotton seed no cheap oriental competitive oils would be permitted to interfere with the stabilization price. Globe Mills has paid $63 for wagon lots and $66 for car lots all through the season. Since they stopped buying, a competitive gin is offering only $53 a ton. Farmers claim they are entitled to stabilized prices and respectfully request that food administration do something to relieve the Globe Mills situation. Our information is to the effect that the food administration recommended an embargo on oriental oils, but that the war trade board declined to put the embargo on.

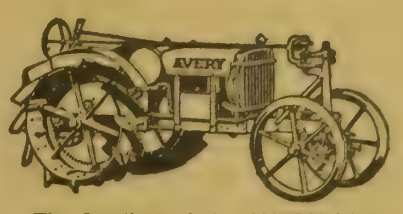
" 'It appears that compound manufacturing interests are opposing this embargo. For the interest of domestic industry it is paramount that this embargo be put into effect.' "

WEATHER CONDITIONS

San Francisco, March 8, 1919.

STATIONS	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	3.42	31.49	33.53	52	38
Red Bluff	.84	23.37	18.64	62	36
Sacramento	.41	16.03	14.74	60	40
San Francisco	.59	23.19	17.40	61	43
San Jose	.60	16.53	12.63	62	32
Fresno	.15	5.82	6.91	64	38
San Luis Obispo	.13	14.60	15.08	66	38
Los Angeles	.02	6.06	11.85	70	46
San Diego	.04	6.32	7.65	72	44

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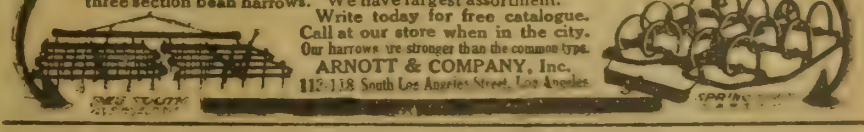
In ordering you need not send us the money in advance; it is enough to send only $1.00 as a sign that you wish to purchase a clock, and the rest you will pay when the clock is delivered to your home.

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Picked Up in Riverside

Written for California Cultivator by Jean A. Koethen.

RIVERSIDE poultry people are feeling more optimistic than for several years. Demand for chicks has been unusually good, and there is a general feeling that the better days we have been looking for are here. "I've never seen a time," said one man, whom I found preparing to take care of 900 baby chicks, "when so many people were getting into the chicken game. Everybody is feeling very confident of a bright future for the industry."

Wing Clipping for High Fliers

I found Mrs. W. G. Suits of the Bandini Poultry Ranch examining a chick's wing from which the first joint had been removed. This is the third season this plan has been tried on the Bandini ranch. The joint is clipped during the first few days of the chick's life. The chick suffers very little, if any, and hereafter will remain inside a six-foot fence. "One thing is very important, though," said Mrs. Suits. "The chick must be put in a dark place as soon as the operation is performed and kept very warm. If this is not done, you will have all kinds of trouble."

Mrs. Suits, like many others who raise thousands of chicks, is preparing to put in electrical brooders. Since gasoline has been of such inferior quality the big stoves have not worked well. This season Mrs. Suits has raised some of her chicks from special matings in fireless brooders of the Philo type in a room warmed by a coal stove, and the chicks have grown quite as well as in the warmer brooders.

Does Organization Pay?

"Things are looking better," said C. R. Brown, president of the Arlington Poultry Association, "but it's the association that has saved the day. The industry here would not be alive now if the Poultry Producers' association had not kept prices up. There has been some kicking, of course, and some outsiders have gotten higher prices than members of the association, but that was because of the association's work. Three years ago we were selling our eggs for less than it cost us to produce them. If the association had not come in just then and kept prices up I don't know where we'd be.

"Just now we are feeling the effects of the unusually warm winter in the East. This has lowered prices to 38 cents when they ought to be 60. Eastern hens have not stopped laying as they usually do in winter, and consequently there is no market for our eggs in the East.

"San Francisco prices? Yes, they are apparently a little better than ours, but you must remember that Petaluma eggs are sold eight cents under the prices advertised in the poultry journals, while ours are sold for four cents a dozen less than the retail price. This makes the price we receive really a little better than that received by the Petaluma people. The Poultry Producers last year handled 2,433,161 dozen eggs and received for them $1,089,410.

"Perhaps it isn't generally known, but quite a good many Petaluma eggs find their way onto the Los Angeles market. With the East almost closed to us, and our own market not ours exclusively, you can see how important organization is."

This reminds me of a story that was told at a recent religious convention in Los Angeles. A certain gentleman had advertised for a coachman and was waited on by a promising young darkey who assured him he could handle any team. A trial drive was taken, with the darkey on the box, handling the team with one hand and cracking his whip here and there with the other. A bee sitting on a sunflower was flicked off with one snap of the whip. Two bees on another sunflower met the same fate. Then they approached a hornet's nest, hanging from the limb of a tree, with two hornets on guard. "Aren't you going to take them?" asked the gentleman as his driver made no move to crack his whip. "No, sah," was the reply. "I won't meddle wid dem. Dey's organized."

Breeds from the Best

Three years ago C. P. Shaw of Bandini Avenue bought eight White Rock pullets of good stock. One of these proved to be an exceptional layer, and he bred from her to the exclusion of the rest. The first year's breeding brought him 15 pullets, all exceptional layers. The best of these laid 264 eggs in her first year, laying at one time 65 straight days without missing. Another laid 280 eggs in her pullet year but was discarded because of a few dark feathers in her plumage. Ten of these hens, a mother and nine pullets, laid 280 eggs in March a year ago, and 15 of these three-year-old Rocks are now laying 12 eggs a day. The 264-egg hen was mated to one of her sons, and one of her daughters laid 76 days straight in her first year and still lays from eight to 12 days without skipping. Mr. Shaw says he has no use for a hen that does not lay 20 eggs in a month. When I talked with him, the last week in February, his 102 hens, part Rock and part Leghorn, were laying 85 eggs a day.

Mr. Shaw has followed the same method of selection with his Leghorns. He purchased 100 chicks of good stock, and when they were mature bred from the one best hen. His flock, without the use of electricity in the the laying house, is making a better record, he claims, than those of his neighbors who turn on the juice at 4:30 in the morning.

Cattle and lumber interests concerned over the proposed extension of Sequoia national forest recently met in Fresno and passed resolutions asking congress to delay action until opportunity is given to investigate boundaries and interests involved.

POULTRYMAN'S CALENDAR—MARCH, THE BREEDING MONTH

Watch the brooders this month. Have them clean and warm for the arriving incubator chicks, and keep them clean and warm for the growing chicks.

Every brooder that was used last year should be scalded and disinfected before the new hatch goes in. Every brooder, old and new, should be cleaned and disinfected when one brood goes out and another goes in.

Remember, chicks double their weight in three weeks. A brooder that holds 50 newly hatched chicks is too small for 50 a month old.

Warmth and cleanliness are the two great needs of the new hatched chick. It is not necessary to clean out under the hovers the first week. After that they should be cleaned out often and new litter put in.

When chicks lie down they are comfortable. As long as they stand around they are not comfortable. If they peep they are chilly. If they crowd together they are cold.

"Pasting up behind" nearly always means that that particular chick has been chilled.

Too much heat after the first week is worse than too little. Overheated chicks are stunted if they grow at all.



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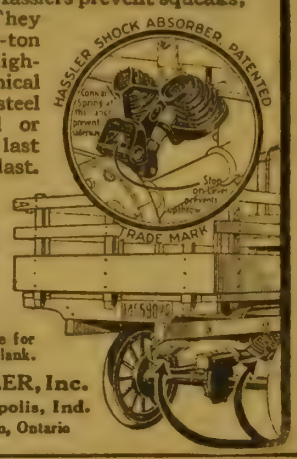
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Increase Power—Decrease Carbon
Save Gas

The rings with a record of eight years successful performance behind them. Power producers because they create uniform pressure all around the cylinder wall, leaving no place for the power to slip past.

Wherever you are you can get McQuay-Norris LEAK-PROOF Piston Rings to fit any car, truck and tractor. Jobbers and supply houses in over 300 distributing points carry complete stocks of standard sizes and over-sizes, backed by a factory stock of 2,000 unusual sizes. The rings are *ready*, awaiting your order.

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"To Have and to Hold Power"—a simple, clear explanation of piston rings, their construction and operation.

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RINGS

A special ring for engines that pump oil.

Used in top groove only of pistons to control excess oil, with McQuay-Norris LEAK-PROOF Piston Rings in lower grooves to insure maximum compression and fuel economy.



Keep Setting Hens Free from Lice

Put Dr. Hess Instant Louse Killer in the nests before adding the litter and eggs, then the brood will come off free from vermin. Put it in the dust bath—that's always a good thing to do. All fowls will sift it into the feathers and the lice will be quickly killed. Just as good for animals as for poultry. With one hand stroke the hair the wrong way, with the other sift in Dr. Hess Instant Louse Killer. Especially good for lousy colts and calves right now.

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The dealer who sells you Instant Louse Killer is authorized to refund your money if it does not do as claimed.

1 lb. 30c, 2½ lbs. 60c (*except in Canada*)

Dr. HESS & CLARK
Ashland Ohio

DR HESS Instant LOUSE KILLER Kills Lice

EIGHTH NATIONAL EGG LAYING CONTEST

February report for contest at Mountain Grove, Missouri:

Fifty-eight hundred thirteen eggs were laid during February by the 300 pullets, making an average of 18.04 eggs per bird, or an average of 207 17/28 eggs per day. This average is excellent—especially so on account of February being our shortest month.

Following are the leading pens for each variety for February:

S. C. Reds, Missouri, 115 eggs; Buff Orpingtons, Missouri, 115; R. I. Whites, Connecticut, 110; Black Langshans, Missouri, 110; R. C. White Leghorns, Missouri, 108; Buff Wyandottes, Massachusetts, 104; Anconas, Missouri, 104; S. C. White Leghorns, Missouri, 104; White Wyandottes, Missouri, 102; Silver Wyandottes, Missouri, 100; White Rocks, Missouri, 100; Buff Leghorns, Missouri, 98; Barred Rocks, Missouri, 95; Brown Leghorns, Missouri, 93; R. C. Reds, Missouri, 88.

The ten leading pens to date are as follows: R. I. Whites, Missouri, 433 eggs; Buff Orpingtons, Missouri, 416; R. I. Whites, Connecticut, 376; Buff Orpingtons, Missouri, 361; R. C. White Leghorns, Missouri, 359; R. C. White Leghorns, Missouri, 355; Buff Orpingtons, Missouri, 347; White Wyandottes, Missouri, 347; Black Langshans, Missouri, 342; Silver Wyandottes, Missouri, 338.

The following hens laid 25 or more eggs during February:

Buff Orpington, Missouri, 27 eggs; R. I. White, Connecticut, 26; White Rock, Missouri, 26; Barred Rock, Missouri, 26; Buff Orpington, Missouri, 26; R. C. Red, Missouri, 25; R. C. Red, Missouri, 25; R. I. White, Connecticut, 25; R. I. White, Missouri, 25; White Rock, Missouri, 25; White Rock, Missouri, 25; Buff Orpington, Missouri, 25; Ancona, Missouri, 25.

FEEDING DUCKLINGS

By Jean A. Koethen

Ducks do best on soft food. After they are grown they may be given a hard grain ration once a day, but while they are growing a moist mash is absolutely essential. The secret of raising ducklings rapidly is to begin with a very simple nursery feed, and then make it richer as fast as the ducklings can stand it. A successful grower of market ducks gives a nursery feed of equal parts rolled oats and cracker or stale bread crumbs, with ten per cent coarse sand. This is fed dry the first two days after the ducklings begin to eat, and moistened with water till it is crumbly four times a day till the end of the first week. After the first week, and until the third, equal parts rolled oats (or oats ground with the hulls sifted out) and bran, with ten per cent corn meal added, five per cent coarse sand and five per cent fine beef scrap, which has been scalded before mixing, are moistened till crumbly, and a little fine cut green stuff added. This is fed four times a day. As the ducklings grow, the proportion of corn meal, beef scrap and greens is increased.

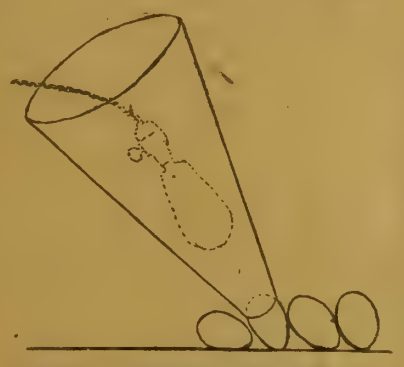
Another successful duck man feeds fine cracker or bread crumbs sprinkled dry on a board covered with sand the first day. From the second to the tenth bran with considerable sand mixed in it is moistened and fed on the board. From the tenth day till the end of the first month an increasing amount of cut greens and corn meal is added till by the end of the month the mash is equal parts corn meal and bran with 15 to 20 per cent green stuff. This man feeds no meat in the ration.

Ducklings should have water for drinking only, and should not be allowed to wet their down until it has turned to feathers.

TESTING INCUBATOR EGGS

Candling or testing out the eggs after five days in the incubator is no small task, and every appliance which simplifies the operation should be availed of. Here is a hint from W. H. Macy of Glenn County which will save much of handling, and best of all is to be had practically without cost:

"To those having electric lights who are running incubators: Take a piece of thin cardboard or very heavy paper,



Homely, Homemade and Effective
Cardboard candler, or tester, for incubator eggs. Suggested by W. H. Macy.

white on one side, and 12x16 inches in size. Roll into a cone, white side in, with opening in small end ⅞ inch in diameter and large end 5 inches in diameter. Insert lighted bulb into this cone and pass over the eggs on the incubator trays, pressing small end of cone over each egg as illustrated below. We hatch several thousand chicks each spring and have found this test the most economical and most satisfactory."

RHODE ISLAND WHITES' NEW OFFICERS

The Rhode Island White Club of America has elected officers for 1919 as follows: President, Harley B. Caldwell, Canutillo, Texas; first vice president, P. W. Harris, Edmond, Washington; second vice president, F. W. Frederick, Cassidy, B. C., Canada; third vice president, F. W. Cumpstone, New London, Connecticut; fourth vice president, Miss Alice L. Anderson, Windham, New Hampshire; fifth vice president, W. R. Swift, Waverly, Illinois; secretary-treasurer, M. E. Bemis, P. O. Box 1376, Phoenix, Arizona; election commissioner, Mrs. C. M. Vertrees, Cecilia, Kentucky; executive committeeman, N. R. Chamberlain, St. Paul, Minnesota.

WHAT PAT HAD BEEN EATING

Pat trotted downtown to a jewler's to buy a ring for his wife-to-be. After waiting until he could obtain the ear of the clerk, Pat whispered, hoarsely:

"Give me the best wedding ring you have in the shop."

"Eighteen karats?" queried the clerk.

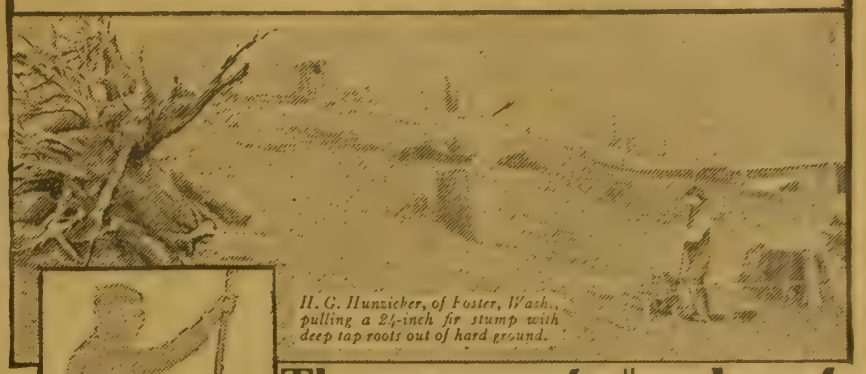
"No," snapped Pat, drawing back in an offended manner. "Atin' onions, if it's any of your business."

I do the very best I know how—the very best I can; and I mean to keep doing so until the end. If the end brings me out all right, what is said against me won't amount to anything. If the end brings me out wrong, ten angels swearing that I was right would make no difference.—Lincoln.



Chickens Sick or Not Laying?
Most poor layers are "OUT OF CONDITION" or have Colds, Roup, Bowel trouble, Sore head, Chicken pox, etc. GERMOZONE is the best remedy for all these disorders. At dealers or postpaid 75c, with 5 book Poultry Library. GEO. H. LEE CO., Dept. 418 OMAHA, NEB.

Big Money In Stump Land



H. G. Hunzicker, of Foster, Wash., pulling a 24-inch fir stump with deep tap roots out of hard ground.



This man made $35 Land Worth $200 an acre Pulling Big stumps by hand

CLEAR your stump land cheaply—no digging, no expense for teams or powder. Your own right arm on the lever of the "K" Stump Puller can rip out any stump that can be pulled with the best inch steel cable. I guarantee it. I refer you to U. S. Government officials. I give highest banking references.

HAND POWER
K Stump Puller

Showing easy lever operation



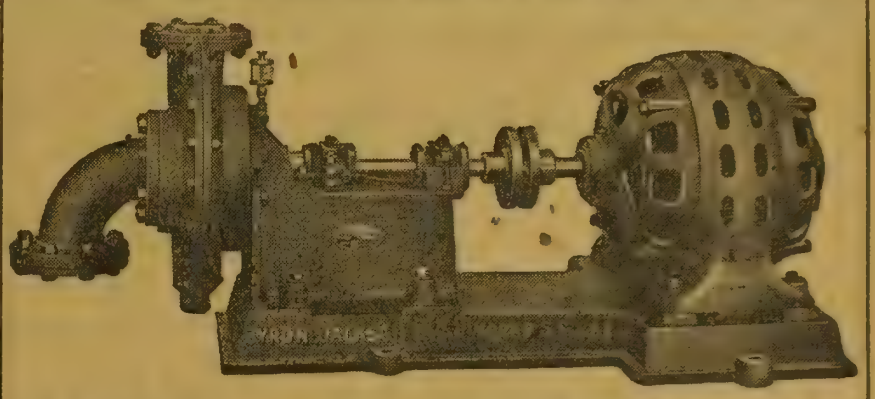
One man with a "K" can outpull 16 horses. Works by leverage—same principle as a jack. 100 lbs. pull on the lever gives a 48-ton pull on the stump. Made of best steel—guaranteed against breakage. Has two speeds—60 ft. per minute for hauling in cable or for small stumps—slow speed for heavy pulls. Works equally well on hillsides or marshes where horses cannot go.

Write me today for special offer and free booklet on Land Clearing.

Weight, without cable, 171 pounds

Walter J. Fitzpatrick
Box 17
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San Francisco, Calif.

No Stump Too Big For The K



Have You a Producing Ranch?

If not, Why not?

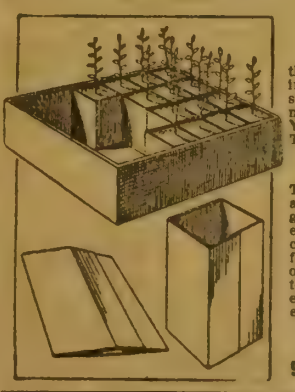
The difference between a "live" and a "dead" Ranch is "Water" and "No Water."

"Byron Jackson" Pumps meet every water condition

Write us giving your water conditions and requirements. Our New Catalog No. 60-B for the asking.

Byron Jackson Iron Works, Inc.

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Perforated Tree Protectors



that will keep squirrels, rabbits and gophers from barking your trees and give perfect protection from the hot sun, sand storms, raking bark in cultivation, etc. We make a number of kinds of wraps, among these are the Yucca which has the fastening wire entirely around it. Tell us your pest and we will tell you what kind to use

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour. For starting early vegetables, such as tomatoes, cabbage, egg-plant, cauliflower, cucumbers, cantaloupes and squash. Also, for propagating rose cuttings, geraniums, eucalyptus or olive cuttings. It is the most practical pot on the market today for propagating work. Write us for samples of either pots or protectors. Tell us which you are interested in.

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935 E. Central Ave. Redlands, Cal.

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.



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This harrow cuts deeper, pulls easier, pulverizes the soil more thoroughly and wears longer because the disks are made of cutlery steel, forged sharp. They make the

Clark "CUTAWAY" Double Action DISK HARROW

the most efficient harrow obtainable. You will save days and dollars preparing your ground and get much more out of it if you use a CLARK "CUTAWAY."

Forty years universal use prove it the most profitable of all investments. Don't try to save by buying inferior harrows with ordinary disks that soon bend, crack, and break. Write today for our free book "The Soil and Its Tillage" and more about the harrow with the forged disks. Ask your dealer about the genuine CLARK "CUTAWAY" tools.

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E. P. BOSBYSHELL CO. *General Agents Clark's Harrows*
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Fertilizer is to the tree what gasoline is to the engine. If you want small returns feed little, if you want BIG RETURNS feed liberally.

Ninety per cent of the non-paying groves are the UNFERTILIZED groves. Feed your trees into the dividend paying class by using

Hauser's Organic Fertilizers

Built for California Conditions

Send for booklet "Fertilizer Efficiency"—tells you why.

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10 FOOT CINCHES LONG — DOUBLE LOCK SEAM — ONE PIECE BODY
MANUFACTURERS OF
Well Casing, Tanks, Riveted Water Pipe and Supplies
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CORRUGATED AND PLAIN TANKS

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Foreign Parcel Post Service

By Grosvenor M. Jones, Assistant Chief Bureau of Foreign and Domestic Commerce

The past four years have seen great changes in the course of foreign commerce, and in many respects the position of American exporters is vastly superior to that before the war. A merchant marine commensurate with our needs has been built up, and foreign banking facilities are rapidly being extended. Trade barriers are being broken down and accurate information on the needs and requirements of foreign markets is being made available to all who are interested. At the same time there are indications that the competition will be more keen than ever, and advantages secured by the temporary absence of competition can be retained only by superior service.

Because of its intimate connection with the promotion of foreign commerce the bureau of foreign and domestic commerce has a special interest in the extension of the international parcel post. American materials will generally find a market without special assistance and it is with the markets for manufactured goods that this bureau is most concerned. The sale of manufactured products is not merely more profitable than the exportation of raw material, but it provides a sounder basis for our economic prosperity.

Opens the Way to Increased Business

It is in the extension of markets for manufactured goods that the parcel post will have its greatest value. The parcel post is, so to speak, a wedge by which foreign markets are entered. Before large orders are placed foreign importers will usually insist on having samples of the goods, or a small trial order will be placed. If the goods are delivered satisfactorily and economically, the way is opened to a profitable business. On the other hand, if the exporter is obliged to decline the initial request because the facilities for making shipment are lacking, his prospects of doing further business have vanished. Rather than decline orders from countries to which no parcel post service is in force, some of the larger houses adopt indirect means of making shipment at greatly increased expense, such as shipping the packages to British ports to be forwarded through the British parcel post.

On account of the difficulties involved this course is not usually open to the smaller exporters, and the first attempts at exporting have often met with so many discouragements that the export trade has been abandoned to the more experienced firms. With a more complete parcel post service foreign markets would be opened to many manufacturers without special export organizations, while the older firms would be able to extend their business greatly. As a direct result of an extension of the parcel post, goods shipped on repeat orders would undoubtedly be exported to many times the value of the introductory parcel post shipments.

The parcel post package is the representative in foreign lands of American industry. It stands in the position of the commercial traveler soliciting orders, and on its efficiency depends the continuation of profitable business.

It is unnecessary to mention that the principal European countries have service to almost every corner of the earth. A mere enumeration of the countries reached by the British parcel post, but to which there is no service from this country, shows at once the great advantage with which British firms enter the field. Right at our very doors are Canada and Cuba with which we have no regular parcel post conventions, and other countries with which we have parcel post arrangements and which offer excellent prospects for increased business include Spain, Switzerland, British India, Egypt, the Union of South Africa, Algeria, Morocco, and a large number of smaller countries. To each of these the British exporter can send his personal representative direct in the form of a parcel post package, but American exporters can not.

The commercial importance or unimportance of a country is not the true standard for measuring the need of parcel post service. There are few countries in Europe the commercial relations with which would be as seriously disturbed by the termination of parcel post service as actually occurred when the convention with Chile was abrogated in 1917. Moreover countries now receiving only moderate quantities of American goods may become important markets when the parcel post becomes available. Reference is made to Egypt, India, Morocco, and the colonial possessions in Africa.

From the many letters concerning foreign parcel post service received in the bureau of foreign and domestic commerce it is evident that many people fail to realize what has already been done to make the parcel post service an efficient means of commerce. During the course of the war the extension of the service was naturally limited, but negotiations have been resumed, and at least one new country—Siam—has been opened up to our trade since the signing of the armistice. Even during the war several marked improvements were made particularly in the extension of the limit of weight to 20 pounds for four Latin American countries. It is understood that, where possible, new conventions will be made on the same basis.

BARLEY FULL OF WEEVILS

The following item from the Madera Mercury indicates a danger to large quantities of poisoned barley held over winter. When county horticultural commissioners adopt the policy of mixing their own poisoned grain as needed, having it always fresh and bright, the general efficiency of the poisoned barley method will be increased.

"The poisoned barley at the court house, which was purchased some time ago for poisoning squirrels and of which there is several tons still remaining in the court house basement, has been attacked by an army of little black weevils. The poison has no effect upon the bugs and they lead an army against every barrel. The barley was threatened with immediate destruction and the county would lose several hundred dollars unless something was done. Horticultural Commissioner George Marchbank summoned his forces Saturday afternoon, consisting of Major D. F. Edwards, a bottle of carbon disulphide and a few wasteballs. Every barrel of barley was opened and a wasteball saturated with the disulphide was placed inside. The victory was grand and glorious. It not only drove the bugs out, but it also drove everybody else out of the court house basement and even today those compelled to go there on business remained no longer than necessary. The floor is literally covered with dead bugs, and those that escaped are dying from overwork trying to crawl up the basement walls."

Incidentally, it might be mentioned that Commissioner Roullard also successfully treated seven tons of poisoned barley for weevils.

Household Department

WHERE THE SMILE-FLOWERS GROW

) I wish I knew where the Smile-flowers grew
And the time of the year they bloom;
should go and gather a load or two—
(Or as much as I had room)
nd I'd scatter smiles the whole day long
Through sunny days and through rain
would smile and smile till the flow'rs were gone
Then I'd go and get more again.

f I ony knew where the Smile-flowers grew
I'd gather them fresh each day,
nd where'er I'd go I should take them, too
And leave a Smile-bouquet.
nd the clouds would reflect the flow'rs I had
Till a rainbow was formed of tears,
or all whom I met would smile and be glad
And forget the sorrowful years.

f I really knew where the Smile-flowers grew
I'd just take my friends along
nd we'd go in the morning while yet the dew
The Smile-flowers glistened on,
nd we'd take our lunches and stay all day
And all through the fields we'd roam,
nd when it was growing too dark to stay
We'd carry the flowers home.

nd then to the sick shut in alone
With their burdens so hard to bear
Ve'd carry the smile we had brought back home
And leave a large number there.
nd then to the sad who were tired of life
We'd carry some smiles and go,
ill they, too, smiled and forgot earth's strife
And the Smile-flow'rs scattered their woe.

ut they say the only place Smile-flowers grow
Is down in a gunshiny heart;
nd I half believe that it must be so,
And I've a good mind to start
Smile-flower garden all my own
And cultivate smiles each day,
nd I'd gather the flowers, then, right at home
And never need go away.

—Herbert Buffum.

THE BUTTERWORTH BAYS

WITH an odd little jolt, suggestive of cramped muscles, Uncle Billy Edwards raised himself from his bent position over the old farm grindstone, and ran a critical eye along the scythe he had been grinding. He ested the "feather edge" of the implement, and nodded approvingly.

Then his keen old eyes wandered across the creek below, and out to he far side of the little valley, where, n the upper part of the wide Butterworth meadow, a big bay team, atached to a sulky plough, was workng steadily. The big team handled he rather heavy plough with dignified ease.

"Good team Joe's got there—crackn' good team, I call 'em!" he muttered. "But I'm afraid they cost him pretty penny. I'm afraid,"—his harp old eyes came slowly back over he great blossoming meadow to the arm buildings below,—"I'm afraid here's something wrong with Joe—Joe and Dorothy. Here 'tis now, time o begin haying, and Joe just ploughng for buckwheat. Ought to have had the crop in, and out of the way, wo or three weeks ago. Used to be n time,—if anything, a little ahead, —Joe did. And those doors, now, at he big floor of the barn, hanging crisscross like that, with twisted track and sagging braces, just for the lack of a few spikes and an hour or two of work."

The old farmer carefully replaced he sheltering "hood" over the grindstone. His eyes returned to the farm buildings below. "And the yard round the house begins to look cluttery. Dorothy used to keep it as neat as could be. And the poultry yard—I don't believe there's more than a dozen odd scrub hens in it; and—"

"Good afternoon, Uncle Billy!"

The old farmer turned quickly, and at sight of a trim, alert girl in a neat-fitting muslin gown and jaunty hat, a quick smile of welcome lighted up his face. "Why, how-d'ye-do, Dorothy? How are ye, child? Come on up to the house. Your Aunt Mary'll be glad to see you. Come right along."

Dorothy Butterworth's black eyes softened at the warm greeting; but she shook her head.

"I can't stop—not today, Uncle Billy. It's our Saturday Afternoon Club over at Benton, you know, and I'm secretary. I'm taking the third rail today instead of driving. You see, I shan't have time to stop."

Uncle Billy's face fell. "Oh—yes, I see," he said slowly. "But I thought your club meeting was yesterday, Dorothy."

"I said Saturday Club, Uncle Billy. Yesterday was the D. A. R. meeting."

"Oh, yes, that's so. But you haven't been over in a long time. Couldn't you come the first of the week? Monday afternoon, say?"

"We have our Monday Study Club then; and, really, I don't know when I could get away. I've promised to help the Christian Endeavorers with their entertainment; and then there's a library meeting, and—"

"Don't you get tired of—of being away so much, Dorothy?"

Uncle Billy had turned uneasily, and was again looking toward the big meadow. Two bright spots flamed suddenly in the young woman's face, and her black eyes snapped. "I should be tired enough if I didn't get away pretty often—if that's what you mean, Uncle Billy. I like to feel that someone cares for what I do occasionally."

For a moment the old farmer fumbled awkwardly with his hat; then he said, "I've—I've been afraid there was something—something between you and Joe. It seems as if neither of you took much interest in the home place any more. I don't want to meddle,—you know that, Dorothy,—but I wish—I wish I could—"

The girl shook her head. "You can't, Uncle Billy. You can't help a bit." She spoke with a kind of hopeless firmness. "If I thought Joe cared—really cared for me, as he used to care—it would be different. He doesn't. You think I'm away from home too much, I know. Well, I am away—but Joe's away until late every night, and a good share of the days. I don't know where he goes or what he does—and I don't care."

She lifted her round chin proudly, but her voice trembled a little.

"Joe cares more than you think, maybe," said the old man. "He—"

"Uncle Billy, I'll tell you what Joe Butterworth cares for. He cares for a few cronies of his over at the Corners; he cares for the thoroughbred stock he's starting to raise; but more than anything else in all this wide world, he cares for that big new team of his,—the bays,—Ned and Dandy Jim yonder." She pointed toward the distant field where the horses were ploughing.

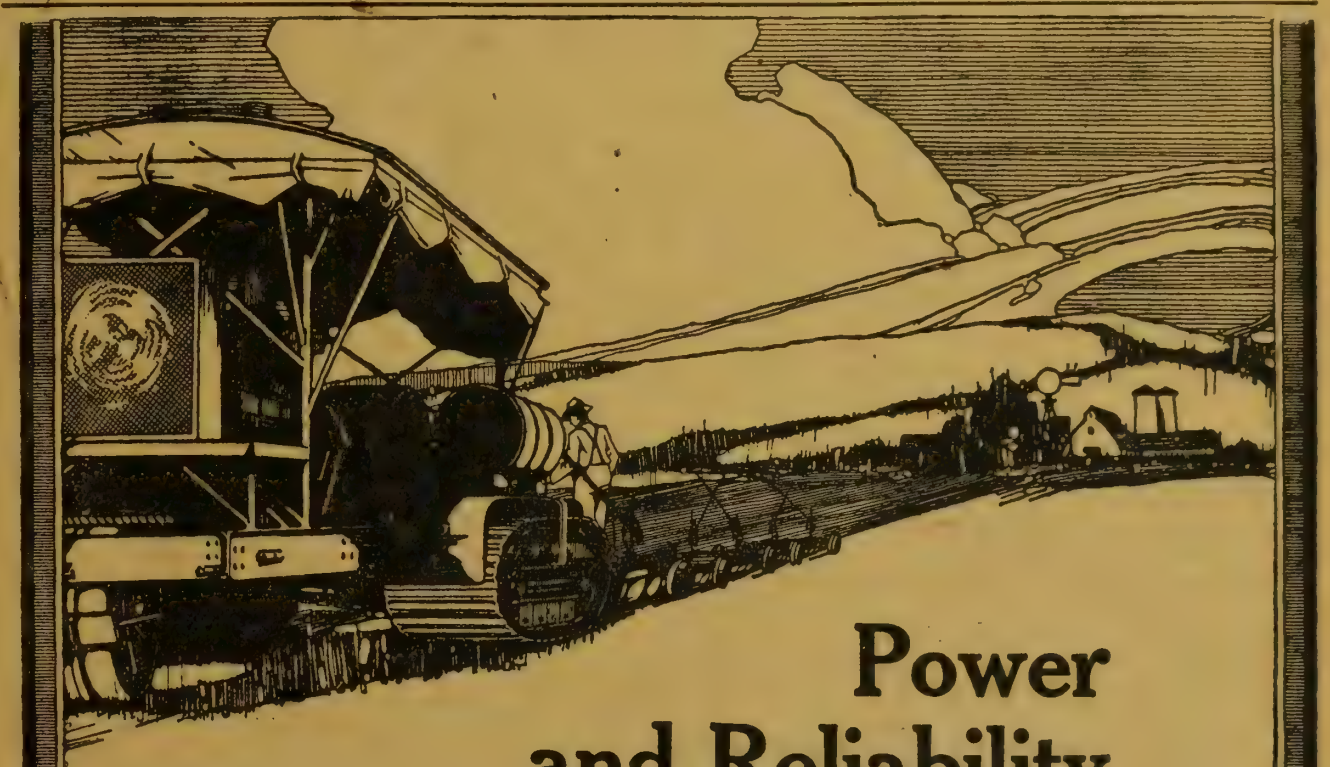
"They are a fine team, Dorothy, but—"

"Of course they're a fine team, but it's a little hard for me, Uncle Billy, he cares more for that team—anyone can see it—than he does for me, his wife, a thousand times more. He—he cares—" She stopped suddenly, with her face aflame. "Uncle Billy, what have I said! I'm ashamed to have spoken like this. I've never said a word before. You—you'll understand, won't you? I—I must go now." She turned, yet not so quickly that the old man did not see the tears that trembled underneath her long lashes.

The crossroad that led to the little, uncovered platform of the electric railway nearly touched the far upper end of the big Butterworth meadow where the late ploughing was going forward. Joe Butterworth could hardly fail to see the alert, neatly dressed young woman who passed quickly by. But there was no sign, even the slightest, from either man or woman that they saw each other. With a set, hard look on his face, the young farmer turned at the end of a furrow, spoke to the big team in his usual quiet tones, and ploughed on steadily.

The hard look had deepened perceptibly on Joe's face within the past year. Just how the gulf had begun to widen between himself and the girl he had married five years before, he hardly understood.

All the afternoon he ploughed steadily; the long, straight furrows fell exact and true, for he could do good work when he chose, and the big bays did their part faithfully. A flash of



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Power and reliability, coupled with right design, are essential requirements of the successful tractor.

Power sufficient for the heaviest work—the "peak loads" of farming, freighting or road work. Reliability that insures the work being done on time, whenever and wherever the demand comes, and regardless of the conditions. These features the "Caterpillar" Tractor has been showing for many years—providing ample, economical power and giving consistent, reliable service in every kind and condition of work. But most important to consider is the design of the tractor in which these qualities are contained. Holt design—imitated but unequaled—makes the "Caterpillar" Tractor easily the foremost tractor of the world today.

"Caterpillar" Tractor superiority is an established fact—established by the service this tractor has given its thousands of owners—established by the rigid Government tests resulting in extensive purchases of "Caterpillar" Tractors for war service—established by the performance of those tractors in the Great War.

Let us tell you more about the "Caterpillar" Tractor—how it can be put to profitable use for you—how its record in peace and war makes it your logical choice. Send for catalog No. 394.

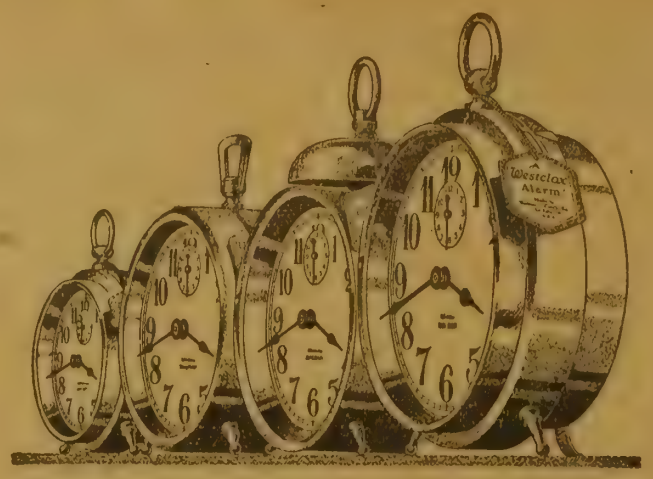
"Caterpillar" 75 and 45 Tractors for Immediate Delivery.

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CATERPILLAR

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Westclox

HERE they are; the four top-notchers in the Westclox line. Big Ben heads the family. He's a good, substantial timekeeper and a loyal call-clock.

At his right, America: trim, alert, competent. Then Sleep-Meter, a close second to Big Ben; refined, neighborly, watchful.

Last but least only in size comes little brother, Baby Ben, who tucks cozily into places where Big Ben might feel out of place.

They're all faithful timekeepers and punctual alarms. They all have that same good Westclox construction. They all wear our quality-pledge, Westclox.

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Railway and Land Co's. are offering **unusual inducements to home-seekers to settle in Western Canada** and enjoy her prosperity. Loans made for the purchase of stock or other farming requirements can be had at low interest.

The Governments of the Dominion and Provinces of **Manitoba, Saskatchewan** and **Alberta** extend every **encouragement to the farmer and ranchman.**

You can obtain excellent land at low prices on easy terms, and get **high prices** for your **grain, cattle, sheep and hogs**—low taxes (none on improvements), good markets and shipping facilities, free schools, churches, splendid climate and sure crops.

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GIVES GREATEST VALUE FOR LEAST MONEY
IT MAKES THEM FAT

Hauser Packing Co. Los Angeles

When writing advertisers, mention The Cultivator

the old pride lighted up his face occasionally, as he watched the steady, even work of the great team.

Late in the afternoon a summer shower came up unexpectedly, and swept down over the big south hill—a torrent of rain, accompanied by a fierce, twisting wind that made the wide-armed maples bend perilously.

From the shelter of the old hay barn in the upper part of the meadow, Joe looked out at the brief shower. In the pouring rain the valley below, with its cluster of home buildings, seemed only more desolate and uninviting than before. The flock of mongrel hens caught suddenly in the storm rushed for shelter. He smiled a little grimly when one of the sagging barn doors, wrenched from its insecure fastenings, was flung across the barnyard.

"Don't know as it makes much difference!" he muttered. "There's no one there to see."

He went round in front of the waiting team, in order to lift the great collars and adjust the heavy manes. Instantly their small, alert ears came forward in friendly greeting, and both soft, sensitive noses began a prompt investigation for sweets. Joe Butterworth's face lighted up quickly.

"There, there, quit that, you Dandy Jim! Stop your fooling, Ned, you rogue!"

He slapped the smooth necks affectionately. "You know well enough you don't get sugar till night. A few times more across and we'll quit and call the ploughing finished."

The storm was about over, and backing the team out carefully, he resumed his interrupted ploughing.

The return furrow was little more than half completed, however, when the big bays halted suddenly, and with their ears thrust forward, stared at a grotesque little figure that came stumbling across the furrows in frantic haste.

"Look out there, you Billy Mead!" Joe Butterworth called sharply, as the child stumbled and fell almost beneath the feet of the horses. Then he saw the boy's white, scared face. "Why, what is it, Billy?"

"O Joe!" The boy was breathing hard. "Ma—ma she said to run fast and tell you. There's been an accident at the flag station. They telephoned to ma—and—and ma said to run fast—and—O Joe, you hurt awful!"

But the young farmer's grip on the child's arm tightened. "Tell me, Billy, now!"

"They were at the station, Joe—just off the car when the storm caught and drenched them, Mrs. Butterworth, and some woman come to visit up to Steve Gray's,—and it blew them onto the track.—and Mrs. Butterworth fell down—and—and got against the third rail, and she's—she's dead!"

For some minutes Joe Butterworth stood quite still in the furrow, staring about him. The big team waited patiently. The boy, rubbing his arm where the man's strong fingers had gripped it, edged away slowly, and then ran back across the furrows toward home. Suddenly Butterworth turned, and with set, white face, walked swiftly across the field toward the crossroad that led to the little station. A sharply defined vision seemed to unfold itself before his eyes, a vision of himself and the bright-eyed girl he had married, and of their life together. Curiously enough, he saw, not the last unhappy years, but only the first beautiful ones, when the girl had bravely placed her hand in his and had started with him to build a home.

Then presently, like an ugly knife thrust, came the memory of the last unhappy months—to end like this!

He vaulted the fence and stood in the narrow crossroad.

"Joe! O Joe!"

(Continued next week.)

FROSTED ORANGES MAKE GOOD MARMALADE

The Los Angeles County Farm Bureau Monthly tells how to make good orange marmalade from frosted fruit; also candied orange peel.

Orange Marmalade

Wash, wipe and slice thin 5 oranges and 3 lemons; weigh. To each pound of the fruit allow 1½ quarts of cold water. Set aside for 24 hours, then bring rapidly to the boiling point. Boil violently 45 minutes. Set aside for

The Cultivator Patterns



8911—Girls' One Piece Dress. Cut in sizes 4, 6, 8 and 10 years. The sleeves may be long or short.

8915—Ladies' Waist. Cut in sizes 36, 38, 40 and 42 inches bust measure. A tiny lace-trimmed shield fills in above the low crossing of the fichu.

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PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
CALIFORNIA CULTIVATOR
Los Angeles.

another 24 hours, then weigh again; bring to the boiling point. To each pound of fruit with the juice, allow ¾ pound sugar, and juice of two lemons. More lemon juice may be added if desired. Boil 45 minutes, timing from the moment the marmalade begins to boil. Place in glasses.

A clear jelly may be made from the strained juice.

This marmalade made from frosted oranges is cloudy in appearance, but good to the taste. Recipe makes about 16 glasses; beet sugar was used. If a thermometer is used for testing, it should register 220 degrees F.

Candied Orange Peel

Wash and wipe the oranges, remove the peel, cut it into ¼ inch sections lengthwise with a pair of scissors. Cover the rind with cold water. To each pint of water allow 1 level tablespoon salt. Bring slowly to the boiling point; boil 15 minutes; drain off water. Repeat the process four times, omitting the salt. During the final boiling, cover the kettle and boil 20 minutes. Drain thoroughly. Place in a shallow graniteware pan; cover with a heavy sirup made by boiling 2 cups of sugar with ½ cup water together for 10 minutes. Gently cook the rind in the sirup until clear; then remove from the sirup; drain well. Roll in coarse, crystal sugar, pack in shallow air-tight tins or jars. The rind may be placed in jars with the hot sirup. Sterilize for 10 minutes, tighten covers. Keep as you would canned fruit. Reheat, drain off the sirup and roll in sugar. Fine to use in fruit cake or steamed pudding.

The orange rind may be cut into halves or quarters, crystalized and dried. Geep in covered jars.



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Genuine comfort if you ask for and get—

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Martha Washington Comfort Shoes

Beware of Imitations—name and trade-mark stamped on the sole.

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MILWAUKEE Mayer CUSTOM MADE HONORBILT



37 DIFFERENT STYLES

FIX IT YOURSELF

Written for California Cultivator
By Elinor Rives

So many women seem to think that when their electric iron goes "whish" with a flash of fire and a puff of smoke, and then refuses to heat up again, they must postpone their ironing till the "handy man" gets home; or they can secure the services of an electrician. Ten minutes is plenty of time to fix it yourself. Take out the screw which holds the plug together, then slowly take it apart, noticing carefully how the parts are assembled. Cut off the frazzled ends, pull the insulation back an inch or two, and put together.

When the kitchen faucet drips, don't wait for the plumber while your water bill runs ever higher; fix it yourself. Don't take the top out of the faucet, unscrew it from the wall. You will see a worn, pear shaped washer fastened by a cap and nut. It is no trick at all to replace the washer with a new one and screw the faucet back into the wall.

The ladies forgot to mention that besides using flour sacks to make B. V. D.'s for the family, towels, napkins, handkerchiefs, etc., they make very pretty sash curtains, also curtains for that (usually) unsightly place under the sink. They may be dyed or stenciled, while the sugar sacks may be hemstitched readily and look like scrim. I have made every-day tablecloths by putting two or four together with cat-stitching.

Only a fool has to go broke to learn that it's easy to drive a car down hill.—Binghampton Press.

A Piano House
Which Serves When It Sells

When you come to Sherman, Clay & Co. we prefer to consider your requirements first, for there are all grades of Pianos, and what would be the proper instrument for the Living Room may not be the best for the children's piano lessons. Take us into your confidence and we know we can fill your every requirement as to price, terms, style, tone, etc. We will serve you to our best ability and the transaction will be mutually satisfactory.

We invite you to call at any of our stores—or write us asking for illustrated catalogs and prices.

We are dealers in Steinway and other Pianos, Pianola Pianos, Aeolian Player Pianos, Player Music, etc.

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There is remarkable engine value and efficiency for every farmer who buys the new 1½ H.P. "Z" farm engine—from the local dealer, of course. This new size successfully uses

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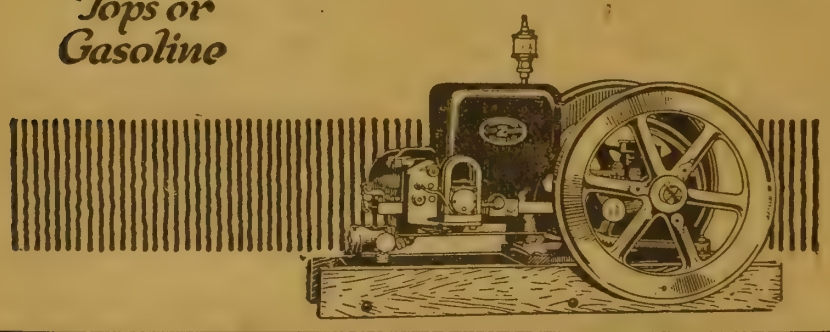
and *completes a line* of farm engines—1½, 3, 6, 10, 15 H. P.—all of which are kerosene engine marvels. Over 200,000 farmers—now using the "Z" on their farms—will, we know, say that the performance of the "Z" exceeds even their expectations.

Throttling Governor—Built in Oscillating Magneto.

Prices 1½ H. P. $61.00—3 H. P. $100.00 — 6 H. P. $179.00 — F. O. B. Factory

Also runs on Distillate Coal Oil Tops or Gasoline

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MANUFACTURERS CHICAGO



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Cushman Engines
For Pumping

Why purchase an engine for pumping only. CUSHMAN engines run smoothly, steadily, almost noiselessly. They use gasoline or distillate, with guaranteed economy. High speed, with throttle governor and perfect balance, gives smooth, continuous flow of power and insures uniform speed, so that the pump or machines gives out its fullest capacity.

Built Light ——— Built Right

So that explains why they are more durable than the common types weighing four or five times as much. There are no violent, irregular explosions nor the ever-changing speeds of the heavy hit-and-miss types.

Only All-Purpose Farm Engines

When the pumping is over use your engine for other work. Being light, compact and with wide range of speed, it is easily and quickly adapted to any work. All sizes furnished with friction clutch pulley, Schebler carburetor, throttling governor, forced water circulation, battery or magneto ignition.

The Cushman Satisfies Every User----Satisfy Yourself

SEE YOUR DEALER OR WRITE FOR CATALOG.

Thomas R. Browne

Factory Representative

OFFICE AND WAREHOUSE: STOCKTON, CAL.

At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

Dipping Wheat Seed

NORMAN F. D'EVELYN writes regarding experiments which have been made during the present season in testing germinating power of wheat which has been dipped. The experiments have been performed by the Sperry Flour Company and give warning that extreme care must be used in dipping wheat which is to be planted on heavy soil. It will be well to keep these suggestions in mind next seeding season. Mr. d'Evelyn writes:

That germination of wheat which is to be planted in cold weather is partly destroyed or seriously retarded by dipping in a smut preventing solution is the conclusion convincingly proved out by some experiments just completed by the agricultural department of the Sperry Flour Company at Stockton. The company has been and remains thoroughly an advocate of the wisdom of treating seed wheat and its own experience has been that under favorable climatic conditions careful dipping does not at all interfere with germination.

The germination tests were begun early in February, following the long sustained cold spell. Some cold, unfertilized, heavy adobe soil was secured and divided into boxes so that the experiments might be carried on under the nearest approach to field conditions. Five varieties of wheat, Australian, Early Baart, Club, Sperry No. 1 (Bunyip), and Sonora, were selected for the test. To carry through the parallel of the conditions confronting the farmer, miniature burlap sacks were made and dipped in solutions prepared in the laboratory according to the recognized formulas. For the bluestone-lime solution the University of California's formula was followed: The wheat was dipped for three or four minues in a solution made by dissolving bluestone in water in the ratio of one pound to four gallons, following which the drained sacks were dipped for three minutes in air-slacked lime in the proportion of one pound to eight gallons of water. For the formaldehyde the standard 40 per cent strength was used in the proportion of one pint to 45 gallons of water, the wheat being immersed in the solution for from eight to ten minutes.

The following day the wheat from the little sacks treated by the two different methods together with untreated wheat of the same varieties was planted, after a uniform number of kernels had been carefully counted out.

At the end of five days one set of plots was unearthed and the condition of the kernels carefully observed and tabulated. Every second day thereafter kernels from another set of plots were similarly unearthed and the results recorded. The following table shows precisely the percentage of germination for each type of wheat, handled in the three distinct ways, in the ground for the length of time indicated:

Effect of Dipping on Germination of Wheat

Soil — heavy adobe, unfertilized, shaded.

Bluestone — University of California's formula.

Formaldehyde—one pint of 40 per cent solution to 45 gallons of water.

Dipped—February 5, 1919, planted February 6, 1919.

Plots unearthed at two-day intervals as follows, beginning February 11:

Percentage of Germination

	Not Treated.	Bluestone Lime.	Formaldehyde.
Australia—5 days:			
Strong	98	2	72
Weak	2	26	12
Not visible	..	72	16
Early Baart—7 days:			
Strong	74	38	80
Weak	10	22	7
Not visible	16	40	13
Club—9 days:			
Strong	92.05	4.7	83
Weak	5	60	13
Not visible	2.5	35.3	4
Bunyip—11 days:			
Strong	96	6	55
Weak	4	50	24
Not visible	..	44	21
Sonora—12 days			
Strong	65	3	57
Weak	25	74	40
Not visible	10	18	3
Average for the 5:			
Strong	85	12	69
Weak	9	46	19
Not visible	6	42	12

These experiments were conducted under the direction of George R. McLeod, head of the agricultural department of the Sperry Flour Company, who has made a broad study of wheat growing practices. His theory is that a weaker solution of bluestone or formaldehyde than the usual formulas call for should be used after the cold weather has set in. He reasons that if the solution weakens germination it will also tend to weaken and destroy the smut under similar conditions.

Finally, while his belief in the value of treating wheat for the control of smut is unshaken, he is impressed with the conviction that it is of the utmost importance that as the weather grows colder the strength of the dipping solution should be gradually weakened and that extreme care should be used in the treating not to permit the wheat to remain in the solution too long.

In publishing the results of the test the big milling company's agricultural department is most solicitous that the grain growers should not by any chance become thereby prejudiced against dipping wheat. Properly handled, the smut control treatment has no appreciable effect on germination. For instance, on the Sperry Experimental Farm No. 1, about 15 miles east of Stockton, seeding was begun in the latter part of October at the rate of 74 pounds to the acre, after the wheat had been dipped in a formaldehyde solution. The seed was planted at the depth of about two inches. The weather was warm and the moisture was within three inches of the surface. The day after seeding was finished about an inch of warm rain fell, soaking through the dry, top layers of soil. As a result the stand indicated practically 100 per cent germination and was fully as thick as had often been secured by planting 100 pounds of wheat to the acre. The following week, after the weather had grown somewhat colder, wheat treated with formaledhyde and sowed about 30 pounds heavier to the acre than the first planting did not germinate as quickly or as strongly as the small field adjoining planted at the same time with the untreated wheat.

A little later on in extremely cold weather a small field was planted to wheat that had been dipped in a solution of one pound of bluestone to eight gallons of water (half the strength called for by the formula) and although put in at the rate of 100 pounds to the acre only about 10 per cent of the wheat germinated. Frosty weather continued after planting. Thirty days later, after it became evident that the wheat was not coming up, this ground was reseeded with untreated wheat and in spite of the fact that the weather was still frosty, nearly a 100 per cent stand resulted.

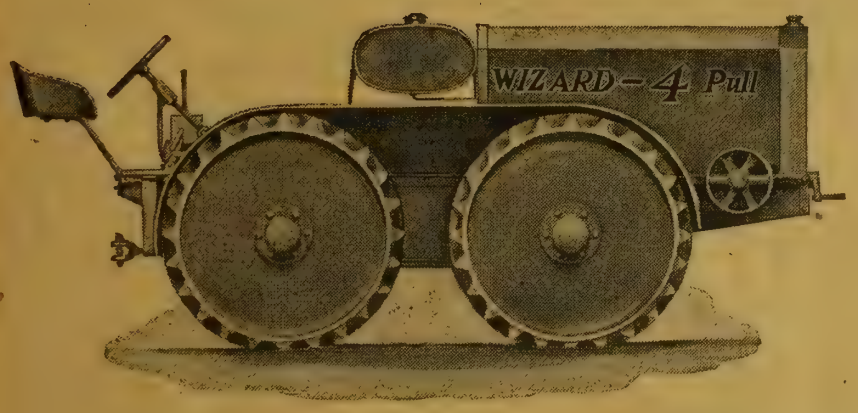
Incidentally it was observed that in putting in wheat in extremely cold weather harrowing should not be begun until the frost had had an opportunity to thaw out.

ANNOUNCING THE

WIZARD

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4-PULL TRACTOR



Patented and other patents appplied for in all principal countries in the world

KROYER WIZARD

It is a Track-Shun Make-Good-Tractor

A COMPLETE LINE

To be built in sizes

6-10 12-20 20-35 30-50 45-75

THE KROYER WIZARD 4-PULL TRACTOR is built low yet has spacious clearance under the body, between its wheels. It is short in over-all length, powerful in performance, and develops unusually high efficiency in draw-bar pull. It is equipped throughout with ball and roller bearings.

With our experimental *Wizard 4-Pull Tractor,* we have plowed and cultivated the loosest blow-sand land and immediately after plowing same, have gone over it again, pulling a full load without slipping the wheels or having the Tractor bury itself. Work of such nature that would in a short time wear out tracks or moving parts on other tractors, has no effect on the *Wizard,* all its working parts being enclosed in oil-tight housings.

It will work and get traction after rains, snow or irrigating, as soon as horses could be successfully used on the same land. It will operate on peat land and in many sections where soil, difficult to work, is now lying virgin for want of a practical means by which to till it.

The much desired feature of short turning has been mastered in the Kroyer Wizard by a device unique in its construction. This is one of its patented features, causing it to turn itself around in a pivotal manner, when so desired, without making any backward or forward movement (as when a man turns himself on his heel) and this can be done in either direction.

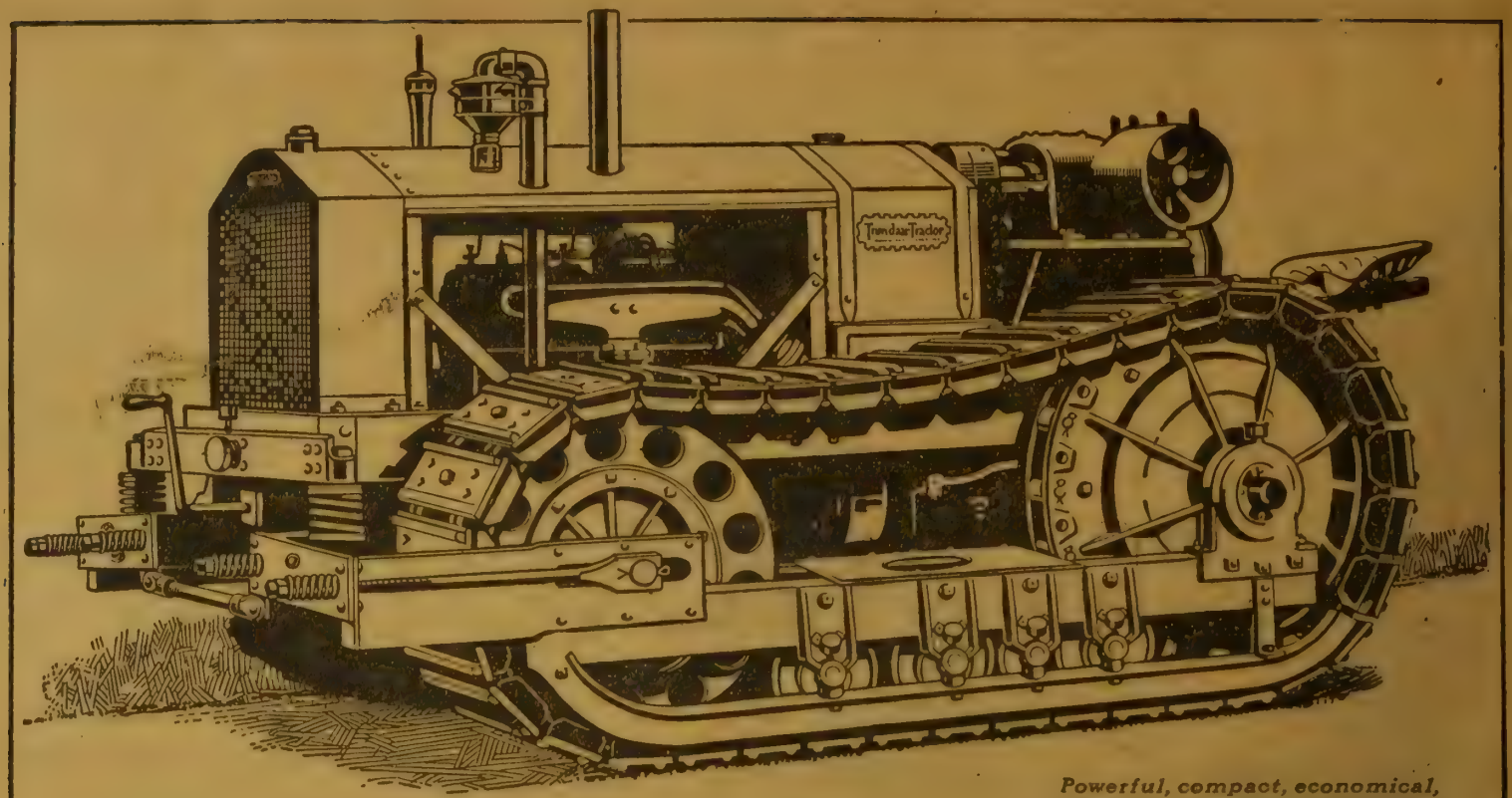
It is quick and very flexible in action and operated with ease, making the handling of the *Wizard 4-Pull,* light work. The weight is distributed equally on all four wheels when pulling a load, and it does not pack the soil.

Mr. Kroyer, being a pioneer tractor builder, knows, however, that no new principle embodied in a tractor, makes, in itself, a perfect machine. Experience must be built into it throughout, from the point where it touches the ground to the top of its hood. In other words, a master mind in tractor construction must be the foundation for producing a tractor that is actually successful. This ability Mr. Kroyer possesses, being a practical man and having designed, built and marketed seven different models of Tractors since 1903. As early as 1904 he built in his second model (size 8-16) an enclosed dust-proof machine, and in his fifth model (size 15-30) built in 1913, he used the live rear axle principle in an all enclosed dust-proof tractor. Over 3000 of Mr. Kroyer's Tractors are in use on the Pacific Coast and in other countries, and they are regarded as the most durable tractors in the field.

The *Wizard 4-Pull* will be a "quality" machine and built to give at least ten years' service when used with reasonable judgment. It will be distributed and sold conscientiously. Orders are held for 1200 of the 12-20 *Wizards* for California, with strong demand for the other sizes, and deliveries are expected to begin this fall.

The *Wizard 4-Pull Tractors* will be manufactured by the Kroyer Manufacturing Co., a $5,000,000.00 corporation, with its plant located at Stockton, California, an additional eastern factory being also contemplated.

Stockton, California



Powerful, compact, economical, dependable. The Trundaar Tractor puts through every farm job on schedule time

A year's profit saved in one day

WHEN the loss of a day may mean the loss of a harvest, you appreciate most keenly the need of a tractor that will never fail you. When help is short and time is pressing, a tractor that will give service, day after day without fail, will bring big returns on your investment. When the Trundaar Tractor was designed, the point the engineers kept most clearly in mind was that this tractor must always be ready for use when needed.

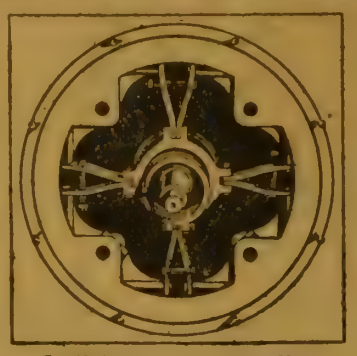
Why this tractor is so dependable

The design of the tread is one reason why the Trundaar is uniformly dependable. This tread, of the endless chain type, is built on the old log-chain principle. The connecting links are short, thus reducing the play and minimizing wear. Absolutely no lubrication is required. On treads where lubrication is necessary, the mixture of dust and oil works into the parts and grinds them away much as emery would. If a link on the Trundaar Tread does get broken, no time is lost. The links and grouser plates are attached by four bolts and can be removed and replaced in fifteen minutes.

Big, powerful engine

The engine in the Trundaar is as dependable as the tread. The Special Buckeye Tractor Engine supplies an excess of power for all field and stationary work. It is built expressly to stand the rough going and constant running to which a tractor engine is subjected. It is rated at 20 horsepower on the drawbar and 35 horsepower on the belt. Grant Miles, of Fairfield, Washington, writes:

"During my spring plowing I pulled seven 14-inch plows 5 inches deep on level land, and on the hilly part of my farm I pulled five 14-inch plows 5 inches deep."



Individual multiple disc drive clutch

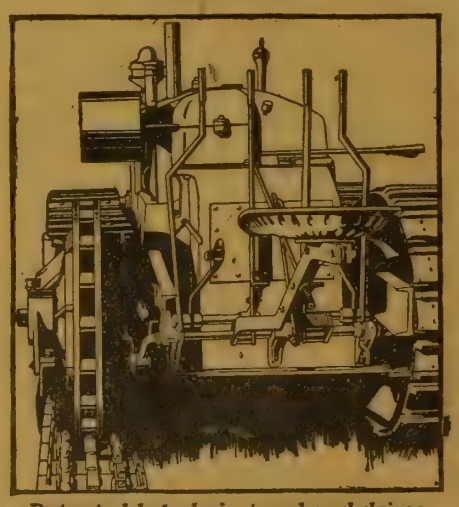
All vital parts of the Trundaar run in oil and are absolutely protected against dust. Even the air intake of the carburetor is fitted with a clarifier which prevents the dust from getting into the cylinders.

Each tread is controlled by a powerful multiple disc clutch running in oil. This special feature eliminates the need of gear and pinion drive which is frequently a cause of interrupted service.

The massive Trundaar transmission, the powerful driving clutches and the double three point suspension all are planned to make the Trundaar the dependable tractor.

If you are operating a farm of 200 acres or more you should know about the Trundaar. Write today for information showing what this tractor is doing under conditions similar to yours.

The Buckeye Manufacturing Company
Anderson, Indiana



Patented log-chain tread and driver

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Provides positive traction without packing the soil

Trundaar Tractor
SPEEDS UP THE BUSINESS OF FARMING

CALIFORNIA CULTIVATOR

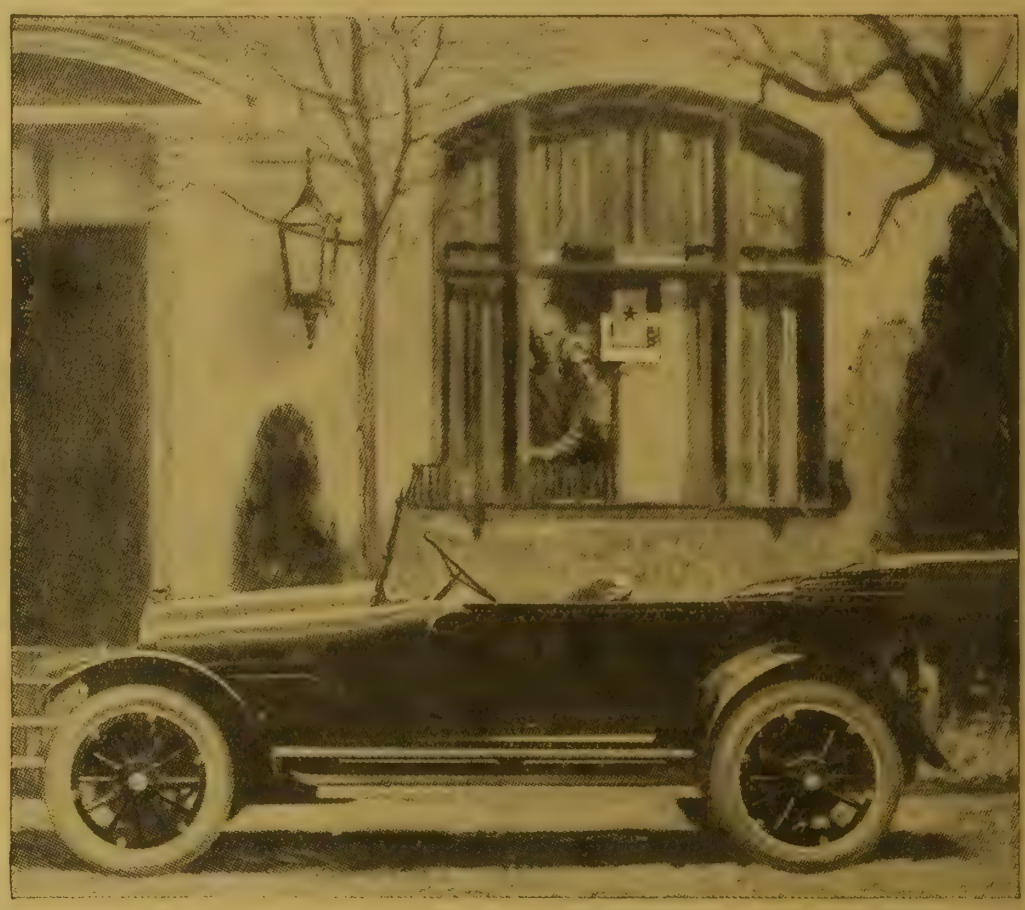
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Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — March 22, 1919 — No. 12



Overland
TRADE MARK REG.



For Him

The confidence purchasers have in the performance of the Overland Motor Car is the direct result of the pride of Overland owners. For ten years public appreciation has been our sole aim and guide. The Overland Motor Car today reflects the best of our great engineering experience and production facilities The car's reputation grows steadily as owners tell their friends of their satisfaction in driving it. Thus the friends of owners form an ever larger proportion of our customers The constantly increasing sales of the Model 90 shown here now number more than one hundred and fifteen thousand cars.

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Model Ninety Five-passenger Touring Car, $985 Sedan, $1495 f.o.b. Toledo

California Cultivator

Vol. LII, No. 12 Los Angeles, March 22, 1919 One Dollar Yearly

Which is Biggest---Pear or Overhead?

By C. B. Messenger

THE overhead takes half of the average crop. Bear in mind, I say 'average crop', and if the fruit is wormy and unsaleable, the overhead still remains the same."

These remarks were made by V. T. McCurdy, grower and packer of McCurdy brand Santa Clara Valley pears, to me as I stood looking at a load of fruit on the trees. Appreciation of the size of the load is only faintly given by the photographs of props and fruit on this page. The remark was made in justification of the number of sprayings which Mr. McCurdy had given to this orchard last year. He had said: "I spray in January when the trees are perfectly dormant, with oil emulsion. I spray again just as the buds are beginning to swell, lime-sulphur nine to one. I spray again (now come the hints which are of value at this particular moment) with lime and bluestone as the blossom buds are appearing. I spray again two or three or several times, this year six times, with an arsenate spray, to prevent wormy pears."

"But such a number of sprayings is very expensive. Does it pay, Mr. McCurdy?"

"Well, it makes me spend thousands of dollars for props to hold up the fruit, but the best answer to your question is the fruit on these trees."

And such loads we never saw, and all of it fine fruit, and not a worm, not a scab.

But again, does it pay? Mr. McCurdy came to Santa Clara Valley with but little more than good health and a determination to work and with a further determination that the work should be so intelligently directed that it would result in success. His experience or knowledge of the pear industry was practically nil, but there was a state university near by and a county horticultural commissioner at a moment's call, and these two forces were appealed to to direct him as to best steps to take to raise pears which people would demand and be willing to pay for.

The county horticultural commissioner, L. R. Cody, informed me that while he often had occasion to call upon Mr. McCurdy for helpful suggestions as to pear culture, yet McCurdy was also appealing at every opportunity for the best and latest information as to sprays or other essentials of successful production.

Notwithstanding Mr. McCurdy's principal asset when coming to the Santa Clara Valley was determination and good health, he now has a pear orchard that is almost a principality, packs his own fruit and ships in car lots under the McCurdy brand and has a reputation that is worth an independence. His reputation has come from honest pack of honest goods.

Note we say above, "not a worm, not a scab." And this we mean literally, for when the question was asked as to percentage of clean fruit secured through the method of spraying followed, Mr. McCurdy simply replied: "One hundred per cent." "Not a single worm in the orchard?" "Not one", and search failed to give opportunity to challenge Mr. McCurdy's statement.



These Props Are Profitable

In the orchard of V. T. McCurdy, San Jose, soil fertility and sufficient spraying to secure clean insect free fruit give big crops of perfect fruit. Mr. McCurdy and County Commissioner Cody are inspecting the fruit



Not a Lumber Yard but a Pear Orchard

A Santa Clara Valley pear orchard which is yielding immense crops of worm free fruit, which is commanding long prices.

The Sprayings

1. Plow under dead leaves to prevent spread of scab spores.

2. When trees are perfectly dormant, spray with strong oil emulsion, this in January.

3. Lime-sulphur, 9-1, as buds are swelling. This spraying very thorough, reaching tips of every twig.

4. Bordeaux as buds are just beginning to open.

5. Bordeaux and arsenate when blossoms are well out. The strength of the Bordeaux, as recommended by the university and used by Mr. McCurdy, is as follows: Bluestone, 20 pounds; quicklime, 25 pounds; water, 200 gallons.

Dissolve the bluestone and slake the lime in separate vessels. Strain the bluestone into the spray tank and fill it half full or more with water. Strain in the lime mixed with the rest of the water. Always have the materials well diluted before mixing them together. (Note.—If a third spraying, of lead arsenate combined with Bordeaux mixture, be made, the amounts of bluestone and lime may be reduced to 15 and 20 pounds, respectively.)

If arsenate is added use at about the rate of two pounds to 50 gallons of the mixture.

6, (and as needed thereafter). Spray with arsenate, 2½ pounds to 50 gallons water.

But once more, "Does it pay?"

One little corner of Mr. McCurdy's orchard, containing nine acres, yielded 3,903 packed boxes, each of 46 pounds net, of reputation making fruit. The return from that nine acres was slightly better than $6,000.

The overhead didn't take half of this crop. Bear in mind the first sentence above said: "The overhead takes half of the average crop."

Marketing Antelope Valley Pears

By H. H. Warner, Bureau of Markets

PEAR growers in the Antelope Valley are proving their foresight by planting now to secure a wider outlet in Eastern and foreign markets for the distribution of their fruit when Los Angeles will not be able to dispose to advantage of the entire crop. With the normal increase in production of the young groves, and with many new orchards coming into bearing, the time is not far distant when the marketing problem will be one of chief concern to the entire district. It is estimated that the production this coming season from the valley, comprising groves located in the Little Rock, Palmdale and Lancaster sections, will run from 100 to 125 carloads of Bartlett pears.

Owing to the low humidity of the climate, and the fact that the crop is matured under very dry conditions, with a minimum of irrigation toward the close of the season, the keeping quality of the fruit, when carefully handled, is generally believed to be superior to the pears from the Sacramento district. These same growing conditions tend to produce a pear which is somewhat rougher than the Sacramento Bartlett pear, and one which is not so desirable from the canner's standpoint, on account of the larger waste in peeling. These factors seem to indicate that the Antelope Valley Bartlett will be essentially a shipping pear, and that a comparatively small proportion of the crop will ever find its way into cans. Pear blight is very carefully controlled in the district, and if some method of increasing the humus content of the soil is practiced, there seems no reason to doubt the continued heavy production per acre, which is the dominant feature of these young groves.

As has been the case with several other new deciduous fruit districts in the south, the entire crop has each year been marketed in Los Angeles. The returns so far have been quite satisfactory, especially during the last season, when producers netted from three and a half to four cents per pound. However, growers are pointing to the fact that at the same time that their pears were selling at wholesale in Los Angeles for five cents per pound, that Sacramento River pears were selling in Eastern auctions at from $5.00 to $6.00 per packed box of 40 pounds. With the competition from Sacramento River pears on the local market, the consuming capacity

Continued on Page 409

Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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Saturday, March 22, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Pears in blossom appear on this week's cover and pears at harvest time in the illustrations on the third page. Pears are profitable in California, and we hope there is a bit of inspiration in these illustrations and in the two articles which will lead growers to produce a more perfect crop. The fresh pear shipments from California have a reputation which has never been secured by pears from any other section of the world.

MAKE A SLOGAN

The California Victory Loan boosters want a slogan for the coming campaign. Several have already been submitted; more are invited, and to the makers of the three best cash prizes of $30, $20 and $10 will be given.

The only limit in the contest is the number of words that can be used in the slogan. Twelve is the limit but the shorter the better. A strong, snappy, short battle cry that will express the spirit of the country is wanted. Here are a few of the hundreds that have been submitted: "Don't quit because the kaiser did," "Are you grateful? Loan," "What is victory worth to you?" "You ordered victory, pay the price," "If you don't like our Victory Loan try Germany's."

THE NEXT MAY BE BETTER

Of course it is easy to criticize and do a real injustice, but honestly we do find it hard to see much of real accomplishment in the labors of the congress which ended March 4. These four or five hundred congressmen, drawing their eight or ten thousand per year each, must have some consciences to permit themselves to draw down their money in return for the last year's work.

The most serious effort was not given to originating or doing that which will make the country safe in this crisis in the world's history, but to filibustering and clogging the wheels to prevent real aggressive action. For instance, the filibuster engaged in during the last days of congress prevented the making of needed appropriations in many arms of the government service. Agriculture, especially, will suffer.

However, department heads are planning as best they may to hold in line the efficient working force until the new congress meets.

THE MILK PRODUCERS FIGHT

California milk producers have never been confronted with the problem which has had to be solved by the milk producers supplying New York city. There the price was continually advancing to the consumer with only nominal advance to the producer until the distributors were receiving more than 50 per cent of the consumer's dollar while the producer bore the brunt of all losses and dairymen were becoming poorer with every delivery of milk.

The situation is handled in this week's issue by Leroy Anderson, formerly of the university farm school at Davis and now living in the Santa Clara Valley. Dr. Anderson is temporarily in New York aiding in farm institute work and is in close touch with dairymen. As noted, the California dairymen have not so serious a problem, but at the same time the matter of just division confronts them and the action of New York producers may give a suggestion in the securing of full justice.

Southern California dairymen have been organized longer and more effectively than those of the northern part of the state, but the organization is now becoming general and dairymen are benefiting.

TO HAVE DOG LAW

It begins to appear that the live stock interests of this state—especially the sheep interests—will soon have the protection of a dog law.

A bill providing such protection was introduced in the senate by Senator Benjamin F. Rush, but it had not progressed far on its intricate way before it encountered most active opposition despite the fact that practically every live stock organization in the state had endorsed it as well as hundreds of farmers.

The principal opposition came from city dog owners who objected to paying a tax in addition to a municipal tax, and from certain humane societies.

A hearing was held on the bill at which time both sides were given an opportunity to state their views. Naturally, there was the widest divergence of opinion as to what constituted a fair and just law, but before the hearing was over each side caught the other's viewpoint (as usually happens when well-balanced people calmly sit about a council table) and as a result it was agreed that "the party of the first part and the party of the second part" would work together in the drafting of a bill that would be satisfactory to all—one that would protect the live stock man and not work a hardship on dog owners.

KEROSENE

There have been a lot of trees killed in California in experiments which to the level-headed look so foolish that he has said: "No wonder these trees died." On the other hand, these "foolhardy" experiments have oftentimes developed a most successful orchard practice.

For instance, the sheep herder, whose deciduous trees near his house were practically dead of San Jose scale, said to himself: "This sheep dip will either kill the pests on the tree or the tree," and unwittingly he started the use of lime-sulphur sheep dip as an orchard spray, and it has saved California orchardists millions.

We have seen trees killed with kerosene, but one of our subscribers from the Tehachapi section tells how he has cleaned his apple orchard of woolly aphis by pulling away the dirt from the roots and pouring on the roots and trunk of the tree high grade kerosene. The trees are looking thrifty, continuing to grow, and are entirely free from the pests which mean death to an apple tree if allowed to remain.

We are glad to give place to Mr. Calkins' communication, which is on Page 409, but we give warning to our subscribers to note particularly the last portion of the article in which he refers to the high quality of the kerosene used, and that almost complete evaporation was secured soon after application.

DILUTING THE SOUP

How to knock the H out of the H. C. of L. is the problem confronting many of the housewives of this state. Prices seem reluctant to start downward, that is unless we are referring to prices of farm products on the farm, but over the counter it is practically impossible to find the high cost meeting much discouragement.

This situation has called forth several suggestions which have appeared in the household department of recent Cultivators. One California housewife in the issue of March 8, Page 349, under the head, "Some Anonymous Comment," suggested the elimination of much that is nourishing from the table. In fact, instead of eggs, milk and fats, the writer suggested liberal use of baking powder and water and an occasional rubbing over the soup kettle of a bacon rind or an onion skin to supply some of the needed "makins."

A Napa County subscriber, commenting on this article, suggested that eggs, milk and some other of the discarded ingredients still contain nourishment which is needed by humans, especially by the youngsters. Another communication just received, too late for this issue, has a very valuable suggestion. The lady says that so long as beans are cheaper than water the soup might be diluted with a small portion of beans. Her communication will appear next week.

This may help in knocking the H out of the H. C. of L., whereas some of us were fearing that our anonymous cook might only succeed in knocking the L out of the combination.

CALIFORNIA

And now the postmaster general, or somebody who claims to have authority, decides that the official abbreviation for the word California shall hereafter be composed of the first five letters. In the past the abbreviation has been Cal., while that of Colorado has been Col.—which, it must be admitted, has been somewhat confusing, that is, in consideration of the number of poor writers there are when it comes to a's and o's. But why pick on California? California was a state a quarter century before Colorado was, and the veneration due to age should give California first choice. The three letters were much more quickly written—if one is so driven for time that he cannot spell out so beautiful a word as California. Two more letters take little more time. Admitted. But it would take no more time in the case of Colorado. Color are the first five letters of Colorado, but the first five letters of the word California we refuse to have printed on this page as an abbreviation, and any Californian who is guilty of using such an abbreviation for so beautiful a word should be turned over to a revived vigilance committee who might be empowered to coat the culprit with boiling pitch and hang and quarter him.

Californians have shown some little judgment in this matter of abbreviations and have refused to stand for nonsensical shortenings. San Bernardino, San Francisco, Los Angeles, and some others have at times suffered from such abbreviations as "Berdoo," "Frisco," and, worst of all, "Los." Let all Californians unite in the determination to return to the East all foolish abbreviations and ask for printing or writing out of the entire name—California.

BUILD HIGHWAYS

It has been repeatedly asserted that Paris—and probably the liberties of the world—were saved in 1914 because of the excellent roadways to eastern France. The Huns were every day coming nearer to Paris; the railways were glutted with war munitions and supplies; there seemed no means of getting sufficient men to the front to stop the rush until the city had fallen, but buses, taxicabs, trucks, autos, and everything which was propelled by gas were impressed into service, and thousands, almost millions, of men were thrown against the advancing hordes.

If these roadways meant so much to the liberties of the world in 1914, is it not possible that America may well take the lesson and make provision for the thousands of jobless boys coming home in a roadbuilding campaign? California is already working on two great highways the entire length of the state. In fact, these may be said to be almost complete. There is opportunity for extension and improvement of these great highways, and the system may well be continued through the Northwest and then along the entire northern boundary. Two other great highways along the southern boundary and up and down the Atlantic might some day prove the salvation of this nation.

In any case, there is the transportation of farm products, which is made possible by good roads and would be greatly facilitated by an increase in their number, and the country generally would be benefitted. Scarcely a soul ever questions the advisability of such a great road building campaign.

Let it be so ordered.

Borders of olive trees have been planted around the great cotton plantations of the Southwest Cotton Company, near Phoenix, Arizona.

The New York Milk Fight

By Leroy Anderson

SINCE I am daily meeting with dairy farmers of New York and speak at meetings, I may be privileged to tell Western friends a little of what the fight is all about. And probably Cultivator readers would like to hear of it from an eye witness. It is commonly called a strike of the milk producers but many object to that term on the ground that the farmer is in the same position as any producer who desires a living price for his product and has a right to say what that price shall be.

The Dairymen's League is an organization of New York producers chiefly but also including some from states immediately adjoining New York. It has been in existence about twelve years but not until the fall of 1916 did it possess sufficient strength to be a force in the milk market. The League announced its price for milk for October of that year and the milk distributors of New York City refused to pay it. The result was that on the first day of that month mighty little milk was shipped and within a week the distributors capitulated unconditionally. Since that date the league and the distributors have been able to agree, although during part, at least, of 1918 the federal food commission exercised a ruling hand in price fixing, sometimes to the financial loss of producers. In December last the food commission announced that its influence on milk prices would be no longer exerted. The league then stated its January price to the distributors, who are organized under the name of the "Milk Conference Board." It was not known that this price would not be accepted until the last days of December. The excellence of the league's management and the loyalty of the membership is shown by the fact that scarcely a can of milk left league territory on January 1. The dairymen sat tight and have been tight ever since. Many new members have been signed among dairymen who were formerly outside.

New York City was up in arms immediately with its health and other interested officials lined up apparently against the producers. The district attorney and health officer accused the dairymen of starving babies, withholding milk from hospitals, sick and wounded soldiers and "committing other atrocities with Hunlike cunning and effrontery." The milk conference board carried large advertisements in the city dailies setting forth the board's point of view. In addition to this the city papers were uniformly championing the distributors' cause. Thus the league could have no hearing with consumers until it also placed large ads in the same dailies. The following letter from a consumer may be an evidence of the educative value of such advertising:

"Dairymen's League — Dear Sirs: We note advertisement by the conference board in morning's paper of 1,311,806 quarts received. This must be a falsehood as this section of Brooklyn can't get any milk at any price. In my own case we have three babies and five year old boy and I called up Borden and explained my need. In the last five days we have received but four bottles of milk where we usually have three bottles daily. Where does the 1,311,806 quarts go? We believe if the producers want $4.01 per hundred they are entitled to it. But we don't think the distributors are entitled to the same amount as it costs to produce it. Good luck to you and success to your efforts."

The anti-trust law of New York is known as the Donnelly act and last winter an amendment thereto was passed exempting farmers from its provisions and permitting them to collectively bargain for the sale of their products. New York City officials have asked the governor to recommend to the legislature the repeal of the amendment so that the dairymen may be prosecuted as criminals. We have not yet heard of the governor's making any such recommendation and we don't believe he will. The attitude of the city officials is illustrated in this statement in a New York paper January 4: "Mayor Hylan's administration, District Attorney Swan and the distributors affiliated with the milk conference board got closer together yesterday in their fight against the farmers' organization."

The dairymen are asking simply cost of production for their milk which cost is now determined by a formula worked out by Dr. G. F. Warren of the state college of agriculture at Ithaca and based by him on cost studies on hundreds of New York farms during the past six years or more. It is found that the feed and labor required to produce 100 pounds of 3.8 per cent milk is as follows:

Warren Formula

Grain	33.79 pounds
Hay	43.30 pounds
Other forage	10.80 pounds
Silage	102.50 pounds
Labor	3.02 hours

These items are calculated at current prices and to their sum is added 25 per cent to cover usual overhead costs such as bedding, horse labor, interest, depreciation, etc.

In fixing the price at least two other factors must be considered (1) more cows freshen in the latter part of winter and when fresh produce milk at a lower feed cost than when nearly dry; (2) the market price naturally falls under a surplus and rises under a deficit. Averaging such market factors for a ten-year period, it is found that a correct cost of production is finally obtained by multiplying the cost as determined above by the following percentages for any one month:

	Pct.
January	119.0
February	114.7
March	106.0
April	93.9
May	79.0
June	70.7
July	81.0
August	90.8
September	96.9
October	110.4
November	119.0
December	120.0

The Federal Food Commission accepted this formula in fixing December milk prices. Prior to that, they declined to accept it, hence the great dissatisfaction on the part of the dairymen.

Based on the Warren formula, the Dairymen's League asked $4.01 per hundred pounds for 3 per cent milk, B grade, at the 150-mile zone. This is about 8.5 cents a quart. The distributors charged consumers 17 cents, thus claiming as much money for distribution as for production. No wonder an up-state daily exclaimed editorially "Who's starving babies? not the producer but the grasping middleman!"

At present writing (Jan. 17) some 40 dealers have signed contracts with the league at the $4.01 price. With one exception, all are small dealers with a very few each of shipping plants. The one has 30 plants and is said to be the third largest dealer, exceeded only by Borden and Sheffield farms. The league is confident of an entire break in the dealers' ranks.

Dairymen have been put to tremendous difficulties in handling all their milk at home where usually they carried it daily to a shipping station or had it hauled from their door. All the old and abandoned butter and cheese factories have been placed in commission. Wives and husbands have turned separators, skimmed by hand, churned and worked butter, and all so cheerfully because it is only another fight of right against might. Many localities are raising money to build their own plants and the league is now suggesting a fund of $10,000,000 to erect league plants with a final view of selling direct to consumers. Personally, I feel that this last is the true solution of the milk question. It is in line with our California producers' associations.

The fight is exceedingly well managed. From the league office in New York go daily telegrams to every local president and to every county farm bureau, stating the situation. The farm bureaus have been a tower of strength both in organizing the league in 1916 and in the fight all along the line. Dairymen don't need coaxing into action as in the 1916 strike. They are hanging together to the death if need be. Every farmers' organization in the country is concerned in this fight. If New York city is able to defeat the dairymen and to repeal the amendment to the Donnely act, it jeopardizes similar farmers' organizations the country over, including those in far California.

As I write: The fight is won! Yesterday the Milk Conference Board agreed to the league's price of $4.01 for January milk.

Keep Your Tractor Repaired

KEEP the tractor and farm implements in a perfect state of repair. It isn't possible always, but make it the rule of tractors. The "Some Responsibility" illustration on this page expresses practically as much in this matter of replacing broken or lost parts as this entire story will be able to convey, but it's worth the reading. It is written by J. E. Waggoner in Tractor Farming.

We omit portions of the article for it lays special stress on the necessity of observing an entire week as National Implement Inspection and Repair Week, which was to be early in March. In California every week is repair week.

Mr. Waggoner writes:

"Can you-al' give a def'nition of responsibility?' said one colored man to another. 'Wal, sah,' said Rastus, 'I's can't give ya a def'nition but I's'll give ya an illustration. S'pose a man suppo'ts his trousers with s'penders and one button pulls off. The other one's got a lot of responsibility. Understand?' 'Yas-sah, yassah.'

"Unintentionally old Rastus illustrated a condition that applies unusually well to many things, and especially well to farm machines and implements. Designers and builders put each bolt, stud, brace, part, shaft, in the machine to help in some way to do the work of that machine. When one of these becomes loose, broken, worn, bent, or in any other way affected, it puts more strain or double strain on some other part. The other part must do double work. Double work soon has its effect on other parts, and on the machine as a whole. As one old fellow put it, the whole thing is soon 'out of kilter.' 'What does out of kilter mean?' asked the teacher of the class. Up went Johnny's hand. 'I know,' he says, 'when pa's back is out of kilter, it means that I have to milk three cows instead of one.'"

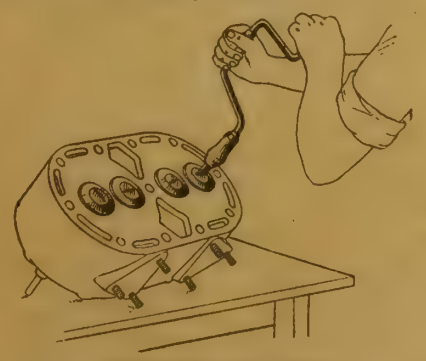
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The inspiration of cooperation in the observation of such a week is worth much, but the preventing of farm equipment from getting out of kilter is even more effective when done in season.

* * * * *

"Never before in history of agriculture has the price of farm products been as high as now. The time of

Continued on Page 418



Regrinding the Valves

To grind valves use a paste of fine emery dust and oil. Apply some of this to the valve seat, put the valve in place and revolve it about half way around and then back with a carpenter's brace. Repeat this eight or ten times. Raise the valve off the seat and give it part of a turn. Let it drop back on its seat, then repeat the same motion with the brace as before. Do this until a continuous contact is shown around the valve seat. Clean the valve seat and valve stem with gasoline.



Some Responsibility

Broken or lost parts throw more strain and responsibility on other parts.

Agricultural News Notes of the Pacific Coast

Northern California

Colusa expects the early construction of a $250,000 rice mill.

Sierra County reports practically the entire county under deep covering of snow.

The Vegetable Growers of California, Inc., have fixed price of cannery tomatoes at $14.

Live Oak, Sutter County, is appealing to its board of supervisors for funds for bridging the Feather River.

California is producing scarcely one-third of its former wool clip. The present total is about 13,000,000 pounds.

The tractor school at Concord, Contra Costa County, is now in session and instruction will continue until Saturday, March 29.

San Leandro is securing a reputation as a shipper of daffodils. Thousands have been sent this year to Seattle, Tacoma and other northern cities.

Hop growers have contracted for the coming three years; the price for the first year to be 25 cents, 21 cents for the 1920 crop and 20 cents for the 1921 crop.

California wine growers are leading in the effort to set aside national prohibition. The first step will be a referendum petition on the action of the California legislature.

An effort is being made by Sacramento Valley and coast counties to secure a lateral highway from a section north of Cloverdale over the coast range to Anderson Valley.

Secretary Ayers of the Associated Dairymen reports dairmen of California "barely making a living." Present milk prices have been set by the food administration to be effective until May 31.

The conference of farm advisers and delegates began this week at Davis. Other sessions will be held at Berkeley. After adjournment these delegates will visit Southern California points.

A Mendocino County farmer appealed to the courts for relief from trespassing stock, and the ruling was that in that county it is impossible to protect from encroachment of stock unless one does his own fencing.

The Shasta County farm bureau recently held a farm auction at Cottonwood. Seven hundred and forty-seven head of fat hogs were sold, bringing about $20,000. Buyers were present from Portland and San Francisco.

The executive committee of the California Grape Protective Association called a meeting at San Francisco to discuss plans regarding referendum petitions to put the ratification measure on the ballot at the next regular election.

Representatives of the farm bureaus of Eldorado, Placer and Nevada Counties met at Auburn and discussed matter of auction live stock sales. It was arranged that a series of inter-county farm bureau auction sales at Auburn be held at dates to be announced later.

Owners of timber land in Sonoma and Mendocino Counties, who have contracted for removal of wood or timber but who failed to insist on the contractor carrying workmen's compensation insurance, now find that where contractors are not responsible the loss falls on the land owner.

Central California

Stanislaus County is asking for completion of the Oakdale-Sonora-Big Flat highway.

The Pine Flat project is being discussed in Kings County farm bureau center meetings.

The Prune and Apricot Growers Association is making contracts for trays and box shook for members.

Those in charge of the Raisin Day celebration at Fresno are asking for subscriptions totalling $15,000.

John M. Bernstein of Hanford left last week for the East to select Poland-Chinas to add to his herd.

A new olive plant is proposed for Porterville to handle the large acreage in the Poplar-Woodville district.

A federal bee expert, Jay Smith of Indiana, has been making addresses on beekeeping to apiarists of Madera.

Thirty thousand bags of delta onions were sold in Stockton last week. Prices ranged from $3.75 to $4.00 per hundred.

The report of Live Stock Inspector Griffith of Kings County shows unusually healthy conditions among stock of the county.

Porterville Valencia growers expect their crop to ripen about two weeks later than usual, but say it is of exceptionally high quality.

Stanislaus County has 26 rural fire fighting companies organized. These companies cooperate with a motor reserve corps in the city of Modesto.

The Associated Raisin Company last week paid out two and a half million dollars to members marketing Sultanas and Thompsons. This was the second payment.

Live stock people and producers of fruits and small crops have been greatly benefited by the local service established by the market bureau of the department of agriculture.

Porterville Valencia growers do not expect to pick any fruit until the middle of April. Prospects for prices are so good that growers are in no hurry to dispose of their crops.

Grazing fees from the national forests will be of material help to the schools, one-fourth of the fees being turned into the road and school funds. Monterey County's share will be about $1,000.

During the month of February 2,026 cows were tested in the Stanislaus County Testing Association. The best average herd was that of E. Heald of Denair, with 1.57 pounds butter fat per day.

The full board of directors of the state agricultural society appeared before sub-committee on agriculture and appealed for hands off or allowing the state agricultural board to continue methods followed during the past few years.

The Tulare County Growers Association has been formally organized with C. M. Buck, president; H. H. Davis, vice-president; D. R. Jamison, secretary; P. M. Slusser and M. A. Kuhn. Mr. Kuhn will have charge of packing and shipping.

"Agricultural clubs in Fresno County schools have 150 members", says R. A. Burton, in charge of the movement in that county. "We are starting a campaign now among the pig clubs to have every boy and girl grow enough sorghum to raise the pig. The unit is one acre, although, of course, it will not require one acre of sorghum to feed a pig."

Southern California

A field meeting of walnut men was held at El Monte March 10.

Southern California will grow this season 13,090 acres of cantaloupes.

Citrus growers are now discussing the advisability of planting summer cover crop.

Imperial County's asparagus crop is of high quality and is commanding $19 to $20 per crate in Chicago.

Talbert and other Orange County sections are planning for large extension of drainage district.

Ventura County Fair has chosen the middle of August for its opening date. L. P. Hathaway is secretary.

Onion plantings in the Thermal district of Riverside County are showing very satisfactory growth.

N. E. Luce, now with the department of agriculture, is giving instruction to California poultry people.

A shipment of alfalfa seed into Southern California has shown a five per cent infestation of Johnson grass seed.

Poultrymen are finding it impossible to produce eggs at a profit with prices running far below 40 cents as at present.

Early potatoes in the Southwest will aggregate 132,045 acres. This is a little more than half the planting of last year.

The rain, which visited all the state last week, gave Southern California liberal precipitation, ranging from one to two inches.

The Los Angeles city farm center deferred its March 13 meeting to April 10 because of delegates attending Davis conference.

Brawley's first full car of peas to New York market was forwarded March 7. The price ranged from 9 to 11 cents a pound.

Riverside orange growers announce navel crop will be much larger than was estimated in January. The frost injury is also lighter.

An Orange County bean grower is suing a gun club for damage to his land which prevented producing crops in 1918 because of overflow from dam.

Imperial Valley is now sending special live stock trains to Kansas City. The one out on March 20 was filled with steers and sheep. The first train out this season carried over $200,000 worth of stock.

Orange County farm bureaus are continuing their fight for protection of water rights and drainage privileges and are being strongly opposed by gun clubs having large tracts of land in that county.

The Riverside - San Bernardino County Cow Testing Association reports interest increasing. A Stalder cow took first place in the February test, producing 1,700 pounds milk, 73.96 pounds butter fat.

The Hemet-San Jacinto Growers Association recently held its annual meeting, at which it was reported that last season's cling peaches netted door weight, $73.19; yellow frees, $48.44; canning apricots, $50.56; jam apricots, $13.92.

The new road "over the hill" in Santa Ana Canyon has allowed traffic to continue through the canyon, which would have been prevented because of slides and washouts on the lower road. The improvement cost about $40,000.

The Coast and General

Fire on a ranch near Chandler, Arizona, recently destroyed 340 tons of alfalfa hay valued at $10,000.

The latest quotations on American long staple cotton at Eastern mills are 61 cents for No. 1 Pima, 60 cents for No. 2.

The Panhandle Southwestern Stockmen's Association, composed of cattlemen from Texas, New Mexico and Arizona, at the recent annual meeting at El Paso decided to hold the 1920 convention at Tucson, Ariz.

Tentative surveys of the possible irrigation projects within the state of Arizona, by those interested in a land settlement plan for returned soldiers, reveals the fact that there are seven projects where a total of 470 acres would be developed.

Melon growers of the Salt River Valley of Arizona have organized with S. S. Scull of Phoenix, general manager. About 600 acres will be planted this year. Growers are advocating better methods which will result in the production of larger melons.

What is said to be the largest pumping plant in this part of Arizona was installed last month on a ranch six miles southwest of Phoenix. The engine is a 60 horsepower twin cylinder, and the pump an eight inch centrifugal. This lifts 2000 gallons a minute.

A delegation of about 25 farmers and business men of the Imperial Valley have recently visited the Salt River Valley, Arizona, for the purpose of obtaining information relating to the operation of the Salt River irrigation project. While in the valley they were the guests of the Water Users' Association and the Phoenix Chamber of Commerce.

Lectures on dairy topics have been held at the various school houses throughout the Salt River Valley. These meetings are primarily for the benefit of the boys cow testing clubs. State Dairy Commisioner W. A. Barr and Prof. W. S. Cunningham, head of the dairy division of the Arizona college of agriculture, addressed the meetings.

Dry Farming in Arizona is a new bulletin just issued by the Arizona college of agriculture. Experiences in growing dry farm crops in both northern and southern Arizona are given. The bulletin is free to residents of Arizona and others who may be particularly interested can probably obtain copies by writing College of Agriculture, Tucson, Arizona.

The Southwest Cotton Company, Arizona, which is cultivating some 12,000 acres of cotton, believes in diversification. In addition to hundreds of acres of alfalfa, last year they raised a considerable acreage of sorghum most of which was used for forage, but with an improvised syrup making outfit some 500 gallons of cane syrup was manufactured for use on the plantation.

There was a light fall of snow in northern Arizona the first week in March, but except in the mountains and higher elevations this was soon melted, helping range conditions. In the lower elevations, particularly in the eastern part of the state, there is a marked improvement in range conditions. On the headwaters of the White and Black rivers, which flow into the Salt above the Roosevelt reservoir, there is four feet of snow on a level, and in some places much more. There is said to be more snow than for many years. Weather observers predict that the reservoir will be filled before the snow is all melted.

MARKETING ANTELOPE VALLEY PEARS

Continued from Page 407

of Los Angeles for the Antelope Valley pears under present conditions is probably not much over 75 cars in a season. Thus it will be seen that even under present conditions, a large percentage of the crop finds its way to other markets in Arizona, Utah, Texas, etc., largely in mixed cars, shipped by the original receivers on the Los Angeles market.

It has been customary for Los Angeles dealers to contract with individual growers for their crops. The pears are picked in ordinary lug boxes, hauled to the track, loaded into cars and shipped to the Los Angeles dealer. It has been found that when properly handled these pears will keep in cold storage for from four to six months, coming out in fine condition. Last season considerable difficulty was experienced in securing the proper kind of cars, and many shipments had to be loaded into box cars for lack of refrigerator equipment, these very often arriving overheated in Los Angeles. This stock had a tendency to go down very rapidly in cold storage, but some shipments made in cattle cars arrived in better shape on account of better ventilation. Owing to the short haul to the local market, it hardly seems practicable to have empty refrigerator cars iced in Los Angeles and sent to Palmdale or some other point in the valley for loading. The solution of the handling problem, for shipment either to Los Angeles or Eastern markets, lies in the construction at the loading station of a pre-cooling plant, in which the temperature of the pears can be rapidly reduced within several hours from the time of picking in the intense heat of the Mojave desert. Plans are being made for the construction of such a plant within a year or two, at least, at one loading station in the valley. Officials of the refrigerator car lines would, no doubt, be willing to supply adequate equipment if the case were laid before them in the proper manner.

It is needless to point out that in the event that the growers should undertake to ship a portion of their crop to Eastern markets this coming season that some sort of packing sheds would have to be erected, preferably at the loading stations. More care should be given also to the method of picking and handling the crop for long distance shipment. Two or three pickings should be made so that the small fruit will have an opportunity to gain size after the larger fruit is taken from the trees, and particular pains taken to keep sand and foreign matter from getting into the lug boxes. For the first season or two a number of expert packers would have to be brought into the district until the local help became experienced in packing the standard boxes. When these pears are put up to compete with the Sacramento River Bartletts in grade and pack, it is possible that the latter might gradually be crowded from the Los Angeles market.

A committee of growers has been appointed to look into the marketing problem and to confer with representatives of distributing agencies, looking toward the disposition of a portion of the crop in Eastern points for the coming season. An attractive label has been designed which will serve to advertise the district in the East, and a meeting planned to confer with representatives of the State Pear Growers' Association.

Kerosene for Woolly Aphis

By J. E. Calkins.

THE predominance of citrus trees in certain sections of California, compared with the king of fruits, the apple, has rendered the interests of the citrus grower engrossing, at some expense of proper attention to the deciduous orchardist. There has been a preponderance of talk of scale, and gummosis, and bud selection, while the apple grower has been left to wander his way unnoticed along the uphill road that may lead to success. Yet the apple man has a future in California as great as he has in any other state, providing that he has the wisdom to expend his efforts upon those districts of the state that are eminently fitted for the apple; and there are regions in California that will make apples of superlative quality, in satisfactory quantity—apples that will eventually do as much to advertise and enrich the state as its unsurpassed oranges have done. In time there will be as much talk of the pests that assail the apple and its associate, the pear, as there now is of fumigating formulae, and citrus canker dangers, and the invincible mealy bug. But, to proceed—for this does not assume to be a mere dissertation on the growing prospects of the apple orchardist, but, instead, a contribution to the sum of effective knowledge in hand for his continuous campaign against his insect enemies.

During the summer of 1916 we discovered a prosperous colony of woolly aphis in the Alta Vista apple orchard at Tehachapi. From plainting, two years before, till then, none had been found on any tree; now of a sudden we found about five trees that were thus infested.

We went promptly to work, using Black Leaf 40 in various strengths, spraying and drenching the roots. The bugs were set back to some extent but were not exterminated. Apparently a tree would be cleaned up, and then a few aphids would be found on it, and so the fight went on. Incidentally a few other trees caught the plague during the summer; not many, but enough in view of the slow progress of our fight to make it look unpleasant. We dosed and dosed and sprayed and sprayed, and the summer of 1917 showed that the trees on which the aphis first appeared still had all the bugs they needed, and here and there another colony was being located. It could not be said that the outlook was what we could have desired. Through that summer and the ensuing winter the campaign was continued; nicotine, kerosene emulsion, and other approved and guaranteed exterminators were used with diligence. We kept the enemy pretty well buried in his trenches, but on the whole he made all the gains that were made; for the plaguey bug appeared in two or three other spots. A wholesale drenching of the roots with kerosene emulsion, most carefully made, was given during the dormant season of 1917-1918 when the aphides were supposed to be all comfortably hived up about the roots. They did not make very much of a show in the spring, but not a colony was wholly missing, and the number of trees assailed was still a little larger. It was evident that the agencies we had been employing were not thoroughly efficient; in fact, they did hardly more than a good decent friendly parasite would have done, only keeping the number down, so that the damage was minimized. All this time the pest was so well kept under that a majority of the affected trees did not plainly show that they were suffering, and only a small proportion seemed to be losing the fight; but who wants to be fighting such a battle in such a valuable location as a good young orchard?

One day, about the time another nicotine raid was due, if the aphis was to be held in hand, our foreman, C. D. Wood, ventured to do some independent thinking, wholly regardless of the rules of practice laid down by the books and horticultural inspectors. Selecting a tree that was badly infested, badly sapped by a long fight, and apparently doomed by other circumstances, so that if it succumbed to the remedy it could not be counted a loss, Mr. Wood carried down to it somewhat better than a quart of kerosene oil, same as used in lamps and stoves, and gave it a thorough treatment. With a hand sprayer he gave the tree a good mist of oil; one branch that was the residence of a healthy settlement of the aphis he doused in the oil for something like five minutes, by immersion, and then, removing the earth from the roots, he poured all the oil left, fully a quart, on the roots and the ground about them, covering this radical experiment well out of sight by replacing the earth by loose shoveling.

"This was in the middle of the month of May. By the end of that month, as Mr. Wood reckoned, that tree would be good and dead and out of its trou-



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bles. He was fairly confident that he had hit upon a remedy that would be as thorough as that applied by one of our neighbors who fired a large pile of brush to windward of one of his infested trees and let the blaze sweep through it for five minutes; but still, he argued, an apple tree might not object to a reasonable dose of kerosene, and it was certain that woolly aphis was killed by it at the touch. His armor of wool was a sure defense against ordinary forms of moisture, even turning all but the most heroic administration of Black Leaf No. 40, but it sopped up straight kerosene like a blue blotter. His gray hairs were not respected by it in the least. They wilted down into a sodden mass, and his undefended body was dead in very short order. It was too much to expect that the tree would escape some ill effect of such a drastic cure, but Mr. Wood fell back upon the argument of the shipwrecked sailor who built a fire in the bottom of his open boat, reasoning that the water could not come into the fire, and it was sure that the fire would not burn down into the water. "I figured," he says, "that the tree was so full of sap that it would not take on any of the oil and that the air and the ground might take up that oil before it could do any harm; anyhow that tree was as good as gone away and nothing I could do to it would hurt it any."

Next day that tree was free from visible enemies of any and all kinds. Dead aphides were clinging to it, but no live ones were in sight. The tree itself was almost free from any show or trace of oil. Its bark and leaves looked clean and normal. A week later it was fresher and greener than it had been, as clean as a Dutch kitchen and looking livelier than it had looked for a year. By June, a month later, when it should have been in the sere and yellow leaf if that clinic was to kill it, it looked very visibly thriftier, its foliage fuller and of a darker green, and its bark smooth, fresh and healthy. It was growing.

Arguing from this example that kerosene was death to the aphis but fine for an apple tree, Mr. Wood went through the whole 50 acres, repeating that initial experiment on every tree that showed the infestation. The results in all cases were identical; the trees were cleaned and began perceptibly to improve. By the end of August nobody would have had a suspicion that any one of them had ever seen a woolly aphis. Clear down to the cold days when they shed their leaves they continued a consistent show of renewed vigor and uninterrupted good health and growth. If the oil left any mark on them at all it was a cleaner, smoother, more satiny bark and a cleaner leaf. No sign of aphis has been seen on any one of them since. That one dosage did infinitely more to clear out the aphis than all the preceding fight put together. In fact, as far as we have since been able to judge by careful watching, its results seem to have been 100 per cent perfect.

In this work only the best grade of kerosene was used; Standard Oil Co's. Pearl oil. Presumably the manufacturer tells the truth when he represents this oil as free from asphaltum or other harmful, base ingredients. In the open air it is soon evaporated from the tree, but it stays on long enough to make very sure of the bug. In the ground it is doubtless to be found still, but it seems to do no harm. A kerosene less thoroughly refined, burning with more smoke and smell, and evidently carrying more or less of basic content, might not work so well with the tree, though there is no doubt it would do as well for the aphis. But at the relative cost of one treatment with kerosene and endless palliative fighting with other insecticides the cost of cleaning an orchard with good oil is inconsiderable. We regard the experiment as phenomenally successful; and, in the hope that it may be of aid and comfort to other apple growers who are not more than holding their own in their battle with this plague, the details of this little story are submitted.



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Experiences With Summer Cover Crop

By Robert W. Hodgson.

AT the recent Citrus Institute held in conjunction with the Orange Show at San Bernardino, the discussion a number of times centered upon the summer cover crop in the citrus orchard, growers evincing a decided interest in the subject. At that time the writer was asked a number of questions regarding instances where the summer cover crop had affected the set of fruit, amount of water necessary for its success, time of planting, desirable crops and other matters pertaining to the subject. Not having expected to be called upon, the writer naturally was not able offhand to present what material he has gathered upon this subject in as suitable form or as much detail as he would have liked. He has therefore prepared the present article trying to bring together the facts as he sees them regarding the growing of summer cover crops in citrus orchards in the light of what experimental work has been done as well as the experiences of growers in the past.

Summer cover crops may be grown in citrus orchards with at least two distinct objects in mind, the first being to provide for the building up of the soil through the addition of readily decayable green organic material; the second, and of especial interest to growers of navel oranges, to aid in the setting of satisfactory crops of fruit.

For Green Manure

Summer cover crops for the first purpose have of course been grown to a limited extent for a number of years, particularly in orchards where some winter intercrop has been grown preventing the raising of a winter cover crop or in localities where the winter cover crop has not proven very satisfactory. During the last few years, however, the growing of the summer cover crop for the addition of organic matter has enjoyed a considerable extension and bids fair to become a regular practice in many sections. For this purpose, in the past no better crop has been found than the blackeye bean or cowpea, although buckwheat has been used to a limited extent. For green manure the qualities desired in a crop are of course ability to make a heavy tonnage with a minimum of water and in a relatively short time, and the cowpea apparently excels all other summer growing crops tried up to the present time in these particular qualities. The ordinary field cowpea has been used with considerable success but more desirable varieties seem to be the Clay or Whippoorwill, both of which seem to make a faster growth and consequently more tonnage. Other crops which have been tried out in a small way and will be given larger trial this season include the soy bean and velvet bean.

For best results these crops should be planted when the soil is warm which means not earlier than the latter part of April or the first of May. If planted earlier a poor stand and stunted growth is apt to be the result.

In the heavier more retentive soils one extra run of water or at least two or three will usually suffice for the cover crop but in the lighter soils as much as half again the usual amount may be required for success. In any case one must be equipped so that a sufficiency of water for both crop and trees may be supplied, else instead of being a benefit the cover crop actually results in injury.

The cover crop should, of course, be turned under while still lush and green, which usually means some time in July or August, depending upon the time of planting as well as weather conditions.

For the "June Drop"

For the prevention of "June drop," however, it is imperative that the

Continued on Page 419

Top Dress with Nitrate of Soda

It does not Sour the Soil

Nitrate leaves no mineral acid residue to injure your soil—it keeps the land sweet.

Nitrate of Soda

Top dress 100 lbs. per acre for seeded crops; 200 lbs. cultivated in thoroughly for hoed crops. These light dressings should be evenly spread.

W. LAMBERT MYERS
Chilean Nitrate Committee
P. O. Box 248 Berkeley, Cal.

HOW TO FERTILIZE

Every farmer knows that plants need Food as much as cattle. He knows, too, that plants cannot get all the Food they need out of the ground alone. He must supply them with certain Foods himself, or they will not thrive and bear their full yield of fruit. Exactly as he supplies hay and oats to his horse, so he must supply Nitrogen and phosphate to his plants. He may buy these in the open market exactly as he does his hay or his oats, or he can buy them in combination. Moreover, there is no secret value in the "complete fertilizer," it is nothing more nor less than the ingredients combined and sold at a higher price. Nitrogen is by far the most expensive as well as effective of plant foods, and it will pay the farmer well to stop and think before he buys it in this combination form or waits season after season for legume nitrogen, or organic nitrogen to become available.

These compounds generally averaging 8-2-2 do not supply what nature requires, for the crops take out more nearly the equivalent of a 2-4-3; that is why we can in most cases and in most soils use Nitrate alone as a straight top dressing, and the earlier the better.

Translated into Commercial Fertilizer terms, the comparison is as follows:

	What Nature Requires	What the Average Brand Supplies
Phosphoric Acid	2.02	8.00
Nitrogen	4.33	2.00
Potash	3.65	2.00

THE BEST AND CHEAPEST NITROGEN

The cheapest and most practical form in which to furnish Nitrogen to plants is Nitrate of Soda. In the rainless region of Chile are stored away vast quantities of Nitrogen in what are known as Nitrates—the only form in which Nitrogen can be utilized by plants. The Nitrogen which exists in organic, vegetable or animal matter—that is, roots, stems, dead leaves, weeds, leather, tankage, dried blood—and also Nitrogen in the form of Ammonia salts, must first be changed to Nitrate before it can be taken up by plants. This change is dependent upon conditions of weather. If the season be backward, or there be a prolonged drought, this change may be so retarded as to deprive the plant altogether of Nitrate Food at the very time it needs it most; moreover, Nitrogen in the form of Ammonia salts leaves acid residues in the soil. Nitrate of Soda, on the other hand, is entirely independent of weather and leaves the soil sweet. It is immediately available under all circumstances, for it is readily soluble, and as soon as it comes within reach of the roots of plants it is taken up by them. It can, therefore, readily be seen that the practical value of various forms of Nitrogen ranges from nothing at all, where conditions of temperature or soil prevent Nitration, to 100 per cent as Nitrate of Soda, where Nitration has already completely taken place. Moreover, the process of transforming the Nitrogen of cotton seed meal, dried fish, dried blood, tankage, and other Nitrogenous constituents into Nitrate is very wasteful, for much valuable Nitrogen is lost in the process, as well as by natural oxidation. Official soil experiments have shown that 100 pounds of Nitrogen in these organic forms has only about one-half to three-fourths the manurial value of 100 pounds of Nitrogen in its NITRATED form of Nitrate of Soda.

A GREAT SAVING

In view of these facts it seems extraordinary that farmers should continue to purchase their Nitrogen in compounded form in a ready mixed fertilizer, when they can procure it much cheaper, and ready for the plant's immediate use, in the form of Nitrate of Soda.

Nitrogen is often in a form which is not available as food for the plants, for it must first be converted into Nitrate. The time required to do this varies from a few days to a few years, according to the temperature of the soil and the kind and condition of the materials used.

It must be recognized that the grower should have a chance to derive some profit from the use of a fertilizer, and wise buying is a prerequisite to successful use.

HOW IT HELPS CROPS

If a young pig or a young calf does not have an abundance of the right kind of feed when it is young, it becomes stunted in growth, and never recovers fully, no matter how judiciously it is afterwards fed. The intelligent cultivator has learned that this holds good in the feeding of plants. Nitrogen is the element which enters most largely into the building up of the plant itself—roots, stems and leaves. Most plants need to take up the greater part of their Nitrogen during the early stages of their growth, as in oats. It is plain, therefore, that the cultivator cannot afford to overlook Nitrate, and thus endanger the chances of his crops, which must have Nitrogen in a form the growing plants can use. The presence of Nitrate at the outset enables the plant to get its food WHEN it needs it most, and develops a vigorous growth of roots, leaves and stems capable of withstanding the scorching rays of the sun or sudden changes of temperature, disease, or the attacks of parasites. It is then able to mature properly. Without Nitrate present, the young plant will fail to attain stem and leaf growth sufficient to mature its fruit or grain. Why take chances with makeshifts or substitutes when the real thing is 100 per cent. effective?

Nitrate of Soda is of high value for early crops, such as peas, corn, beets, cabbage, where rapid maturity is desirable. It is a special help to hay, grain, rye, wheat, timothy, cereals and orchards, all of which are unable to obtain sufficient Nitrogen from the soil just when they need it. It is a great specific in the production of sugar beets, potatoes, cotton, cane and apples, or other fruits.

Small fruits, such as blackberries, currants, raspberries and gooseberries, which need a steady, even growth, are greatly benefited by Nitrate of Soda, which can be furnished all ready for digestion when the plants require it.

The highest agricultural authorities have established by careful experimentation that 100 pounds per acre of Nitrate of Soda applied to crops has produced the increased yields tabulated as follows:

Apples	100 bushels
Barley	400 lbs.
Corn	280 lbs.
Oats	400 lbs.
Rye	300 lbs.
Wheat	300 lbs.
Potatoes	3600 lbs. Tubers.
Hay upwards of	1000 lbs. Barn cured.
Cotton	500 lbs. Seed cotton.
Sugar Beets	4000 lbs. Tubers.
Beets	4900 lbs. Tubers.
Sweet Potatoes	3900 lbs. Tubers.
Cabbages	6100 pounds.
Carrots	7800 pounds.
Turnips	37 per cent.
Strawberries	200 quarts.
Onions	1800 pounds.
Asparagus	100 bunches.
Tomatoes	100 baskets.
Celery	30 per cent.
Hops	100 lbs.

Nitrate of Soda is a plant tonic, and an energizer; it is NOT a stimulant in any sense of the word.

It may be used alone without other fertilizers, as a top dressing, at the rate of 100 pounds to the acre.

RESULTS IN CALIFORNIA

For four years in succession samples of Nitrate of Soda were sent to farmers. In each experiment two patches were marked out side by side. One received an application of Nitrate of Soda at the rate of 100 pounds per acre, the other had none. The following are fair samples of the results reported:

CROP—BARLEY

Name, A. B. Ganyard,
P. O. Address, Lathrop,
R. F. D., 1,
State, California.

Plot without Nitrate produced average.

Plot with Nitrate produced extra good.

Date of applying the Nitrate of Soda, March 20.

Date of completing harvesting of the crop, cut for hay in June.

Why Europe Makes Bigger Crops Than the United States

Average Production of European Crops is as follows:

Wheat	33 bushels per acre
Oats	45 " "
Potatoes	199.84 " "
Cotton in Egypt	400 pounds "

Average Production of American Crops is as follows:

Wheat	14 bushels per acre
Oats	40 " "
Potatoes	97.15 " "
Cotton	185 pounds "

Europe uses a Home-Mixed Nitrate Fertilizer containing 8 per cent of Phosphoric Acid and 4½ per cent of Nitrate Nitrogen.

America uses a Fertilizer containing 8 per cent of Phosphoric Acid and 2 per cent of Nitrogen which is mostly not readily available.

The difference in yields is largely due to larger amount of Nitrate Nitrogen used in Europe per acre as **Nitrate of Soda.** Our small American acre yields are due to failure to appreciate this necessity.

Write for "What Chilean Nitrate Has Done in California."

Chilean Nitrate Committee, Box 248, Berkeley, Cal.

Remarks: Could see a marked difference in the two plots at quite a distance. I shall always use NITRATE OF SODA on my Barley.

CROP—BARLEY

Name, R. R. Pefley,
P. O. Address, Murrieta,
R. F. D.,
State, California.

Remarks: The Nitrate of Soda test I put out in the Spring on Barley yielded considerably more than twice as much as the adjoining plot. The results are so good that I intend to use the Nitrate on my grain crops in the future.

CROP—CANTALOUPES

Name, J. F. Brumund,
P. O. Address, Turlock,
R. F. D.,
State, California.

Plot without Nitrate produced 20 crates.

Plot with Nitrate produced 26 crates.

Date of applying the Nitrate of Soda, May 15.

CROP—OATS

Name, Chas. Beedle,
P. O. Address, Los Gatos,
R. F. D. 15, Box 108,
State, California.

Plot without Nitrate produced 133 lbs.

Plot with Nitrate produced 190 lbs.

Date of applying the Nitrate of Soda, March 15.

Date of completing harvesting of the crop, May 31.

Remarks: The crop of Oats was harvested for hay instead of grain. The Nitrate did not have a fair test as there wasn't any rain after it was applied.

CROP—CITRUS

Report of Results from the Use of Nitrate of Soda on Oranges by D. Mackenzie, Pomona, California.

"I bought an orange grove very much run down, and followed practically the method you recommend in the bulletin. From a crop of 106 boxes, there is now estimated 2,000 boxes on the trees, and the limit has not by any means been reached."

THE RATIONAL AND IRRATIONAL USE OF NITRATE OF SODA

Everywhere in the world where there is progressive experiment station work, the unique qualities of Nitrate of Soda are putting it ahead of every other Nitrogenous plant food. Nobody who advocates the rational use of fertilizers ever recommends such large quantities of Nitrate of Soda per acre as would result in any abnormal accumulation of alkali salts. Moreover, the use of acid phosphates, associated as they are frequently with sulphate of lime, converts any alkali residue into harmless forms of soda.

The use of potash salts tends to leave acid residues in the soil, as do acid phosphates even when rational quantities of acid phosphates and potash salts are used. Nitrate of soda is needed to help neutralize these residues.

In most of our experiments where Nitrate was used alone at the rate of only 100 pounds per acre, with no further application of fertilizers to the plots, a decidedly marked effect was noticed. This speaks very well indeed for Nitrate of Soda not leaching out of the soil. The readily soluble elements of fertility are the readily available elements. The natural capillarity of soils, doubtless, is in most instances a powerful factor in retaining all the readily soluble elements of fertility, otherwise all the fertility of the world would, in a season or two, leach away into the ocean and be permanently lost. A case is yet to be seen where the after effects of Nitrate are not distinguishable, and in most cases such effects have been marked. The 2,000 or more tons of active service soil in an acre of land has a powerful holding capacity for all the useful, available elements of fertility.

HOW TO USE NITRATE IN CALIFORNIA

Recent experience in California suggests that Nitrate may be applied as a top dressing to best advantage as soon as growth starts in the Spring, or even better, before seeding or planting.

Generally in rainless or very dry countries staple crops root very deep in search of water and nourishment. Since there is little or no surface water to render plant foods available even when present, Nitrate of Soda should be thoroughly cultivated in, as should other fertilizers, so that they may properly nourish the plant roots of the seeded and cultivated crops during the growing season. Most fertilizers should not touch the seed.

Nitrate has no acid residue to leave behind and it will leave nothing deleterious in your soil after using. It will enable you to overcome the effects of droughts and frosts in the shortest possible time and prolong the bearing period of your trees. Nitrate does not have to wait to get busy.

PROOF POSITIVE

In a twenty-year test to determine the value of various sources of Nitrogen, the New Jersey Experiment Station found "that crop yields and the percentage of Nitrogen recovered in the crop were greater when Nitrates were used."

Official figures are—

"If we assign to Nitrate Nitrogen a value of 100, then the relative availability of the four materials stands as follows:

Nitrate of Soda	100.0
Ammonium Sulfate	76.1
Dried Blood	62.0
Manure	52.4

This research was published in "Soil Science," April, 1918.

VALUABLE BOOKS FREE

Numerous books have been written on the value of Nitrate of Soda in agriculture. These books deal with questions on which progressive farmers cannot afford to form incorrect opinions.

If you are farming to make money you owe it to yourself to send for the free books which pertain to your crop. If you want to know what farmers have done both in America and Europe, who grow the same crops as you do, these books will tell you. If you have any doubt on how valuable Nitrate of Soda would be to your particular crop, you should get all the available information you possibly can on the subject.

These booklets are free—write for them, addressing

CHILEAN NITRATE COMMITTEE
Box 248 Berkeley, Cal.

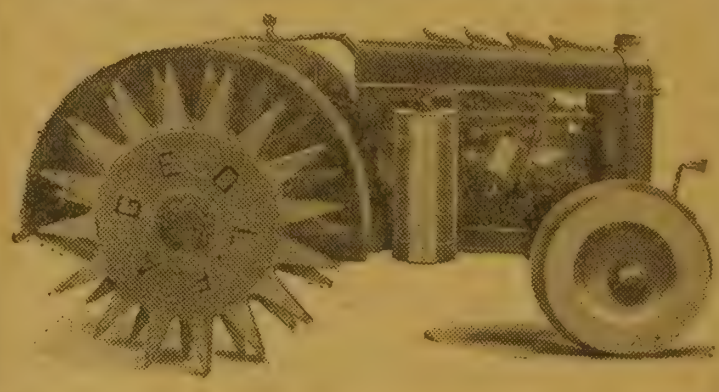
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THORNLESS
Let us tell you about this blackberry
EKSTEIN NURSERIES Modesto, Cal.

Production of Celery in California

By R. G. Risser, Assistant Truck Crop Specialist.

PROMINENT among the vegetables shipped each winter from Southern California and foremost among the vegetables shipped each winter from Central California is the celery crop. Beginning, as it does in the middle of autumn, the celery shipping season is well under way on the first day of the winter months and it continues, interrupted only by severe winds, serious freeezs, or exceptional market conditions, until all the crop is moved or until early spring weather develops a seed stalk of objectionable length.

Separated by some 400 miles of intervening territory, the celery growing districts of Central and Scuthern California are different in several respects. Shortage of rainfall has the most serious effect in the El Monte district of Los Angeles County. Blight is also one of the difficulties encountered in Southern California and insects are sometimes an important factor. In Central California severe frosts are the principal trouble, and the past season heavy unseasonable rains cut down the crop.

The differences in seasons are no less striking than the differences in districts, and the contrasts between the past two seasons are especially marked. These seasons are notable in several respects and are extremes in more than one way. The year 1917-18 was probably the greatest on record in this state for area planted while the season 1918-19, with approximately half the acreage, was the shortest one in years. The season 1918-19 has broken all records for high prices, while the season preceding was considered an unsatisfactory one as prices failed to meet the high cost of production in many cases. The season just closed has been a remarkable one in regard to early banking, quick blanching, prompt cleaning up of the crop and the marketing of both high grade and inferior stock, while the previous season showed a sluggish movement, discriminating market, tendency to hold in the bank for some time, and a surplus of unsalable stock at the close of the season. The insistent demand which continued throughout the past season resulted in growers shipping their stock before it had reached full size in many cases, and the yield and quality was correspondingly reduced while the tendency to hold produced good sizes and excellent yields during the previous season. Yields for the season 1918-19 were further reduced by damage from dry winter weather in Southern California and by September rains and January frosts in Central California. Perhaps the most important difference of all in the two seasons has been the transportation service which has been satisfactory this past winter and very unsatisfactory the winter before.

The bureau of markets reports 2758 cars rolled during the season 1917-18, and if the movement in mixed cars, boats, and auto trucks was included the shipments would probably exceed 3000 cars. In spite of the short acreage and generally light yields this season, the total production of marketed celery in California in 1918-19 is approximately half as large as in 1917-18 because everything is being shipped out this season. Perhaps the most striking fact, however, is that the gross return to the growers of the state is practically as large as when they grew the record acreage.

Lawns on Alkaline Soils

Written for California Cultivator By Ernest Braunton

A CORRESPONDENT living between Compton and thecoast, in damp sandy soil, wishes to know the best material for a lawn. She wishes blue grass if possible, but "would consider Bermuda grass if it did not grow so coarse here."

Blue grass is out of question unless a heavy coating of black adobe is put on top of the sand after the latter has been heavily enriched with stable or dairy manure. The lawn would not be worth the trouble and expense. White clover would do much better than blue grass, but needs a rich soil and some heavy soil added. Lippia should do fairly well but it is a tropical plant and in winter would lose all its leaves in the Compton district. As land is stated to be "covered with a thin stand of very coarse and tall Bermuda grass," I feel safe in saying it is not Bermuda grass at all, but Distichlis spicata, the salt grass.

Bermuda grass is not coarser in sandy soil than it is in heavy soil. Though nearly all sow blue grass, in a few years 90 per cent of the lawns and 90 per cent of each lawn is Bermuda grass. Then why not plant it at first? The area should be spaded or plowed at once and harrowed and cultivated all summer and raked over several times to get out every vestige of the salt grass or at least kill it by drying all summer. After the first heavy fall rain it should receive a good coat of manure, a heavy coat, and be plowed or spaded as deeply as is possible.

At intervals during winter, after each heavy rain it should be cultivated, hoed or spaded and harrowed or raked, putting on some good manure before the last or one of the last cultivations. You may then, about April, either sow seeds of Bermuda grass or the roots chopped up fine and harrowed, or raked in. The soil should be kept in very moist condition until these roots have taken hold on the soil. Keep it well watered during the first summer and your troubles will thereafter be few and light. Give a top dressing of fertilizer in April of each year. Before lawn is sown the whole should be enclosed by a one-by-six redwood batten sunk edgewise in the soil till the top edge is level with lawn surface. This treatment will give you a good lawn.

The Common Myrtle

Last week, while at Riverside, I saw a shrub of Myrtus communis, some eight feet high, nearly globular in form, dark rich green in color, and apparently about a quarter century of age. It was the finest shrub I ever saw while in the city. We have called it the English myrtle because it was introduced from the mother country, but it grows in various parts of the world. Being common in England, where the climate is at all times moist, we would hardly expect to see one so fine in California of the south. It is apparent that it thrives inland better than in coastal districts, for this one had neither food nor care, in ordinary soil, yet in appearance it was the finest I ever saw, and the darkest in color.

Dual-Purpose Vine

While we are searching for evergreen vines that bear edible fruits, there comes to us from the Himalayas an evergreen raspberry of gigantic growth. It runs up to 15 feet, is hardy wherever the orange is. It bears handsome foliage and an abundant crop of yellow berries of fine flavor that are excellent for home use but too soft for shipping. Better try one in place of some old scraggly vine that is neither useful nor ornamental.

The White Sapote

Many growers, well versed in tropical fruits, hesitate to plant Casimiroa edulis, the white sapote, for the reason that seedling fruits are variable in size and quality and the trees are very, very often but "shy" bearers. The best, or one of the best, is the Harvey, planted at Sierra Madre, named for the introducer, the late J. C. Harvey of Vera Cruz, Mexico, and formerly a well known plant lover of Los Angeles. Budded trees of this variety may be obtained and that is the only kind one should plant. A budded tree requires no more space or care than a seedling and the planter know what he will get and when. The seedling may never produce a fruit, or but a few.

The Paraguay Guava

The feijoa sellowiana fruits are by

some in the local field called the pineapple guava, though who first did so deponent saith not. It was doubtless done to make better sales for the plant, and it has somewhat of a pineapple flavor—at least some of them have. In its native South America it is called the Paraguay guava and so catalogued by the dealers there, so to me that is the proper name. The seedlings are of doubtful value except as ornamentals. Some bear fine fruits; others none. Grafted plants may be had where the scion has been taken from a scion of a good family strain, a good sign it is a reliable sort to purchase. Why bother with those of doubtful value when you may have the best?

Showy Poppies

All kinds of poppies have been grown in my garden but I like Shirley better than any for they are delicate in appearance while the common poppies of the opium section flaunt their brilliant colors too brazenly. But where one wishes a strong glare of color these large tulip-like poppies are necessary. Of all I have grown I like the Admiral best. It is a large single white with a deep band of scarlet around the top. I have grown it in full sun, where all poppies are supposed to thrive best, and also in partial shade, and in the latter position they were largest and best.

Fremontia Mexicana

Too few of our people know our native Fremontia Californica, though a desirable shrub for the garden. Now there has been found a new species in Lower California that has larger flowers and leaves and the flowers are darker in color than the better known species, being almost orange, whereas the other is a buff. Those who have seen it state it is of better garden value than the F. Californica. Both species do well in the hottest and driest situations.

Garden Shrubs

The use of shrubs in gardens is somewhat puzzling. Theoretically shrubs are planted as a foil or background for flowers. But what if the shrub when in flower is as handsome as the flowering plants that hide it. Shall we then treat them as shrubs or as flowers? It is better to use low growing plants in front of shrubs of good value, or if the border be broad enough, plant smaller shrubs in front of large ones. The proper use of shrubs is quite a puzzle both to the amateur and the professional.

The Banyan Tree

At Miami, Florida, there are several trees of Ficus Benghalensis, the banyan, in most vigorous growth. There are frostless spots in California where they could be grown if well supplied with water, for they grow in low lands and really should have a humid atmosphere. Therefore coastal regions would suit them best.

An oriental traveler named Forbes first published a description of the huge banyan tree in India where Alexander the Great encamped his forces in 326 B. C. It is said 7000 of his troops were sheltered beneath this one tree. Aerial roots grow down from the main and almost horizontal branches, take root and become trunks. This huge Indian tree now has about 4000 trunks and covers a space nearly 1000 feet across. Its growth in India is very raipd and in a hundred years from the seed a tree will cover a large tract.

JAIL FOR FIRE BUGS

The second annual conference has just ended in San Francisco of specially selected forest rangers who will take the trail of the fire bug this coming summer. Uncle Sam has quit fooling with those who can't or won't understand his conservation policies and who insist on burning up his timber, stealing his forage, illegally killing fish and game on the national forests, or otherwise violating the laws. He has ordered his forest rangers to follow the trail wherever it leads and bring them in. During the last year, over 100 convictions for fires alone were secured by the national forest officers, in this state, while the number of man-caused fires was reduced by 50 per cent and the damage by 75 per cent.



International Tillage Brings Bigger Yields and Better Grades

MANY are the uses, and great is the value of a good disk harrow. More than any other farm tool, its proper use takes the gamble out of crop raising. The perfect seed bed that causes quick, strong germination of the seed, rapid growth of the plant, and even maturing of the crop, cannot be made without a disk harrow. A good one costs so little, and plays such an important part in determining the yield and value of your crops, that its purchase deserves really serious consideration.

Knowing the character and condition of your soil as you do, you will know whether to buy a two or three-lever harrow, a tandem, or one of our new leverless tractor disks, but, whichever style is best for your work, you will find a high-grade, up-to-date harrow of that style in the International line, and of a size, suitable to your power equipment. We have sold disk harrows for years, but never was the line so complete, or of such high quality, as the line we offer for 1919. The local dealer will explain the value of the many features we have not space to mention here.

Other useful implements in this line, each built for its own special work, are open end, closed end, and flexible peg-tooth harrows, spring-tooth harrows with single and double end teeth, and one-horse cultivators with every kind of tooth and shovel equipment. These, too, can be seen at the local dealer's place of business, or we will send catalogues on request.

Glance over the list of machines in this advertisement and write us for full particulars about any in which you may be interested.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines

Binders Push Binders
Headers Rice Binders
Harvester-Threshers Reapers
Shockers Threshers

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Disk Harrows
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Orchard Harrows Cultivators

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Haying Machines

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Comb. Side Rakes & Tedders
Tedders Loaders (All types)
Baling Presses Rakes
Sweep Rakes Stackers
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Bunchers

Belt Machines

Ensilage Cutters Corn Shellers
Huskers and Shredders
Hay Presses Stone Burr Mills
Threshers Feed Grinders
Cream Separators

Power Machines

Kerosene Engines
Gasoline Engines
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Motor Trucks
Motor Cultivators

Corn Machines

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Other Farm Equipment

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Fertilizer is to the tree what gasoline is to the engine. If you want small returns feed little, if you want BIG RETURNS feed liberally.

Ninety per cent of the non-paying groves are the UNFERTILIZED groves. Feed your trees into the dividend paying class by using

Hauser's Organic Fertilizers

Built for California Conditions

Send for booklet "Fertilizer Efficiency"—tells you why.

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We specialize in selected SEED POTATOES; Certified White Rose, American Wonders, British Queens, Burbanks, Garnet Chilis, and other varieties. Also fancy, recleaned Alfalfa Seed. Write for prices.

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CALIVADA
Sheep MANURES Steer

From highest nitrogenous feed. Decomposed and concentrated by age in their own liquids, containing the highest percentages of Nitrogen, Phosphoric Acid, Soluble Potash, and readily available Humus.
Shipped commercial dry. Cars average 22 to 24 tons. Saves four-fifths labor in application. Thousands of tons now being shipped to citrus and deciduous growers in California.
Write for samples, prices and particulars today to insure prompt deliveries.

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When Writing to Advertisers Say Where You Saw Their Advertisement

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Ringbone

A subscriber at Woodland, Ray E. Smith, protests against firing as a cure for ringbone, and gives the following remedy which he assures us was never known to fail if properly applied:

Take one drachm finely pulverized corrosive sublimate. Add this to three drachms of Venice turpentine mixed well together. Apply a teaspoonful to the enlargement, rubbing it in well. Two applications are sufficient. Grease well with hog's lard two days after the application.

Liver Trouble

What is the matter with my White Leghorns? They stand around and droop. Some pass an unformed, soft-shell egg, all white. After a couple of days they die. Have some meal, oyster shell, dry bran and skim milk before them at all times. Feed wheat and rolled barley morning and night. Comb and wattles turn very dark and some pass watery, light-brown droppings. Have good clean chicken house and acres and acres on which to run. —Subscriber, Oroville.

From the dark red combs and the diarrhoea I am inclined to think your hens are suffering from liver trouble or from a combination of liver trouble and indigestion due perhaps to the rolled barley, the hulls of which are hard to manage if heavily fed. A dose of Epsom salts all round, about half a teaspoon for each bird, mixed in a moist mash and fed twice a week for several weeks will help to clean out the digestive organs. Then discontinue the rolled barley for a while, substituting sprouted whole barley. Feed plenty of green and mix a little charcoal in the bran. Better than bran alone is the regular dry mash mixture of several kinds of ground grain and beef or fish scrap which is used by most poultrymen, and better than sweet skimmed milk is sour skim or buttermilk. The lactic acid of the sour milk has an extremely wholesome effect on the digestion of all fowls.—J. A. K.

Trap-nesting

Would you kindly inform me as to trap-nesting? How it is done? Also how to test hens for egg production? Is the Hogan system a sure test? Also the standard price on pure-bred R. I. Red eggs per setting?—Subscriber, Los Banos.

There are several good trap-nest models, one of which, the Oregon trap-nest, is fully described, with directions for making, in "Poultry for Profit." If you prefer to buy them ready-made they can be purchased from any large poultry supply house. The principle of all is the same. When the hen goes on the nest she closes the door, and is obliged to remain till the attendant lets her out—and makes a record of the egg she has laid. The Hogan system is highly recommended by Professor Dougherty and other experts and is used by many commercial poultrymen. Probably it is as certain as any test that can be made before the hen begins laying. You ought to get pretty good R. I. Red eggs from exhibition stock for $5 per setting. Pure bred eggs from utility stock cost less, but they are not always satisfactory.—J. A. K.

Hens Poisoned

Can you tell me what the trouble is with my hens? One died a few days ago and another yesterday. They sit still and when compelled to move tremble badly. The first died within a few hours after I found her, but the other bird lived about 48 hours. They have had a buttermilk mash to run to and have been feeding Egyptian corn, and the last two weeks barley. They run out in the grove on sweet clover. We have had an average of 12 eggs a day for two weeks from 17 Barred Rocks.—Subscriber, Upland.

When death occurs as suddenly as this, poisoning is always to be suspected, especially when the hens run at large. Your ration is good, but the hens may have found something on range or had something thrown to them, which has poisoned them. Moldy table scraps, spoiled meat, a dead chicken left unburied, copper or arsenic from sprays used on fruit trees, or nitrate of soda used for fertilizer and dug up by the hens in scratching for worms, might any one of them have affected fowls as these were affected. If you can find out what the poison is in time to administer its proper antidote, which is generally white of egg, milk or a mucilaginous drink like flaxseed tea, you may save the patient, but prevention is usually the only cure.—J. A. K.

Long Staple Cotton

How much does long staple cotton sell for in the Imperial Valley, the seed and the lint; how many pounds of seed cotton does it take to make a bale of lint; and several other questions are asked by a Tulare cotton grower who has a small quantity which it seems impossible to dispose of in the San Joaquin Valley at this time. These questions were referred to F. W. Waite, horticultural commissioner for Imperial County, who refers to the unfortunate situation which obtains with all growers of Egyptian cotton at this particular moment. However, here are a few points from Mr. Waite's letter:

"There is no cotton sold in the seed or seed cotton. Always sold in bales, lint separate from the seed. A bale is 500 pounds. The cost of ginning Egyptian cotton here is $16 per bale. There is no local market for Egyptian cotton. Sold on orders from the East, at the present time there is no demand due principally to readjustment of war conditions and labor trouble at the mills. As there are no buyers it is not possible to say what Egyptian cotton is worth, but it should sell around 53 cents per pound. It would not be advisable to ship seed cotton from the north to the Valley on account of the cost."

Grass Under Trees

I have a strip of land about 30 ft. by 1000 ft. lying east and west on the north side of a row of eucalyptus trees running in the same direction. This piece of land is pretty well shaded in the winter but in the summer more or less light fitlers through. I would like to know if there is not some forage or grass crop that would grow in this spot, sufficient for pasturage for horses or possibly that would produce a cutting or two of hay. This spot is at the lower end of an apricot and orange grove and is kept moist by the waste water from the orchards. The price of all kinds of feed is so high that it seems incumbent on one to utilize all the land to its fullest extent. Though I am not familiar with these different varieties, it seems to me that with the alfalfas, Sudan, Rhodes, Natal, Parra and other grasses, maizes and sorghums, there should be one or more suited for the conditions stated.—Subscriber, Cucamonga.

These questions were referred to Prof. P. B. Kennedy of the state university who answers:

"It is very difficult to secure any grass under eucalyptus trees. It is generally thought that the residue from the eucalyptus leaves is deleterious to vegetation. This, together with the shade, makes it a very difficult proposition and I am fairly cer-

As Distinctive as the White Triangle

Note the Way in Which Hudson Super-Six Owners Accelerate Their Cars

Is there any feeling quite as exhilarating to the motorist as that which comes to the driver of a car that is master of acceleration?

Note the way in which nearly all Hudson Super-Six drivers start their cars. They are off and down the road faster than any other driver. That is such a common performance that owners of other cars do not often dispute Super-Six right of way.

$2,200 f. o. b. Detroit for the 7-Passenger Phaeton

Such satisfaction is distinctive to Hudson.

But Hudson owners do not limit their praise to its superior acceleration. They tell how it grows in their affections because of its dependability. They enjoy its freedom and power.

Such confidence adds much to one's automobile satisfaction.

A Quality Not Revealed By the Specifications

More worth-while records than any other car has ever shown, give proof of Super-Six speed, acceleration and endurance. Official records mention the Super-Six again and again as holding the best time for this or that notable stock car event.

But words can not convey the feeling that one experiences when he is master of such a car.

Drive your Super-Six in a way that will give you its greatest motoring enjoyment. You can lead any procession of cars. You can dominate any road.

Production Limited Until June

Super-Six production will not be normal before June.

If you want a Super-Six phaeton—either four or seven passenger type—you may be able to find one at your dealer's. Some have a few in stock. When they are gone, all must wait until open car production is resumed.

HUDSON SUPER SIX

Hudson Motor Car Company

Detroit, Michigan

(1036)

tain that none of the grasses mentioned in the note which you sent me, namely alfalfa, Sudan, Rhodes, Natal, Parra, or the sorghums, would grow under the conditions mentioned. A grass that would withstand the shade conditions but perhaps not the deleterious effect of the eucalyptus leaves would be the Smilo grass."

Fair Play

If a wife buys a calf with money she washed for, has she a right to the increase? Has she a right to a cow that was given to her for a present? He says he owns all of the cattle we both worked for. He won't give me a cent of money and wants me to give him everything. If I don't want to live with him can I get any of the community property and land?—Subscriber.

That calf sure belongs to the woman, and the man who fails to provide for his family and does not permit a reasonable degree of liberty to others should move to Mexico or somewhere outside the boundaries of the United States. One-half of the community property belongs to the wife, or at least should if she is justly treated. The property may be divided if divorce is secured.

Repellent for Rabbits.

Can you furnish me with formula of the mixture used by some of the Fig Land Improving Companies on their young trees as a wash to keep off jack rabbits? This wash is quite effective in keeping off these rodents, and it would be valuable to your readers to know the formula employed.

We do not know the particular wash referred to, but common smears which have been used for this purpose consist of bacon grease or rubbing the tree trunk with bacon rind. Whitewash, to which has been added a mixture of glue and copperas, is also used as a protection. To a bucket of lime slacked with warm water add two pounds of dissolved glue and one pound of copperas dissolved in water. A combination of common potash and common grease is sometimes used, mixing it up like thick cream and painting it over the trunk. The use of the usual yucca or tule or any of the advertised tree protectors is perhaps the safest way of all, unless it is the construction of a thoroughly good fence.

Cheapest Silo

I would like to know the cheapest type of silo. I have heard there is one that can be built for one dollar per ton. What is the right size for 12 or 15 cows?—Subscriber, Porterville.

The cheapest silo is what is termed the pit silo. It is made by using the ordinary "scoop" scraper with team of horses. We cannot give exact cost per ton capacity, and, in fact, that cost would vary greatly according to circumstances, such as side hill site, nature of the soil and other factors. The more common pit silo, however, is the dupgout or cistern type. This form of silo is very cheaply constructed and filled, but greater care must be exercised in packing near sides. It is also more expensive in the removal of silage, and in this respect a windlass or other hoist with buckets or baskets is necessary. Perhaps the next cheapest silo is the wood hoop silo, described in Circular 173, Agricultural Experiment Station, University of California, Berkeley. This silo has been condemned by some, and by others urged as a step in the right direction for the farmer unable to put up a more permanent form of silo. Full information as to construction may be had in the circular, which is to be had for the asking at the university. Other information is in Circular 138, "The Silo in California," by Prof. Woll. There are different forms of stave silos, and they are being made today exceptionally effective and durable. Other forms are brick, hollow brick and reinforced concrete. Each cow will require one cubic foot or about 40 pounds, of silage per day, so if one wishes to cover a period of 180 days, it would take 7,200 pounds of silage per cow. It would probably not be wise to build a silo with a diameter less than 10 feet, though they have been built as small as six feet in diameter. A silo 10 feet in diameter and 20 feet in depth would have a capacity of 26 tons, or somewhat more than the amount which would be required for this small herd. However, this margin may be no greater than desired. Pit silos have been constructed at 40 cents per ton capacity. This is counting the cement and other supplies and not the labor, which was done by the regular men on the farm at odd times. Cost of constructing other forms would vary greatly.

Lippia Plants

Where may I secure plants or seeds of Lippia? I mean the plant which does so well along banks or terraces. —Subscriber, Santa Cruz.

Any of the plant and seed houses advertising in the Cultivator can supply these plants. They are usually delivered in flats and the sod is cut up into small squares, say about two inches, and set eight to twelve inches apart. The runners soon make the ground solid with this fine soil covering.

Bronze Turkeys

What is the weight of the largest Bronze turkeys?—Subscriber.

A writer in Races of Domestic Poultry says wild males have been shot which weighed up to 50 pounds, but these were very old birds. The largest we have seen among tame specimens was 47 pounds. This weight was secured under special feeding up plans. Averages would run probably less than half that weight.



IT HAS been stated by various authorities that one of the most important factors in crop production, in California, is nitrogen.

Assuming that nitrogen is the element needed, why should you use

Arcadian Sulphate of Ammonia

First: It is the least troublesome. You buy a definite compound, 25¼ per cent. ammonia, and you get it in good shape. It may be stored indefinitely without deterioration.

Second: It does the work. Results can be seen in the deep green color of an ordinary field crop in two weeks or less. As it is very high in ammonia, the freight and distribution costs are at a minimum.

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For Information as to Application, write The Barrett Company Agricultural Department

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You can depend on this to control the scale insects. It penetrates the cracks in the bark and *kills the eggs*. So—what chance is there for Red Spiders, Aphids and their creepy brothers to do much damage?

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Whenever you have any questions to ask—write our Service Department, in charge of Paul R. Jones, Entomologist. This expert advice costs you nothing.

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All f. o. b. your station.
Small quantities 15c per lb.

New Giant Sudan Grass

A Wonderful Fodder Producer.
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Excellent also for Alfalfa, Vines, etc.
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Which Is *Your* Favorite?

It is certainly one of the 14 shells named in the column to the left. These are the standard makes of loaded shotgun shells. You can obtain your favorite, loaded with a Hercules Smokeless Shotgun Powder, by specifying the powder when you buy the shell.

Many experienced sportsmen ask that their shells be loaded with either Infallible or "E. C.". They know by experience that

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Look for the name Infallible or "E. C." on the outside of the box in which you buy your shells, or on the top wad of the shell itself. Tell your dealer that you want your favorite shells loaded with a Hercules Powder.

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NOW BEST TIME TO PLANT
Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb or Berries, write for special prices. J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, California.

How the Credit Union Helps Farmers

By Geo. H. Dacy

Neither a borrower nor a lender be,
For loan oft loses both itself and friend.

WILLIAM SHAKESPEARE'S couplet may have been apropos during the age of ruffs, doublets and lace, but it is out of fashion now. Judicious, legitimate lending and borrowing are now primary principles of successful business. The game of keeping the dollars constantly in circulation has developed to such an extent that in many sections personal credit organizations have been promoted which cooperate with local banks in rural and urban financial affairs.

"There should be provided a system of personal credit unions, especially for the benefit of individuals whose financial circumstances and scale of operations make it difficult for them to secure accommodations through the ordinary channels," said David F. Houston, secretary of agriculture, not long ago. "Organized commercial banks make short term loans of a great aggregate volume to the farmers of the nation possessing the requisite individual credit. but there are many farmers who, because of their circumstances, are prevented from securing the accommodations they need. An investigation by the United States department of agriculture to determine the extent to which farmers in the Southern states were dependent upon credit obtained from merchants, revealed the fact that 60 per cent of them were operating under the 'advancing system.' The men I have especially in mind are those whose operations are on a small scale and who are not in most cases intimately in touch with banking machinery, who know too little about financial operations and whose cases usually do not receive the affirmative attention and sympathy of the banker. Such farmers would be much benefited by membership in cooperative credit associations or unions."

"What further can be done by the federal government directly to stimulate personal credit unions it is difficult to outline," continues Mr. Houston. "This matter has received consideration at the hands of many experts and was thoroughly canvassed by a joint committee of congress. The conclusion up to the present seems to be that the field is one primarily for the states to occupy through sound legislation. About 125 associations have been organized but the larger percentage of them have been formed by wage earners in urban centers. The attempt to develop strictly rural credit bodies has met with somewhat more success in North Carolina than elsewhere. In this state the work of promoting and supervising such organizations was placed in charge of an official in the division of markets and rural organization of the state college of agriculture. The law of this state was enacted in 1915 and at present 16 credit unions, all of them rural, are in operation. It is noteworthy that the North Carolina law makes special provision for educational and demonstrational activities."

Eight States Enact Credit Laws

Eight states, Massachusetts, New York, Texas, South Carolina, North Carolina, Wisconsin, Utah, and Oregon, has passed credit laws, while North Carolina now boasts 17 rural credit unions, five of which are especially prosperous and successful. Furthermore, in many urban sections of the New England states, personal credit unions have been established which have fostered saving among the laboring classes and their children. In Massachusetts, where the first of these clubs, the Myrick Union, was formed in 1908, there are 80 such clubs at present.

Under the German Raiffeisen system the credit union was a strictly cooperative association, conceived without capital stock, although ultimately the government required all such clubs to have capital stock. Under the Raiffeisen system these unlimited liability institutions make small loans at a low rate of interest for a designated purpose of worthy members of the society.

The capital stock company is the typical form of organization in the United States. For the association with share capital there is a limitation as to liability of the members, and this feature has been important in attracting members and capital. On the other hand, for those communities where share capital is not readily available, the non-stock association affords a means of obtaining funds on the basis of an unlimited liability.

Credit Union a Universal Depository

The credit union will accept deposits from anyone but it will lend money under restrictions only to its members. Funds are obtained by the credit association through share capital, by general deposits or by borrowing in the name of the association. Usually in the non-stock association a small membership fee is charged so as not to discourage membership. This furnishes funds for a small working capital.

In the share capital clubs each share sells for $5 to $10. Ordinarily there is no limitation on the purchase of shares unless this is controlled by state law or by-law of the association. No salaries are paid except a nominal one to the secretary treasurer who usually is a farmer or a business man having a connection with a local bank.

The success of the agricultural credit unions in North Carolina has been due largely to the fact that the state agricultural department has aided the movement by valuable educational work among the farmers for the encouragement of credit organizations. This assistance from the state is so invaluable that other states contemplating the promotion of rural credit clubs might well consider the practicability of a similar arrangement, in the opinion of the federal department of agriculture. The superintendent of credit unions in North Carolina assists groups of farmers interested in the credit union idea and advises with them not only in the formation of clubs but also in the efficient management of the organizations after they are formed.

North Carolina Has 17 Credit Clubs

The 17 credit unions of North Carolina up to December, 1918, had a total membership of 783 with 299 depositors who have made payments of $7977.27 on shares of stock. The deposits aggregate $14,175.25, and the loans to 144 borrowers total $17,778.76. Only $3200 had been borrowed from local banks while the cash in banks amounted to $7529.82. The total resources of the 17 cooperative credit clubs was $27,465.01 at the time mentioned.

The Vadese Union, organized February 10, 1917, has 80 members and 87 depositors who have made payment of $1746 on shares. The total deposits were $6655.08 in December, 1918, while 31 members had borrowed $6916.43. The club had $1429.78 in the bank and total resources of $8986.23. The Lowes Grove Union, the oldest in the state, organized January 20, 1916, had 55 members and 79 depositors in December, 1918. The paid-up shares amounted to $687.50; the deposits were $1159.78; the loans to 30 members aggregated $2326.46. From the local bank $600 had been borrowed while the cash in banks amounted to only $1.41 as compared with the total resources of $2632.29.

From one point of view the credit union really operates as a connecting link between the farmer and the banker and improves the farmers' chances of doing business with the bank. The credit union affords an excellent channel for farmers to get in intimate touch with their home bankers. The bankers as a rule appreciate that it is good business to aid the credit unions as ultimately the local bank benefits from the plan in the same way that savings accounts, usually dead losses at first, finally figure prominently in the net profits. The fundamental value of the credit union is that it encourages saving. It also enables farmers to negotiate better term loans and it encourages the practice of modern business methods in farming.

Bank Furnishes Credit Funds

Usually each credit union makes definite arrangements with some bank by which the latter acts as a depos-

50 FARMS at AUCTION

April 1, 1919, 10 A.M.

5-10-20-40-80 and 160 acre tracts

THE PRIEST RANCH adjoining the town of PIXLEY

Vineyard, Orchard, Alfalfa and General Farming Land

WATER CONDITIONS IDEAL

Title perfect and clear of encumbrance. Terms 10% cash and 10% annually until paid. Second payment on improved land due in four months. Payments may be deferred by purchaser making permanent improvements or setting out trees or vines.

Interest 6% payable annually. Discount of 2% per annum for cash at time of purchase.

Several tracts of alfalfa just ready to cut. Majority of land in grain which with seasonable weather will more than make first payment.

New $18,000 school house on land bought off this tract.

Power lines and several pumping plants already installed.

Large ranch house and two bungalows ready to move into.

Graded roads throughout the tract.

Pixley is on the main line of the Southern Pacific Railroad and on the STATE HIGHWAY. It is fifty miles north of Bakersfield, eighteen miles south of Tulare, and twenty miles south-west of Porterville. Take a look at the land before the day of sale.

Sale will positively take place and every piece be sold regardless of price, as indicated by the following resolution passed by the Board of Directors:

RESOLVED, that this corporation, Farm Lands Investment Company, do sell at public auction, without reservation, the tract of land adjoining Pixley on the east, and known as the Priest Ranch, and that the President and Secretary of this corporation be and they are hereby authorized, directed and empowered to sell said ranch at public auction on the first day of April 1919, and generally do all things necessary in the premises for and on behalf of this corporation. Read letters from successful farmers and land owners:

FRANK J. BRUNDAGE.

Farmersville, Calif., March 5th, 1919.

Mr. H. G. Cattell, Pixley, Calif.

My dear Sir:

The Priest Ranch, taking the tract as a whole, I think it one of the best pieces of land in Tulare County for home building and the raising of grain, alfalfa, deciduous fruits and grapes of all kinds; the soil being a deep sandy loam is easy worked at any time and being close to the main State Highway and railroad will make it very desirable for small farms. Anyone contemplating the purchase of land for a home or an investment will do well to investigate your tract before buying elsewhere.

Yours very truly,
(Signed) FRANK J. BRUNDAGE.

Dinuba, Calif., March 3rd, 1919.

Mr. H. G. Cattell, Pixley, Calif.

Dear Sir:

Regarding your land at Pixley, I can say that it is as good as the land at Dinuba. It is simply ideal for alfalfa, grapes, figs and peaches. While it is a pumping proposition, this is more than offset by entire lack of hardpan, uniformly level soil, and freedom from grasses, attending ditch irrigation.

Respectfully,
(Signed) G. W. WYLIE.

TULARE MERCANTILE COMPANY.

Tulare, Cal., March 5, 1919.

Mr. H. G. Cattell, Pixley, Calif.

Dear Sir:

I have been a resident of Tulare for the past twenty-eight years and have long advocated the breaking up of large holdings which in most cases comprise the most desirable lands in the community. This particularly applies to the Priest Ranch, which, I consider, offers exceptional opportunities for the home builder, situated as it is near the main line of the Southern Pacific and the State Highway, it is easily accessible. This is wonderfully fertile soil and will produce almost anything, with water, of which there is proven to be an abundance near the surface waiting for the pump. By seeding, cultivation and energy well directed, there is no reason why this should not be made one of the garden colonies of Tulare County.

Knowing the Priest land as I do, I shall not hesitate to recommend it to the home seeker as being particularly adapted to alfalfa and dairying. I do not believe better land for Thompson Seedless Grapes can be found in Tulare County and for fig culture, one only has to look to lands adjoining on the north to satisfy oneself of the practicability of raising this type of fruit.

Very truly yours,
(Signed) W. A. HIGGINS.

COUNTY ASSESSOR.

Tulare County, Cal.

Mr. H. G. Cattell, Pixley, Cal.

Dear Sir:

The Priest ranch has always been known and recommended as one of the best parcels of land in Tulare County. In looking over this land today I am impressed with what our land could be made to produce with the application of work, water and a little money.

I sincerely believe this land to be admirably adapted to the production of vines, alfalfa, peaches or figs. I believe this land to be just as well adapted to the production of Thompson seedless and Sultana grapes.

I should feel safe in recommending anyone contemplating making investments in this valley to make careful personal investigation of this tract of land. I feel sure that they will be profited by doing so.

Very truly yours,
(Signed) THOMAS H. BLAIR.

COPIES OF LETTERS FROM SUCCESSFUL LAND OWNERS.

Orosi, Calif., March 3, 1919.

Mr. H. G. Cattell, Pixley, Calif.

Dear Sir:

We have this day seen your land at Pixley that you propose to sell at auction.

We consider this land well adapted to alfalfa, vines and deciduous fruits and believe that anyone interested in land of this nature will find it well worth their while to investigate.

Yours very truly,
(Signed) V. E. SLOAN,
W. M. BEINHORN,
W. A. OXFORD,
R. H. ANDREWS.

Dinuba, Calif., March 5, 1919.

Mr. H. G. Cattell, Pixley, Calif.

Dear Sir:

On making a visit to your land southeast of Pixley I found it to be in my opinion better than the average of the land in the San Joaquin Valley.

I have lived in the valley more than 40 years and I think it is especially adapted to certain varieties of grapes, especially Emperors and seedless grapes, peaches and alfalfa, and although it is a pumping plant proposition there seems to be plenty of water. I see no reason why a man could not make a fine home there.

Respectfully,
(Signed) R. M. LEWIS.

FIRST NATIONAL BANK.

Tulare, Calif., March 5, 1919.

Mr. H. G. Cattell, Pixley, Calif.

Dear Sir:

The writer has been acquainted with your large ranch south of Pixley, known as the Priest ranch, for the past 25 years, a wonderful two sections of the very best ground. I have no hesitancy in stating that it will make an ideal colonization for a large number of small farms, the soil is especially adapted for the small rancher in that he may produce successfully diversified crops. Soil, sunshine, and moisture are the essentials of production, you have good soil and warmth and with the moisture within reach through the medium of irrigation, the small farmer controls the situation. Intensified farming with fewer acres better farmed is now the watchword leading to success.

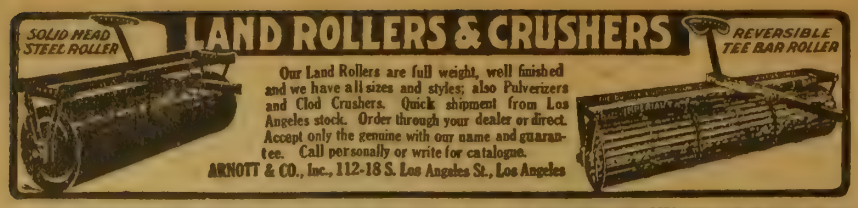
Wishing you every success, I am,
Very truly yours,
(Signed) H. M. SHREVE, President.

For further information call on or write

Farm Lands Investment Co.

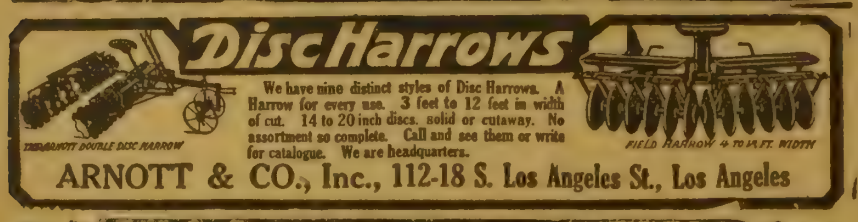
H. G. Cattell, President J. H. Dickey, Secretary
Auctioneers: Shores and Son, Tulare, Cal.

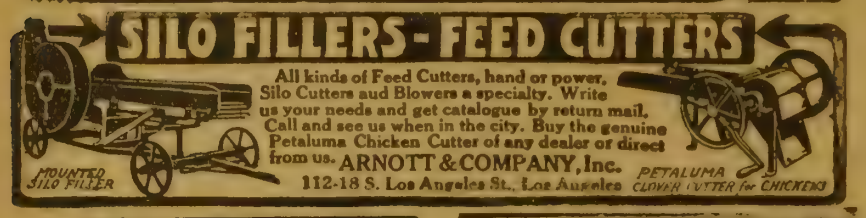
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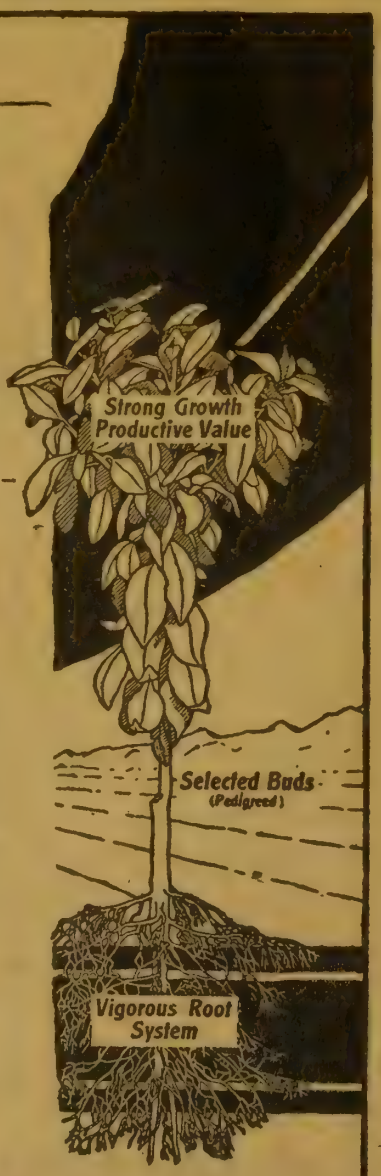




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With the present demand for food stuffs, the return of peace and normal economic conditions there will be a growing demand for all orchard crops and a corresponding larger demand for nursery trees. Already this return is finding expression in an increased demand for Teague Quality Citrus trees, which leads us to advise intending planters to book their orders early, as the available supply of really good, bud-selected (pedigreed) trees is rather limited. For this reason we invite correspondence. Prices cheerfully furnished.

The R. M. Teague Citrus Nurseries
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FOUNDED IN 1889



itory and furnishes loans on specific terms. Thus one of the unions in North Carolina receives three per cent interest from its bank on deposits subject to check and four per cent on savings accounts left on deposit three months or longer. It pays five per cent interest on its loans from the bank. The credit union in turn pays its own members five per cent on their savings accounts and furnishes them loans at six per cent. Such a credit union not only accustoms its members to the use of check and savings accounts but also enables the members to obtain loans for approved productive purposes on better terms than they could obtain elsewhere.

In addition to handling deposits and floating loans, some of the North Carolina unions also aid their members in the purchase of cottonseed meal and corn or soy bean seed, the credit club buying in car lot quantities and thereby saving money for their members who otherwise would have to buy in small quantities at retail prices.

Loans for Productive Purposes Only

Any member who is industrious and pays his debts should be able to borrow from his credit union, provided his loan is to be used for productive purposes which will help pay the debt. The character of the borrower is prime security. Two indorsees are required to sign the note. This is regarded as extra security to safeguard the credit union.

During the first year of activities of a credit union the shorter term loans for four months or a year should be given preference to those for longer duration. The longer time credit can not be realized on while the shorter term loan can be renewed, if possible and desirable. The length of time for which a loan should be granted will depend upon its purpose and the system of farming practiced. It takes a farmer longer to gain full returns from a mule or plow than from seed or fertilizer. A dairy farmer might be able to pay off his indebtedness in from two to three months, while a cotton producer might require six to twelve months.

KEEP YOUR TRACTOR REPAIRED

Continued from Page 407

10, 20 and 30 cent corn and 40 and 50 cent wheat is only a few years removed. No doubt prices will be good for the coming season. Why not make the best of them? Delays cause decreased production and increased expense. The man that is best prepared to do his work when it should be done will raise the biggest crops and have the most cash to his credit when the harvest season is over.

"Go over each machine. Examine every part carefully for wear, loose joints, play in the rivets, bearings, bent or broken parts, loose bolts, etc. If adjustments can be made to take up the wear and put the part in good working condition, do it yourself. If it requires a new part or the services of a blacksmith to put the machine in working condition, take steps immediately to see that the necessary work is started. When there is a doubt as to whether a part will stand up for the following season, don't take a chance but get another part and have it on hand ready for an emergency. This applies especially to such small parts as sections, guards, ledger plates, etc., for your mowing machine and binder, bearings for your disk harrows, etc.

"It is well when ordering repairs to keep these points in mind. If at all possible, always get the number of the part. Order by number if you can by any means find the number. By using a little kerosene and scraping the part well, you can nearly always read the number. If you cannot make out the number and the letter that goes with it, or if the part is lost, describe it fully to your dealer, go over the repair book with him and pick out the part from the illustration. Where you can't make out the number, take the part with you to the dealer's place of business if possible. Don't forget to get the name and number of the machine; also, if possible, find out what year it was made. All of this information will help the dealer to order the proper repair parts for you.

"The disk harrow is one of the first machines that you will use in the spring, and it would be just as well to start with that as any of them if it is located in your shed so that you can get at it conveniently. Examine the hitch and frame, see that all the bolts and rivets are right, that there is no unnecessary play. Turn the harrow upside down and remove the bearing caps to see if the bearings are all right and clean out all the oil holes. If the scrapers are worn and cannot be made to do their work properly, new ones will be needed. Sharpen the disks. If you cannot do it yourself, see that they are taken to a competent shop or blacksmith where they can be properly sharpened.

"There is the peg-tooth harrow. No doubt you have seen men working with harrows where one-fourth to one-third of the teeth are worn away and yet they wonder why they are not doing as good work as their neighbors. Should you examine a harrow in this condition, you would probably find the corners of the teeth are worn off and no longer sharp and square. Sharpen the points of the peg-tooth harrow teeth and square up the corners. If any of the teeth have been lost, get new ones to replace them. Adjust the teeth to the same length. Tighten up the bolts. If the levers do not work properly, see that the necessary changes are made so that the harrow can be set to do its work well.

"There are the grain drills which should be inspected very carefully to see that all the parts are working properly, that none of them are broken or lost. Clean out the various seed cells, which will insure a proper amount of grain being delivered to the markers. Especially investigate the gears that drive the drill feed to see that they are not worn and that they will do their work in good shape.

"When it comes to mowers, other haying machines and binders, there are many things to investigate. Aside from the general points that apply to all machines such as those mentioned above, examine the cutter bar of the mower to see that the ledger plates are in first-class condition, not badly worn, and not too loose. Examine the guards. Some of them may be broken or bent or loose. See that the mower clips do their work properly in holding the knife down against the ledger plates. The knife may need new sections. Some of them may be loose or broken. Do not put off until you need the mower to get the knife in shape.

"Try the bolts that hold the cutter bar and the bolts that hold the outside shoe on the cutter bar. See that they are tight. Look at the knife head. See that it is not badly worn. Examine the bearing plates above and below the knife head. It is well to block up one wheel of the mower and have some one turn it slowly while you watch the knife to see that it is working properly, that the knife sections register at the center of each guard. If it doesn't register, change the drag bar or the push bar until it does. If there is wear on the pitman at either end and it cannot be taken up, take steps to get new parts. See that all oil holes are opened up; cleaned out. Also that the wooden parts are all sound.

"Aside from all these various things which apply to the machines, it might be well to inspect small equipment, such as singletrees, neckyokes, whiffletrees, hay rack, wagon boxes, etc. See that these are all in good shape. While you are doing this, it will not go amiss to examine your harness, halters, ropes, your hay rope. If it is broken or worn, see that it is spliced. You may need some new pulleys. All of these things if taken care of now will save time when time is scarce.

"The more expensive a machine is, the more important that it should be given good care and that it should be in first class repair when the time comes to use it. This applies especially to the farm tractor. If you are a good mechanic and can overhaul your tractor yourself, all well and good, but if not see that someone who understands your particular tractor goes over it with you. See that the bearings are properly adjusted, the valves ground, engine properly timed, oiler working right, magneto in first class condition, all bolts and rivets tight. No doubt the one most serious delay of delays is to delay getting your tractor in shape for the coming season's work. It supplies the power to pull or operate the other machines and without it your other machines will not be able to do their work. A few days spent on the tractor now will insure having your work done on time during the coming season."

SUMMER COVER CROP

Continued from Page 410

summer cover crop be planted early enough so that it forms a good green carpet by the time the trees are in bloom in April and for six weeks to two months thereafter. This can hardly be accomplished by the use of any of the bean or cowpea family except in seasons when for some reason or other the normal blooming period is delayed. More satisfactory crops for this purpose seem to be buckwheat, which can be planted early in March and makes a satisfactory growth by the time the trees come into bloom, and Melilotus alba or alfalfa, which may be planted either in the preceding fall or in very early spring. The writer knows of no good reason why Melilotus indica planted in January or February should not prove satisfactory for an early summer cover crop.

With a cover crop grown for prevention of the "June drop" especial emphasis should be laid upon the necessity of plenty of water. There must be no competition between the cover crop and trees. With buckwheat one may make out with as little as one-third to one-half additional water, but with the others mentioned considerable more may be needed. In some soils as much as three times the usual amount is necessary to insure success. Where water is expensive and scarce the summer cover crop may be an impossibility, but where water is plentiful and cheap it should at least be given a trial. The important points to bear in mind in planting a summer cover crop for the prevention of "June drop" are, first, to plant it early, and second, to irrigate it often. Of course, such a cover crop at the same time serves to add organic matter to the soil and should be turned under when its function is over, which is in July or August.

Practical Experiences

In discussing this subject in previous articles the writer has several times referred to an experimental plot of some 45 acres located near Bakersfield where last season the effect of summer cover crops in aiding in the set of fruit was tried out at the suggestion of Dr. J. Eliot Coit and the writer. Inasmuch as the results were so striking they are here given.

PLANTED TO SUMMER COVER CROP—SPRING 1918.

Lot.	Yield 1917 field boxes.	Yield 1918 field boxes.	Per cent increase.
2	173	667	285
17-18	781	1415	81
32	145	767	429
54	14	347	2378

CHECK PLOTS—NOT PLANTED TO SUMMER COVER CROPS AT ANY TIME.

31	89	104	16
15	375	257	32*

*Decrease.

The phenomenal increase to be noted in the case of lot 54 may be explained as due to two facts; one, this orchard is just reaching the bearing age, and, two, this lot composes a rather small acreage entirely isolated from the rest of the planting, and thus in the past subject to the desert environment in all its extremity, unmodified by the influence of adjacent plantings.

Lots 31 and 32 are of exactly the same area, the trees are of the same age, the contour of the land is similar, and the trees are comparable in every way.

As to the details regarding the management of the summer cover crop, I quote from a letter of J. E. Clarke, until lately in charge of the planting including the experimental plots: "Lot 54 was planted to vetch, 20 pounds, and Melilotus alba, 15 pounds to the acre, February 24, 1918, and was disked under in August. Lots 17 and 18 were sown to vetch 30 pounds and Melilotus alba 7 pounds per acre as was also lot 32. Lot 2 had a cover crop of vetch and weeds which were disked under about June 30. This year we are planning to plant the whole acreage to cowpeas and Melilotus alba which I feel will be better than last year's combination. The vetch ripens as soon as the weather gets warm and also requires more water than the cowpeas. Last year we used about a miner's inch of water to five acres of orchard twice a month, using a stream of water on each furrow for about eight hours each irrigation. The vetch was drilled in the orchard, then furrowed out with six furrows to a middle and the Melilotus alba then sown broadcast by hand. The average yield is no better than last year except in the plots planted to a summer cover crop."

Other growers who have reported increases in yield following the use of the summer cover crop include W. Phillip Smith of Plano, Tulare County, and H. E. Howard of San Dimas, who use buckwheat, and C. W. Kellogg of Bakersfield, who uses alfalfa as a cover crop.

During periods of extreme heat such as occurred in June, 1917, any covering which protected the soil, either mulch or cover crop, of course aided in holding the fruit provided the soil moisture was sufficient. The summer cover crop, however, bids fair to accomplish much to aid in setting large crops in sections where annually the June drop is so severe as to almost make the growing of navel oranges unprofitable.

FIG GROWERS INCORPORATE

The newly organized Fig Growers Association has taken steps to legally incorporate. The new association will interest itself chiefly in marketing problems.

SPANISH OLIVE OIL COMING

Spanish olive oil is being received in New York, wholesaling at $2.60 to $2.90 per gallon.

What would we do without parents?

HEREDITY is always a big factor—in seeds as in everything else. Before you can expect healthy, vigorous *offspring*—you must have healthy vigorous *parents*.

Applied to seeds, this means that they must be of proven vitality and proven quality. Yes—pedigreed!

Morse's Seeds *are* pedigreed. For 45 years our seed experts have been choosing for seed production vigorous, healthy parent-plants and have been breeding them scientifically, generation after generation. Accurate records have been kept of this plant breeding and the ancestry—the pedigree—of whatever seed you buy from Morse is clearly and definitely established.

That's why you can be sure of getting in the product of any variety of Morse's Seeds all its particular good quality traits.

And, in addition to being pedigreed, Morse's Seeds are soil-tested to prove germination power and vitality. They are cleaned and re-cleaned. *They are better seeds than even the pure seed laws require.*

You can buy Morse's Seeds in whatever quantity you need—by the 7½ cent packet, the pound, or the ton. You are going to need seeds this year. Write or wire today for quotations in quantity lots.

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Made in California, to operate on Asphalt base fuels as low as 25 degrees gravity.

The Easiest Starting Engine on the market

No valves, no cams, no torch to give trouble and yet lower in price than similar engines.



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ESTABLISHED 1893
THE PUMP AND ENGINE HOUSE OF THE PACIFIC COAST
LOS ANGELES



PURE BRED REGIST'D HOLSTEINS

Tuberculin Tested State Supervision Production Butter Fat Everything Guaranteed

INTENSELY INBRED

Not in blood but in lines of production.

These two heifers consigned to the Guarantee Sale show the work of a half score of the foremost breeders of the world, so we are not selling them to please ourselves or benefit our herd, but with the belief that to plant the best seed will return the greater harvest.

Buyers at this sale should carefully consider the merit of the great young heifers we will offer:

No. 1—NATOMA ALCARTRA, sired by King Morco Alcartra, the forty pound son of the only "Tilly Alcartra", the greatest dairy cow of all breeds in the world. For eight generations she has the most uniform lot of producing dams possible to produce. Her first dam, a junior three year old with 22.92 pounds in seven days, is by our senior herd sire, King Korndyke Pontiac (shown below) and we believe she will make over thirty pounds at next freshening. The calf that she carries, sired by Prince Gelsche Walker Korndyke (shown above), should be worth a lot of money aside from the value of the heifer herself. Consider these points, Mr. Buyer, when this heifer is led into the sale ring. If you don't take her home with you then be in line to congratulate the plucky buyer that gets the heifer; she is a gold nugget among Holsteins.

No. 2—DAME PRILLY WALKER is a daughter of the 22.6 pound four year old Princess Cleaveland Hengerveld, still in the herd and capable of a much larger record. She is sired by Admiral Prilly Walker and is in calf to Sir Aaggie De Kol Acme, whose dam has the highest official yearly butter record of any cow in the world. She is a show heifer and bred in the purple.

Remember Jane Garden Farm guarantee for satisfaction to purchaser is back of these heifers.

JANE GARDEN FARM

SACRAMENTO — CALIF.

FRED W. KIESEL PROP'R. C. W. YOUNG SUP'T.



Individuality Breeding

Santa Anita Rancho

Anoakia Breeding Farm

REGISTERED HOLSTEINS

A herd of fine individuals, strongly bred in the lines of great production as evidenced by both short and long time records, handled in a manner to produce sound, healthy breeding stock.



Merci Lad Korndyke Burke

Son of De Kol Hengerveld Burke who has a long list of A. R. O. daughters with records up to over 35 pounds butter in seven days, and out of Winnie Korndyke Cornucopia De Kol who made 31,034.1 pounds milk in one year and was the first cow in California to make over 1200 pounds butter in one year. A few of his good sons out of excellent dams for sale.

SANTA ANITA RANCHO *Santa Anita, Cal.*

Anita M. Baldwin, Owner - . *W. H. Taylor Supt.*

Your Opportunity

to buy a choice granddaughter of Jessie Fobes Bessie Homestead, bred to KING KORNDYKE PONTIAC 20TH, in the Guaranty Sale, Sacramento, March 27.

We are also contributing a fine daughter of our 31 pound cow Thelma Hartog De Kol, due in April to Prince Riverside Walker.



King Korndyke Pontiac 20th

These are two of the very choicest heifers in our herd, the kind that will make money for whoever buys them.

Our Entire Herd is Tuberculin Tested

Tulare Holstein Farm

H. J. Higdon, Owner TULARE, CAL. H. L. Redd, Herdsman



Prince Hiske Walker

He is by Prince Gelsche Walker and out of Hiske of Riverside, being therefore full brother to Lady Hiske Walker, 34.25 pounds butter in seven days as a junior four year old, former state record in class.

His offspring are uniformly straight, vigorous, and well marked. A few of his young sons for sale.

Packwood Farm

W. F. Mitchell, Owner Visalia, Cal.

Dairyman's Big Opportunity

By R. P. Royce

FROM every section of the state comes the report that good grade dairy cows are in demand at prices that are higher than ever known. Apparently, dairymen who sold off their cows during the winter of 1918, either because of high feed costs, a shortage of labor or because they figured that cow values were at the peak, are now in a mad scramble to get back in the business.

There are several interesting morals to be developed from the present situation. In the first place the present condition might have been rather accurately forecasted at the time liquidation of dairy herds was at its height, and the men who were in a position to hold their herds, and who did hold, are the ones who are now making the money. It is the in-and-outer who nine times out of ten holds the sack. Occasionally one can sell at the high point and buy at the low, but the few times one does are so few as to not figure very importantly. It was ever thus. It has been true in the beef business, particularly true in the sheep business, it has worked out in the horse business (and if we are not mistaken it is certain to work out again). It has not been so pronounced in the swine business owing to the fact that hogs can be liquidated and rapidly reinstated.

This fundamental fact should always be kept in mind by live stock producers: Whenever a marked liquidation occurs it is certain to produce a shortage and a shortage makes for high prices, and the man who holds on when others sell is bound to profit—and to an extent that will usually wipe out any losses he might have experienced while sticking to his guns.

Another fact that the live stock man must come to appreciate is this: When a critical situation developes—when because of some economic reason profits decline—even to the vanishing point—the man who can stick the longest and thus weather the storm is the man who has developed his herd to a higher point of efficiency than his neighbors.

Efficiency can be developed to a high degree with any class of live stock—particularly is the dairy producing business capable of responding to efficient methods.

Well bred bulls; careful testing; keeping records of feed and production; culling out inferior animals; and organization for the distribution of milk and milk products, are certain to produce efficient and profitable results.

Another point that needs to be driven home to a lot of dairymen in this state is the fact that grade cows that are bringing the high dollar are invariably cows showing good breeding. We recently watched a sale of grade cows. Some sold as low as $100; the majority from $135 to $150, and a few as high as $210. In every case the range of values was based on evidence of better breeding. And during the sale the seller remarked that he would prefer the $200 cows to the cheaper ones, stating that he knew they would prove more profitable.

What was the value of the bull that sired the $200 cows compared to the sire of the $100 or the $150 cows—granting that the higher priced cows probably had better dams than the cheaper stuff? Could his value be accurately stated? Is it reasonable to suppose that he cost more than he was worth? We think not.

What made the one bull more valuable than the other? An accident? Because he was well bred—better bred; because back of him were the accumulated qualities of a long line of carefully selected dams and sires (note we place the dam before the sire). That, rather roughly put, is the reason for pure bred live stock. The various breeds of pure bred live stock do not exist for any reason other than that they have demonstrated to practical men that they are the most profitable kinds of livestock.

The very fact that dairymen who sold their herds a little over a year ago find that now when they are trying to reestablish their herds they are forced to pay much higher prices (to the men who could hold their herds because of greater efficiency) and that they are paying more for the better bred sorts, is the strongest argument why they should take to heart the lesson made so plain, and why they should resolve, now that they are back in the game, to place their herds on a higher basis of efficiency than they operated on before they were forced to sell.

Perhaps there will come a time in the future when marked liquidation of dairy herds will be necessary. When that time arrives will you be in a position to hold, knowing that following liquidation high prices will prevail?



Sir Aaggie Walker

Son of the 34 pound junior four year old Lady Hiske Walker and by Sir Aaggie De Kol Acme. Consigned by A. W. Morris & Sons.

One of the surest ways of placing your herd on a more profitable basis is through the use of well bred bulls—as well bred bulls as you can possibly afford to buy. There is no mysterious art connected with the grading up of a herd of dairy cattle. Good bulls and common sense are really the chief factors back of most dairy successes.

Now is the time to start. Begin with a well bred bull and each time it is necessary to replace him make every effort to get a better bull. If you are not in a position to buy a few pure bred cows, plan to buy at least one. Build your herd around pure bred bulls. You will find them more profitable than ordinary cows and when a time comes when the man with poorly bred cows is forced to sell you can hold your herd. Again, if you should decide to sell out your herd you will find that the kind of cows the public wants, and is always willing to pay for, is the better bred kind.

During the next few weeks dairymen of this state will have several opportunities to make unusual selections of well bred cattle. Some of the cattle to be offered for sale represent most unusual opportunities. They will sell—will sell well—and the men who secure them will be the men who look the farthest ahead.

ALFALFA GROWERS AT BISHOP

The Alfalfa Growers of Bishop district met and selected C. E. Trowbridge, J. L. Gish, Chas. Partridge as an advisory committee in this district to work in connection with the Alfalfa Growers of California, Inc.

This committee will look after the interests of the association in the Bishop and Laws section.

The soilcitation for members was started in this section by J. L. Farrar, field manager of the association, a few days ago. He reports a membership of 20 in this section.

Warranted to Give Satisfaction

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Caustic Balsam



Has Imitators But No Competitors

A Safe, Speedy, Positive Remedy for

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As a Human Liniment and Antiseptic for external use it is invaluable.

Every bottle of **Caustic Balsam** sold is warranted to give satisfaction. Price $1.75 per bottle. Sold by druggists, or sent by parcel post, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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My services are available to all who plan to sell live stock, farm equipment or real estate, and who want the high dollar. Pure bred live stock sales a specialty. Terms reasonable. Write or wire for dates.

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families.

Registered Berkshire Pigs

Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.

Careful attention given to mail orders.

Whittier State School

Whittier, California

Carruther's Shorthorns and Berkshires

Choice collection of breeding cows—mostly Scotch—and representing the leading families, headed by Count Glory, grand champion at the last three state fairs, and Hallwood Villager. Bulls for sale at reasonable prices. Berkshire herd headed by the noted boar Ames' Rival 100. Correspondence invited.

W. M. CARRUTHERS, Live Oak, Cal.

Some of the finest

GUERNSEYS

in the West are at

Hollow-Hill Farm

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Only Bull Calves For Sale

Col. W. C. Lookingbill

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"Specialist" in Pure Bred Stock, Dairy Cattle and Real Estate

Will Appreciate Your Work

Address: Riverside, Calif.

P.S.—Will buy any good Dairy Herd or Beef Cattle

Segis Pontiac De Kol Dutch

Whose three nearest dams are 1000 pound cows that average over 30 pounds in 7 days, heads my herd. Bull calves for sale. E. E. Freeman, Rt. 8, Modesto

HOLMES STOCK FARM

Registered Holsteins of best breeding. Young bulls for sale.

R. L. Holmes Modesto, Cal.

"GOLDEN STATE SWISS CHEESE" A NEW CALIFORNIA PRODUCT

By J. A. Robson

THE manufacture of Swiss cheese, undertaken less than a year ago by the California Central Creameries in Humboldt County, has now progressed into a commercial enterprise of a magnitude sufficient to hold its own in markets once again thrown open to the imported article. The new plant of the California Central Creameries at Arcata is now turning out an average of 1500 pounds of this cheese daily, the total output to date being in excess of 100,000 pounds.

Many unsuccessful attempts to manufacture Swiss cheese were made by various creamery establishments when the war cut down the imports. This was partially due to method of manufacture and partially to the lack of the proper equipment. The plant in Arcata was opened the latter part of last June by the California Central Creameries and is provided with the most up-to-date machinery and other equipment that the market affords or that money can buy. Having mastered the secret of Swiss cheese making the specially installed apparatus made it possible for the new plant to turn out a product that experts declare is indistinguishable from the old world article.

"Golden State Swiss Cheese," as the new product is called, is manufactured under the watchful eye of a cheese expert formerly in the employ of the United States government. The secret process by which the cheese becomes "Swiss" rather than some other brand is the foundation on which a highly desirable new variety of American cheese is being produced.

Each cheese weighs approximately 150 pounds and requires about three hours in the actual making, followed by a long period during which it passes through the various curing processes. It requires considerable hand labor, although every mechanical contrivance that will aid in the work is installed at the Arcata plant. From the receiving vats the milk passes through conductors to five copper kettles, each having a capacity of 1600 pounds. A man is stationed at each kettle to keep the milk moving about by the constant use of a paddle. When this operation has progressed to just the right stage the curd is dipped out and hooped.

When ready for curing the cheese are stored in a room equipped with shelving. Here 600, measuring nearly a yard in diameter, can be seen at one time. The temperature of the room is kept down by refrigerator pipes running along the walls and ceiling. When the green cheese have reached a certain stage of ripeness they are moved into a second curing room where the temperature is held by steam. Two expert cheese makers from the old country work constantly in this room, daily turning each of the huge cakes and treating it to a brine solution used in the curing and finishing process.

When ready for shipment the cheese are packed four in a tub, especially constructed for that purpose and an exact replica used for the imported article. The tubs are then rolled to the rear of the building and into the waiting box cars. A full carload of 219 cheese was shipped to New York in December at a valuation of something in excess of $18,000. Most of the output of the plant has been shipped to the east, although local merchants have been provided with sufficient to supply their trade.



SEATTLE, WASH.

Announces the Consignment of the following Animals to the California Holstein Breeders' Guaranty Sale:

"Jot" Down these numbers—
Read further details in Catalog

No. 17—Ruby Pietertje of Forrest Hill, 2d—having a record of 27.77 at three years and a half; an almost sure 30-pound prospect; good size and will weigh over 1500 pounds. Bred February 6th to Carnation King Sylvia, the $106,000 reference sire No. A.

No. 18—Carnation Skylark Segis—a daughter of a grandson of King Segis. She is a show heifer, winning First in North Pacific Coast shows, and Fourth at the National Dairy Show. Bred to Matador Segis Walker, reference sire No. B.

No. 19—Gerben Colantha Parthenea—her sire is a son of Colantha Johanna Lad, and a grandson of Hengerveld De Kol, now on test. Will be bred to Carnation King Sylvia, reference sire No. A.

No. 20—Carnation Segis De Kol, a daughter of Johanna McKinley Segis, the 40-pound son of King Segis, out of the 40-pound Johanna De Kol Van Beers. Her dam and granddam are both sired by a son of King Segis.

No. 21—Segis Johanna Walker—
Another promising daughter of that great transmitting sire, Johanna McKinley Segis.
Her dam has a 23-pound butter record as a two-year-old, and is a granddaughter of the famous King Segis.
Will be bred to Carnation King Sylvia, reference sire No. A.

No. 22—Carnation Rag Apple De Kol—
A heifer with wonderful backing, her grandsires being the world's famous bulls, Rag Apple Korndyke 8th, and Johanna McKinley Segis, a combination very hard to equal—one that cannot be beaten. Will be bred to Matador Segis Walker, reference sire No. B.

No. 23—Carnation Segis Colantha—
She is a show heifer in every sense of the word, with wonderful good backing, sired by a son of Colantha Johanna Lad, and grandson of Hengerveld De Kol.
She is from a 21-pound three-year-old granddaughter of King Segis. With the backing of these three great sires and their pedigrees, and being bred on January 23, 1919, to Carnation King Sylvia, should command attention of every breeder looking for "bred in the purple" material.

REMEMBER—All animals on Carnation Stock Farms are under Federal test by U.S. Bureau of Animal Industry.

Read through the catalogs and see the reference made to the following herd sires owned by Carnation Stock Farms:

Matador Segis Walker, a grandson of King Segis.

Johanna McKinley Segis and King Segis 10th, sons of the famous King Segis.

Beauty Piertertje Prince, with 37 A. R. O. daughters.

Dutchland Governor Sir Colantha, son of Colantha Johanna Lad.

Young bulls from good A. R. O. cows for sale at our Farms.

For listings, pedigrees, etc., write us at 1077 Stuart Building, Seattle, Washington.

CARNATION STOCK FARMS

Seattle **Visitors Welcome**

The Home of the $106,000 Holstein Bull

Reference Sire No. "A"



Carnation King Sylvia is the son of May Echo Sylvia, who holds all the world's milk records on production from one to one hundred days—considered the best cow of the breed. Carnation King Sylvia will be given a wonderful opportunity in the Carnation herd, the largest registered Holstein herd in North America. Above photo taken at 6 months.

A Great Herd Bull

Guaranty Sale, March 27, 1919



HIS SIRE'S DAM
Aaggie Acme of Riverside 2d
Butter— 7 Days..... 35.38
Butter— 30 Days..... 142.32
Butter—365 Days.....1331.78
World's Strictly Official Record.
Highest daughter of King Mead of Riverside.



HIS DAM
Lady Hiske Walker
Butter— 7 Days..... 34.25
Butter—30 days.....123.53
365 Days (2 yrs.).....654.58
State Record when made.
Second highest daughter of Prince Gelsche Walker.

Do You Want a Bull on Which You Can Stake the Future of Your Herd?
If so this one merits your attention

REMEMBER—

THAT HIS TYPE, his breeding and the records back of him are about as near right as you will ever find in one animal.

THAT THE AVERAGE RECORD of his three nearest dams is higher than any other bull in the sale, as is also the average of his seven nearest dams.

THAT THIS IS THE ONLY YEARLY RECORD BULL IN THE SALE and that it is going to be to your advantage to own a yearly record sire. That his dam is due for another large yearly record at next calving.

THAT HIS DAM AND SIRE'S DAM are by two of the greatest proven sires of the Holstein breed, each having sired a world record daughter.

THAT HIS SIRE is heading two of California's largest herds and is destined to high rank among western sires.

THAT HIS DAM is three quarter sister to the 36 pound junior three year old Miss Valley Mead De Kol Walker, the highest living junior three year old and the dam of the $6500.00 bull, King Korndyke Pontiac 20th, and that you can not go wrong in selecting a sire bred in these popular lines and especially when backed by such outstanding type and production.

THAT WE ARE ALSO CONSIGNING three beautiful daughters of Prince Gelsche Walker, two of which are from 31 and 32 pound dams. A 32 pound junior four year old granddaughter of Hengerveld De Kol that has milked over 100 pounds a day with second calf. Best of all they are bred to the highest yearly record bull in the world, SIR AAGGIE MEAD DE KOL.

A. W. Morris & Sons Corp.

Woodland, Cal.

60 Registered Holsteins at Public Auction

Thursday, April 3 Visalia, Cal.

This sale includes every cow of milking age, some bred heifers, a few unbred heifers, and some choice young bulls, in the herd at

Packwood Farm, owned by W. F. Mitchell

This well known herd is one of the pioneer Holstein breeding herds of the lower San Joaquin Valley, and has enjoyed an excellent reputation as to breeding, production, and cleanliness. Mr. Mitchell is not retiring from the breeding business, but will take a little breathing spell while the splendid young daughters of Prince Hiske Walker are growing up, all of which now in the herd will be retained.

THERE ARE 14 COWS AND HEIFERS IN THIS SALE WITH RECORDS UP TO OVER 31 POUNDS BUTTER IN 7 DAYS.

A DAUGHTER OF SPRING FARM KING PONTIAC 6TH IS ONE OF THE GREATEST PROSPECTS EVER SOLD IN THE WEST.

39 COWS AND HEIFERS IN THE SALE ARE BRED TO PRINCE HISKE WALKER. FIRST CLASS FOUNDATION FEMALES.

PRINCE HISKE WALKER will be sold for the sole reason that only his daughters will be left in the herd. We consider this young sire without question one of the most attractive herd sire propositions in California. He is only just past 4 years of age, and is practically certain to have no less than 60 living daughters before he is 5 years old. Give this bull your earnest attention as to breeding, individuality, and the high excellence of his offspring which you will have an opportunity to see on sale day. He is a full brother to the 34 pound junior 4 year old, Lady Hiske Walker, and combines some of the richest and most popular blood lines to be found in the West.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

NOTE—Packwood Farm is about seven miles north of Tulare just off the main State Highway.

Catalog of Sale Free on Request

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, California
Auctioneer—Col. Ben A. Rhoades, Los Angeles

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Hollywood Farm Holsteins

Hollywood Farm, Hollywood, Washington, spectacularly known as the home of the $18,000 42-pound two-year-old heifer, Glen Alex Queen De Kol, is nevertheless more justly entitled to fame because of the substantial breeding and production present throughout the entire herd, a characteristic that is the direct result of the foresight of the owner, Mr. F. S. Stimson, in centralizing strongly upon the blood of King Segis some years ago even before the blood of that great sire had demonstrated as fully its unexcelled power of production as it has up to this day.

The first step in the King Segis direction was made not long after the founding of the herd when King Palmyra Fayne, by King Fayne Segis, sire of the only 50-pound cow, was placed at the head of the herd. The dam of this great sire is Bloomingdale Hengerveld Palmyra, a 30-pound daughter of Hengerveld De Kol. This bull met with an early death, but still has about 30 daughters at Hollywood with records up to over 32 pounds butter in seven days.

King Palmyra Fayne was succeeded by his son, Hollywood Lilith Palmyra, out of the 32.47-pound cow, Lilith Queen Pauline, who also made 26,135.9 pounds milk and 1077.21 pounds butter in one year. This bull also was destined to die young, but he left behind him about 50 splendid daughters at Hollywood, one of which has made 33.44 pounds of butter in seven days as a junior three-year-old, and the entire list is most promising.

Then came what was unquestionably the most important addition to Hollywood herd up to the present time, the purchase of the famous Judge Segis, proven son of King Segis. He has now 30 A. R. O. daughters, the first one tested above heifer age having made over 37 pounds of butter in seven days.

Judge Segis is a commanding individual in addition to his rich breeding, and the promise of his young daughters now at Hollywood is extremely bright. He is being given very heavy service and his chances are most excellent to become the first century sire developed on the Pacific coast.

Sanitation has always played a leading role in the development of the Holstein herd at Hollywood, the herd having been tested regularly for tuberculosis almost from its beginning, and for the past two years it has been under federal inspection and test.

Many outstanding producers have been developed in the herd, including cows with seven-day records above 38 pounds and yearly records above 1100 pounds butter, and there are some splendid daughters of these great producers in the herd at the present time.

A detail of the many desirable individuals in the herd would make a story longer than present space permits, but mention must certainly be made of a young daugther of the 42-pound $18,000 two-year-old Glen Alex De Kol, by Judge Segis. She is truly one of the most remarkable heifer calves of the breed.



The Cows Are Coming Home

Certified milk is manufactured in the clean, wholesome and picturesque conditions at Hollywood Farm.

Holsteins at Carnation Stock Farm

Men who have to do in a large way with the economic problems of our country, food production and distribution, banking, not only as directly applied to agriculture but to general business as well as some of the fore-



Contented Cows

On the Carnation Farms. High breeding, rich feed, large production.

most public institutions, have been inevitably drawn to the Holstein cow because of the tremendous part she has played and is now playing in the economy of our daily life.

One of the most conspicuous among men of large affairs who have taken up the breeding of registered Holsteins is Mr. E. A. Stuart, president of Carnation Milk Products Company, Seattle, Washington, whose company manufactures and markets the famous milk "From contented cows."

Carnation Stock Farms, as Mr. Stuart has named his two big breeding establishments, one at Seattle, the other at Oconomowoc, Wisconsin, are populated today by two of the largest and in some respects most extraordinary herds of registered Holsteins in America.

It is of the western farm at Seattle, however, that the present item will deal, as this herd is certain to play a most important part in the progress of the breed on the Pacific Coast, and its development during the past four years has been nothing short of phenomenal, and it may be said right here that Mr. Stuart himself is the man to whom the credit is due, having fared rather better in developing this great herd according to his own personal ideas and judgment.

In the original foundation of the herd females were acquired by purchase from many sources, and particular attention was given to the selection of herd sires. Two sons of the great King Segis were used in the herd, one of them the famous 40-pound bull Johanna McKinley Segis, the other the younger sire King Segis 10th. Following these came Dutchland Governor Sir Colantha, a good son of Colantha Johanna Lad, and Matador Segis Walker, a son of King Segis 10th.

The herd now contains a considerable number of daughters of these four sires, and it is from among them that some of the big developments in the herd may be expected from now on.

Of Matador Segis Walker it is due him to say something in detail as to his breeding, his past accomplishments, and the future promise of his offspring. This splendid young sire is now only just past five years old and only a few of his daughters have yet reached milking age, but they are making splendid records as they come along. As stated before, this outstanding young sire is by King Segis 10th and is out of Matador Twisk Minette 4th, who made 33.54 pounds butter from 617.9 pounds milk in seven days as a four year old, and she is sired by the great transmitting bull Artis De Kol Walker.

Matador Segis Walker now has seven A. R. O. daughters, one of them Matador Hengerveld Bess, having made 40.24 pounds butter in seven days as a senior three-year-old, and another, Matador Segis Pauline Jennie, made 29.64 pounds butter in seven days also as a senior three-year-old, under most trying conditions. There are at present about eighty daughters of Matador Segis Walker in the Carnation herd, and they are unquestionably one of the most promising groups of daughters of one sire in America, possessing a rare uniformity of size, depth of body, capacity of udder, and pleasing type.

But the most sensational and farsighted act ever executed by any breeder was accomplished by Mr. Stuart when in a public auction sale at Milwaukee last year he paid $106,000 for the bull calf now world famous as Carnation King Sylvia. The breeding of this bull is too well known to require repetition here, but a study of his pedigree shows an unequalled production of milk and butter through his dam, May Echo Sylvia, the only cow that has made over 1000 pounds milk in seven days under official test, and her record of 41.01 pounds butter in seven days stamps her also as one of the greatest butter producers of the breed.

Carnation King Sylvia has now reached breeding age and is being used on the daughters of Matador Segis Walker, as well as on the group of high record cows that are now at home at Carnation farm, and the demand for his sons has begun even before one has been born.

Of the high record females at Carnation a story by itself might be written, but an impressive fact noted in a survey of the group is that there are seven three and four-year-olds in the herd with records from 30 to over 37 pounds butter in seven days, to say nothing of the 29 pound heifers, or that great yearly producer Forward Somerset Duchess that made 28,540.1 pounds milk and 1,018.83 pounds butter in one year as a four-year-old.

Which reminds us of the fact that yearly records, or more particularly 305 day records, are going to play a large part in this herd, some good ones now being under way. The writer gathers that a 305 day record and a living calf each year is the program laid out for the females at Carnation Stock Farm, a plan that may well engage the attention of other Holstein breeders.

In this brief sketch only the barest outline has been given of the intensely interesting makeup of this great herd, nor has any mention been made of the thoroughly practical buildings, or the broad fertile meadow lands that are a part of the equipment. Neither has mention been made of the fact that the entire herd is under federal inspection for tuberculosis, and that the entire herd of 350 head was tested a short time ago without a single reaction. Each of these features contains a story all by itself.

DUROC BREEDERS TO MEET AT DAVIS

F. M. Johnson, president of the Western Duroc-Jersey Association, has issued a call for a meeting of the association to be held at the University Farm, Davis, probably April 11, during the big Live Stock Week scheduled for April 7-12.

During the meeting plans for promoting and insuring the futurity to be held at the state fair, and for the sale that may be held at the same time, will be discussed.

Duroc breeders will be interested to know that Fred De Vore, one of the best known Duroc men of the Middle West, is expected to visit California herds during the last week in March and the first of April. De Vore is expected to attend the meeting and the banquet which will be held at the Travelers Hotel in Sacramento, following the meeting.

One of the features of the meeting will be the showing of moving pictures made in famous Eastern Duroc herds. The pictures are intended to illustrate the modern type of Duroc.

The Highest Record Cow Ever Sold in a California Sale



BOWEDA
37.52 pounds butter from 538.2 pounds milk in 7 days. Consigned by Bridgford Company, Knightsen.

The Highest Record Heifer Ever Sold in a California Sale



32.24 pounds butter from 687.1 pounds milk in 7 days, and still on test, as a senior 4 year old. Consigned by A. W. Morris & Sons, Woodland.

and they will both go to the highest bidder in

The Guaranty Sale

State Fair Grounds Sacramento, Cal.

Thursday, March 27, 1919

We have already told you in previous announcements something about the great individuals in this sale, featuring the highest record bull ever sold on the Pacific Coast, the highest record cow, the highest record heifer, the 30 daughters and sons of 30 to 41 pound dams, the 40 daughters and sons of 30 to 40 pound sires.

NOW CONSIDER THIS ALSO—

that every one of the eight cows and heifers in this sale with official records of from 30 to 37 pounds butter in 7 days MADE HER BEST RECORD AT LAST FRESHENING, proof positive that the breeders are selling 30 pound cows that may be expected to still further increase their records as they are still young. We doubt if this could be said of any other sale ever held that contained a like number of 30 pound cows.

AND THIS—

that the wonderful females in this sale are bred to eighteen of the very best bulls on the Pacific Coast, a number of them outranking any other bull in the world in various respects. Their calves from the great females to be sold will be worth a fortune.

AND THIS—

that every single animal in this sale, no matter how high a valuation upon it exists in the mind of the owner, is pledged to absolute sale without reserve or limit, assuring the buyer that he can buy any or every animal in this sale in open, above board, bona fide bidding.

AND THIS—

that buyers of real herd heading bulls will have an opportunity to select from among six extra choice ones in this sale, every one out of a 30 to 41 pound dam, every one by a 30 to 37 pound sire, several backed by long distance blood of the first quality in addition to their splendid short time record backing.

AND THIS—

that every one connected with this sale cordially invites you to be present, regardless of whether you make a single bid or not. It is a liberal education in Holstein breeding and excellence just to see such a wonderful collection of great black and whites, and every courtesy will be extended to you if you come simply seeking information.

Contributors To Sale:

CARNATION STOCK FARM, Seattle, Wash.
A. W. MORRIS & SONS, Woodland, Cal.
ALBERT E. SMITH, Sumas, Wash.
FRED W. KIESEL, Sacramento.
ALEX WHALEY, Tulare, Cal.
W. F. MITCHELL, Visalia, Cal.
A. J. STALDER, Riverside, Cal.
BRIDGFORD COMPANY, Knightsen, Cal.
HOLLYWOOD FARM, Hollywood, Wash.
McALISTER & SON, Chino, Cal.
W. J. HIGDON, Tulare, Cal.
TOYON FARM, Los Altos, Cal.
R. F. GUERIN, Visalia, Cal.
GOTSHALL & MAGRUDER, Ripon, Cal.

Every animal positively guaranteed to be a breeder. Every animal over six months tuberculin tested and sold subject to 60 days retest by the buyer.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.
Auctioneers—Col. Ben. A. Rhoades, Los Angeles; Col. Harry C. Cranke, Nez Perce, Idaho

HERE SHE IS!



Ava Model Hengerveld 2nd

And when you see her you will realize that the above reproduction falls far short of doing her justice.

She, her daughter, her granddaughter, and her half sister by the same sire, are in our contribution to the Guaranty Sale, Sacramento, March 27, and we believe that no more desirable family group has ever been led into a Western sale ring.

This great producer and reproducer is only seven years old, is by a good son of Colantha Johanna Lad, has over 30 pounds butter from over 700 pounds milk in seven days, record made at last freshening, made 971 pounds butter last year and promises to make over 1000 pounds this year, and is the dam of the first prize 3 year old at National Dairy Show last year who made over 30 pounds butter in seven days as a junior 4 year old after coming off the show circuit. The full sister to this 30 pound 4 year old, and the daughter of this 30 pound four year old are in this consignment. The cow herself is well along with calf to Judge Segis and both heifers are due to drop their first calves in April to a son of a 31 pound 2 year old.

Others of our consignment to this great sale are a great 27 pound cow now milking over 90 pounds per day on semi-official test, and she is bred to the $106,000.00 bull Carnation King Sylvia; a senior 4 year old that has over 22,000 pounds milk and over 800 pounds butter in 305 days on semi-official test; and a good record young show cow out of a 26 pound dam.

Our cattle will be on the sale grounds, State Fair Grounds, Sacramento, no later than March 24, and you are cordially invited to come and look them over before the sale.

Our Herd is Under Federal Test

Milky-Way Farm

Albert E. Smith, Owner **Sumas, Wash.**

Dispersal Sale

45 Registered Holstein Cows, Heifers and Bulls
45 High Grade Holstein Cows and Heifers

Wednesday, April 2, 1919
E. R. Putz Ranch, Near Laton, California

Mr. Putz is retiring from the breeding and dairy business and has instructed us to conduct a complete dispersal sale of his well known herd of profitable producers.

While no official testing has been done in the herd, the blood lines are substantial, representing some of the most popular lines of the breed, and the cattle are practically all young, clean, and good producers. This herd contains

24 Greatgranddaughters of Pontiac Korndyke
3 Daughters of Arcady Pontiac Wayne Hengerveld
3 Daughters of Prince Beauty Pieterje Segis

Besides the desirable young cows and bred heifers in the herd, there is a very desirable lot of unbred heifers and heifer calves that will grow into money fast for someone. Dairymen will also find some choice young bulls in this sale, although there are only a few bulls from this herd have been in strong demand and few have stayed in the herd long enough to reach service age.

The Grade Cows and Heifers

are a well marked lot, young, clean, good producers, and all that are bred are in calf to a grandson of Pontiac Korndyke, the present herd sire. Here is an opportunity to buy some grade Holsteins of high quality.

Prince Lunde Korndyke 2nd

the herd sire will be sold. He is a grandson of Pontiac Korndyke and is a fine individual. See this bull and then look over his calves in the herd and you will find that he is getting some exceptionally promising heifers.

Every animal in the sale over six months of age, both purebreds and grades, is tuberculin tested and sold subject to retest by the buyer.

THE FARM is nine miles north of Hanford on paved County Highway; three and one-half miles east of Laton; ten miles west of Kingsburg.

Write for Catalog to

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, California.
Auctioneer: Col. Ben A. Rhoades, Los Angeles.

California Cultivator
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STRAY THOUGHTS OF A STOCKMAN

By A. A. Spellmeyer

THERE appears to be a tendency to encourage production and the decade old packer policy seems to be changing in spots, but the producer who has faced drouth, loss and hardship in the past two years in this Southwest, with spring prices held down on account of money conditions, is from Missouri.

The cattle loan companies in which packers and directors are putting forth a laudable effort to make cattle paper a recognized collateral on this coast, are stating many true facts regarding the safety and desirable character of cattle loans.

In the Pacific Coast Banker the Swift valuation of livestock in this country is said to be forty-nine billion dollars. Other comments in the same issue from a San Francisco banker bring cow men the glad tidings that at least one banker has looked into cattle loans and finds them savory.

The Northwest is about 600,000 cattle short. The western part of Texas short, and fully 200,000 needed in California. There are apparently about 300,000 to 400,000 available cattle to be had for spring delivery in the Southwest. Figuring in Kansas and other Middle Western states, as well as the Northwest, there will be a demand three times as strong as the supply. Something is bound to break loose before long, but the longer the delay the cheaper the price, until the spring rush will start, and this will not start in earnest until the northern men figure their profit and loss on account of storm loss and until all buyers can get money. Men cannot buy, however, without money, and most men will have to borrow it.

Steer prices and beef prices seem to have nothing to do with present yearling prices. With ten cent feeder, twos and threes yearlings are held from $35 to $45 in the West and from $48 to $50 in the Panhandle. Some small lots are held lower. One man I know is asking $32 for a better bunch of heifers than another a hundred miles distant is holding at $42. Few spring contracts have been closed, and if producers do not get an advance over last year's prices they will alone be to blame on account of the frigid condition of their pedal extremities.

Cows generally have advanced more in proportion than any other grade of stock. Two years ago $65 was a big price for a cow and calf, from herds selling yearlings at $33. Some of these same men are now holding yearlings at $35 to $37 and cows and calves at $70 to $75, with dry cows at $45 to $60, formerly priced at $35 to $45.

While steers fat have been bringing 12.50 to 13.50 from killers locally, cows have been bringing 9 to 10 cents fat. This is an average of three cents difference. Only a few years ago the difference between fat cows and fat steers was one cent per lb.

Investigation of various range districts show quite a few more twos and threes steers than would have been expected, and while they are now offered in lots mixed with other cattle, Arizona and southern Utah and Nevada will probably put up 20,000 head altogether from the ranges for next spring delivery. Of course, this total is insignificant in comparison to demand.

CARELESS HANDLING OF SILAGE

Occasional reports of the sickness or poisoning of cattle that have been fed on silage indicate a greater need for care both in the making and handling of silage, says Dr. L. P. Beechy of the agricultural college extension service. Silage put up too green develops high acidity and causes digestive disturbances. If silage is moldy it should never be fed to horses and if fed to cattle close watch should be kept for any unfavorable symptoms.

No more silage than is cleaned up at each meal should be fed. Portions left over should be discarded.

In feeding silage attention should be given to the bowels. Irregularity may be avoided by the use of bran and oil meal.

Ever notice that some people can't give a compliment without mixing it with quinine?

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Show Herd won highest honors in 1917.

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3 by Great Wonder (the 955 lb. Iowa Grand Champion).

5 by Great Model (a son of Great Wonder and the sire of more prize winners at So. Cal. fairs than any other boar).

1 by P. & L. Defender (a son of Defender, the $5000 Grand Champion at the Chicago International).

These bears are 4 to 10 mo. old and are the tops out of 50 head of the sons of our 600 to 800 pound sows.

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C. L. Hughes, Sales Manager
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Every up-to-date farm has its clipping machine for horses and dairy cows. Horses work better when relieved of winter coats—cows give cleaner milk when flanks and udders are clipped. Agricultural schools and Government farms use clipping machines. You should have one. Get a Stewart Ball Bearing Clipping Machine No. 1, $9.75. Send $2.00—pay balance on arrival. Or write for 1919 catalog.

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Scouring calves indicate a germ infection that is likely to run through your entire herd with serious losses. The loss of one calf is bad enough, but nothing compared to your loss when the infection spreads, as it will unless checked. Then your year's work in building up your herd is wasted and your profits lost.

B-K, the powerful germicide and disinfectant will promptly stop scours and finally banish it from the premises. B-K contains no poison, acid nor oil. When used internally it destroys germs, heals inflamed membranes, relieves irritation, restores healthy action. B-K may be given freely in milk and drinking water.

The B-K plan is simple and practical. It is giving wonderful results. Send for "evidence"

FREE BULLETINS: Send for our valuable bulletin No. 136, "Calf Scours," also information on other farm uses and our "Trial Offer." If your dealer does not have B-K, send us his name.

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Gall Cure That is GUARANTEED

Bickmore's Gall Cure is *guaranteed* to do all we claim for it. If it doesn't, you get your money back. Successfully used on over a million horses each year all over the world! Cures while the horse works! Wonderful for collar and saddle galls, broken skin, rope burns, sore shoulder, mange, and other skin diseases, bruises, cuts, chafes, mud scalds, grease heel, chapped teats on cows and other wounds on horses, cattle, pigs, and poultry. "Your Gall Cure," says C. A. Tripp, of Marshfield, Wis., "is wonderful stuff. Had a mare—could not get her shoulder healed all summer. Got a small box of Bickmore's and did not use it all up before her shoulder was healed. Worked her every day in the meantime." Ask for Bickmore's at any druggist's, harness dealer's, general or hardware store. Accept no substitute. Watch for the "Old Gray Horse" trademark—for 34 years the identifier of the best. Or send 10c for liberal trial size box of Gall Cure and valuable Farm Account Book, showing how to keep track of your expenses and receipts. Don't forget—Bickmore's Gall Cure is *guaranteed*. Your dealer will give you your money back if you are not satisfied after using it. Bickmore's is now being refined and put out for human use. It is called, "Bickmore's XYZ Skin Ointment" and is going to make as big a reputation as Bickmore's Gall Cure. At your dealer—or write direct to us. The Bickmore Company, Dept. 343, Old Town, Maine

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Don't lose part of your wool money by shearing the old fashioned way. Shear with a machine. The extra wool secured from your sheep soon pays the cost of one. You secure better wool more easily and quickly and benefit your flock. Get a Stewart No. 9 Ball Bearing Shearing Machine. Price $14. Send us $2—balance on arrival. Write for catalog.

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Los Angeles

REGULATION OF STOCK YARDS

SPEAKING before the American National Live Stock Association at the Denver meeting Secretary Huston touched upon the subject of stock yard regulation as follows:

"There are parts of our marketing arrangement in which you are and have been deeply interested. I refer to the stock yards and packing houses. Two years ago I expressed my views before this body on the necessity of controlling these agencies. I have been convinced for many years that the government should regulate them. I have really got beyond the point of seeing the necessity for further argument. Not only you, but all the people of the nation, are intensely interested in what happens in the stock yards and the great packing houses. Their operations affect every man, woman and child in this nation.

"These establishments, as the lawyer would say, are largely affected with the public interest. I do not know what percentage would express the public interest, but it would not fall very far short of 100 per cent. The people of this nation are not willing to let a few men have an absolute determination of what happens in them, of what happens to the live stock of the nation from the time plans are made for its production on the farm until it reaches the consumer. There is too much at stake. The fortunes of too many people are involved. Of course, those in control of the packing houses and the stock yards say that everything is just right. As Senator Kendricks says, they admit it. They have admitted it to me. They even spend great sums of money in the newspapers making admission of it. One of the chief representatives of the packers told me several years ago that the whole business was as clean as a hound's tooth and that there was nothing to be apprehensive about. I replied that, unfortunately, the people did not seem to believe this. They had their suspicions. I added: 'If what you say is true, the people ought to hear the truth from an impartial source. It would be good business for you to have the people told the facts by an impartial authority, and good business for you to be rid of the suspicion that attaches to your statements and operations.' Again, they admit that they have the requisite wisdom to handle these great establishments. They admit that they can handle them better than anybody else. They are wiser than all the people. That is what the paternalists, the favored few, have said from the beginning of history. That is the essence of the old medieval theory of government. A few men are wiser than all the people. Of course, I do not admit that. I do not admit that the few men in control of the packing houses and stock yards are wiser than all the stock men of the nation and all the consumers. I do not believe that they should be permitted, uncontrolled, to determine all the issues in which the public is so vitally interested. If I had to admit that they possessed all the wisdom they say they do, then I would go further and say that I would prefer to have a little less wisdom, a little less paternalism, and a little more freedom, and, if necessary, to pay the difference."

MILK PRICES IN 43 STATES

Monthly reports are now issued by the bureau of markets showing wholesale and retail prices of milk in over 100 cities in 43 states. The report for February shows retail prices for standard bottle milk delivered ranging between 11 and 20 cents a quart with the most usual prices 14 and 15 cents a quart. Prices paid producers per quart f. o. b. city varied from 6.4 to 12.7 cents a quart with the bulk of the milk ranging between 7 and 8 cents a quart. The February report carries a column showing the "dealers spread" in cents per quart on 3.5 per cent milk delivered to retail trade. It ranges from 4.4 cents to 11.5 cents.

TRUE LOGIC

"Rastus, what's a alibi?"

"Dat's proving dat yoh was at a prayer meetin' whar yoh wasn't in order to show dat yoh wasn't at de crap game whar yoh was." — The Shield.

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Percheron, Belgian and Shire Stallions

A large collection of Stallions ready for service this season. Heavy boned types with plenty of style and action. Prize winners and descendants from prize winners. No better in America.

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Visitors Welcome **Correspondence Invited**

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Patterson, Cal.

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Largest Herd in the World



Our herd is conceded to be one of the choice collections of the breed in the West. The entire herd is descended from the largest individual importation brought to America, and is the result of careful selection for scale, bone and hardiness. We can supply herd bull material or carlots of bulls for the range. At the Liberty Fair our cattle won the largest number of prizes. See our cattle at the San Francisco Show. We can suit California Buyers in quality, kind and price. Correspondence invited.

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Your dealer's stock has probably been exhausted during the war while the Pilling Factory was working 100 per cent on Government contracts for surgical instruments for our troops in France. But before Spring we will be able to supply dealers who order early. To be sure of getting the genuine Pilling Instruments put in your order now.



FREE BOOK 48 pages, shows treatment for milk fever, bloat, garget, hard milkers, etc.

G. P. Pilling & Son Co. 2234 Arch St. Philadelphia, Pa.

Case No. 2 contains $3 milk fever outfit and 8 other "Easy to use" Cattle Instruments. $15 VALUE complete with "Easy to use" directions for $10 PREPAID.

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



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As good as the best and better than the rest. A boar or a sow pig sired by my great herd boar Director, and out of one of my choice sows will add prestige to your herd. I am booking orders now for the pigs of March and April farrow. Write now and place your order.

L. A. DENKER

Boquet Canyon **Saugus, Cal.**

SWINE BREEDERS WILL MEET AT DAVIS

By Frank B. Anderson, Director California Swine Breeders Association

Having outlined a plan of extended organization for the California Swine Breeders' Association in his address before the state convention of farm advisors this week at Davis, President C. B. Cunningham will put the proposition up to the annual meeting of the membership at the University Farm, Davis, Thursday, April 10.. The plan calls for the establishment of association units as a part of every farm bureau in the state.

Much work has been done this past year in organizing the pork producers of the state and at the same time accomplishing what good could be done for the business, but the work can be made to proceed at more rapid pace by the plan explained by President Cunningham to the farm advisors, and their aid will be enlisted in forming the local organizations of pig growers.

By affiliating with the farm centers the California Swine Breeders' Association can be brought in touch with every hog grower in the state, be he large or small, because the farm bureau movement has been extended so that there are very few farmers who are not members, and every man who grows a pig to sell will be interested in the movement for a better hog business which this association has set about to accomplish.

In addition to the organization plan to be worked out at next month's meeting, the association is planning a number of interesting discussions on swine topics by prominent authorities. The meeting should be attended by hog men by the hundreds, and the usual hospitality of the University Farm will be extended.

CARRUTHERS LOSES HERD BULL

W. M. Carruthers, Shorthorn and Berkshire breeder of Live Oak, reports that on March 6 his herd bull Count Glory died as the result of a choking spell.

In the death of Count Glory, Carruthers not only suffered a heavy loss, but the Shorthorn interests of this state have lost a bull that promised to be quite a factor in building up the breed.

Count Glory was dropped in September, 1914, and was sired by the Curtis bull, Count Avon, an International champion, rated as one of the best sons of Avondale. His dam was British Laura, by imp. Red Knight.

Carruthers purchased him in 1915 with the idea of showing at the P. P. I. E., but owing to the foot and mouth disease quarantine he did not arrive in time. His first appearance in a California show ring was made at the 1916 state fair when he was made grand champion by W. A. Cochel. In 1917 and again in 1918 he headed the list. As a calf, he defeated his sire and Carruthers states that he never wore any color out of the ring but purple. Until the past season, he had not been extensively in the breeding herd, but the calves he has to his credit—especially this spring's crop—are of a character that would indicate he had splendid possibilities as a sire.

Carruthers has now placed the good white bull, Hallwood Villager, by Village Flash and out of Lavender Queen, at the head of the herd. Hallwood Villager was first in the two year old class at the 1918 state fair and gave his roan stable mate a run for the grand champion honors. Many of the choicest calves at Carruthers Farms were sired by this bull and there is little doubt but that he can take the place, very acceptably, of Count Glory.

In addition to the above bull Carruthers has two attractive calves that he plans to develop, both by the dead bull, one out of Mayflower 19th, a daughter of Fond Memory, and the other out of Rookwood Bessie by Avondale.

HOLSTEIN SALE

Several years ago ex-Senator Clark and his brother J. Ross Clark, president and vice-president respectively of the Salt Lake Railroad, decided to place a dairy on the large Montana Land Co. ranch of 12,000 acres which they owned.

The dairy barns were located at the southern end on the ranch near the boulevard, four miles north of Long Beach, and the best equipment was obtained to produce a high grade of milk.

The foundation of the present herd of Holsteins was firmly laid by buying the best that could be obtained in grade Holstein cows. Price was no object when the right kind of cows could be found, and the herd was noted for the uniformity of type and producing qualities. Nothing but the best pure bred registered sires have been used in order to grade up the herd, and it has also been the policy of the owners to retain no cow that could not show a profitable production at the end of the year. By careful culling the unprofitable cows were weeded out and today the herd stands as one of the best herds of grade Holsteins in the state.

It is with a feeling of regret that the owners have decided to dispose of the herd at public sale, but they feel that buyers will reap the benefits of the years of time and expense that they have been to in building up their present dairy herd. Saturday, March 29, has been set as the day, and it should indeed prove a red letter day to buyers looking for grade Holsteins of quality.

The services of Col. Ben A. Rhoades and Harold B. Rhoades have been secured as auctioneers for the sale. An old fashioned Spanish barbecue will be served at noon and a pleasant and profitable day may be expected by all who attend.

BELIEVES IN FRUIT AND HOGS

Extensive improvements are now in progress on River Bend Farm, property of W. W. Everett, St. Helena, part of which is the bringing into bearing of a 60-acre prune orchard.

It is Mr. Everett's intention to devote the orchard land, as well as his alfalfa pasture, to the raising of Duroc-Jerseys.

His present herd boar is Orion Defender by Orion Pal out of a daughter of Defender, and he still retains his foundation sow, Miss Educator, by Chief Protector Again.

At present the River Bend herd is not large, but it is Everett's intention to gradually increase his operations through the purchase of additional sows and by selections from his own productions.

CONEJO RANCH RECEIVES 68 EASTERN SOWS

H. H. Braly of the Conejo Ranch, Newberry Park, states that they have recently received 40 Duroc-Jersey sows and 28 Hampshire sows.

The sows were selected in the east by Bert Manly and represent the most popular blood lines available and all are carrying the service of the sensational boars of the two breeds.

The Conejo Ranch is one organization that has succeeded in maintaining two breeds without either taking second place. As a matter of fact some of the best Durocs and Hampshires shown during the past two years have been from this herd.

It is expected that two full show herds will make the circuit of all fairs this fall.

Studebaker

Established 1852

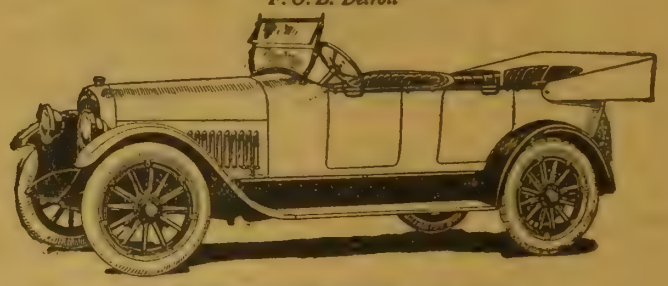
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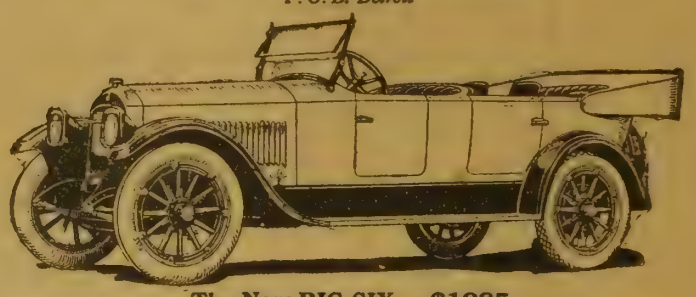
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The New LIGHT-FOUR — $1125
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The New BIG-SIX — $1985
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THE three New Studebaker Cars are distinctive in design, with powerful and economical motors, built for heavy duty service; intermediately located transmission; genuine leather upholstery; Gypsy top with oval plate glass windows in rear; permanent and lustrous finish.

To make sure of their ability to deliver continuous service under all conditions, original cars of each new model were given a 10,000 mile endurance test on the worst country roads of America. Thousands of cars in owners' hands have since convincingly proved their correctness of design and mechanical excellence.

Studebaker manufactures completely in its own factories its motors, bodies, tops, axles, transmissions, steering gears, springs, fenders, and cuts its own gears and other vital parts, thus eliminating middlemen's profits. Only because of these manufacturing advantages and large quantity production is Studebaker able to build such high quality cars at their respective prices.

The name Studebaker is your assurance of lasting satisfaction.

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Address all correspondence to South Bend

World's Greatest Yearly Record Bull

Uniformity in production in the ancestors of a registered dairy animal has long been recognized as a fundamental fact in determining the probable prepotency of a sire and the transmitting ability of a dam, and the average production of all the dams in two, three and four generations of a pedigree rightfully takes a large place in determining the value of a breeding animal.

The seven and thirty day official records have played a tremendous part in the development and popularization of the Holstein breed, and it was held a great acomplishment when a breeder produced the first bull whose seven nearest dams averaged over 30 pounds of butter in seven days under official test. Since that time a considerable number of bulls have been born with equal or higher average backing.

Holstein breeders generally have come to give full credit to the seven and thirty day records as a breed asset, but in the present day more and more of the most far-sighted recognize the fact that a truer proof of a cow's producing and transmitting ability can can only be measured by her yearly records of milk and butter production, and going still farther her ability to produce year after year and to reproduce regularly, and offspring of the yearly record producers are now attracting greatly increased demand from those breeders who keep ever in mind the real function of a dairy cow and the needs of the dairy business as a whole.

Having been, first of all, successful dairymen, and knowing from the fullness of experience that some dairy cows have an inherent ability to maintain large production throughout an entire year while probably as many more have the habit of starting off when fresh with large production and dwindling down to almost nothing in periods varying to from four to seven months, it was perhaps only natural that A. W. Morris & Sons, Woodland, should have taken up the breeding of registered Holsteins with the tremendous value of yearly record production fully fixed in their breeding plans, and during the years that they have been establishing themselves as one of the very foremost of the world's Holstein breeding establishments they have never for a moment lost sight of the real issues in the breeding of dairy cattle nor the interests of the dairymen who depend upon the breeder for registered bulls that are bred right to increase the production of his herd.

With this consistent policy in operation the Morris herd has produced many world's record cows and heifers in the various classes of the yearly record performers, and have gradually built up an average backing of yearly records throughout their herd that stands unequaled in the history of Holstein breeding.

Thus it was a natural consequence that in this herd there should be born the first bull whose seven nearest dams average over 1000 pounds butter in one year ,and it may be noted here that the seven nearest dams include three cows that have made world's records. This bull still has the highest average in the world for the yearly butter production of his seven nearest dams, although since his birth, two other bulls, full brothers, have been born in eastern herds with an average above 1000 pounds butter in one year for their seven nearest dams.

Sir Aaggie Mead De Kol is the name of the masterpiece of Morris breeding to date, and his name indicates something of the wonderful families in his pedigree. His sire is Sir Aaggie De Kol Acme, son of Aaggie Acme of Riverside 2nd, 35.38 pounds butter in seven days, and her strictly official record of 1331.77 pounds butter in one year is a world's record, and it might be stated here that her first daughter to freshen in the Morris herd is now on official test and at this writing has above 23 pounds of butter in seven days to her credit as a junior two-year-old. Sir Aaggie De Kol Acme is sired by Aralia de Kol Pontiac Segis, whose dam is that sterling former world's record cow, Aralia De Kol, one of the foremost transmitting cows of the breed.

The dam of Sir Aaggie Mead De Kol is Aralia De Kol Pontiac Mead, 34.42 pounds of butter in seven days as a senior three-year-old, 932.34 pounds butter in one year as a senior two-year-old, the California record in class. She is by Segis Pontiac De Kol Burke, son of the world's former record cow, Riverside Sadie De Kol Burke, who by the way is the sire of the 23-pound daughter of Aaggie Acme of Riverside 2nd mentioned above, and her dam is Aralia De Kol Mead, 1215.20 pounds butter in one year on strictly official test, and she in turn is out of Aralia De Kol. Thus we find that the averages for the seven nearest dams behind this bull are as folows: Butter, one year, 1093.99 pounds; milk, one year, 23,575.54 pounds; butter, seven days, 31.14 pounds; milk, seven days, 660.07 pounds. These tremendous averages mean much in themselves, but coupled up with the abundantly proven transmitting ability of the nearest ancestors they stamp this young sire one of the very greatest individuals yet produced in the history of dairy cattle breeding.

Sir Aaggie Mead De Kol is also an individual of high excellence, as might be expected from the blending of the great type of his near dams and sires, and is now of service age and being used lightly on some of the best cows and heifers in the Morris herd.



Sir Aaggie Mead De Kol
Who has the highest average in the world for yearly butter records of his seven nearest dams. Bred and owned by A. W. Morris & Sons, Woodland. All of the high class females consigned by the Morris firm to the Guaranty Sale, March 27, are bred to this bull.

New Grasses For Foliage and Silage

There is never ending inquiry for permanent and perennial pasture grass to suit all soil and climate conditions of the southwest. It is a big problem to find such a grass that will endure both the frosty winters, the hot and dry summers, adobe or sandy soil, the damp meadow or dry mesa, buf as difficult as it would seem we are gradually getting closer to the ideal.

Continued experimenting with new importations have brought into prominence several grasses of such merit that to refuse to try them would mean a financial loss to you.

The Napier or Elephant Grass has been so much talked about lately that little need be said here. Now that the seed may be had, although in limited quantities, a packet containing about 3000 seeds may be purchased for 25c, and it requires less than 5000 plants to secure the best results from an acre; within four months there will be enough canes to plant many acres. The crowns survive the summer drought and make an amazing growth with little rain.

It grows readily from joints, which after the canes are hard may be cut midway between the joints, and the joints planted as potatoes. Napier joints may be purchased at $1.00 per dozen, or $5.00 per 100, postpaid.

The wonder forage plant was first introduced by the Aggeler & Musser Seed Company through their 1919 catalog.

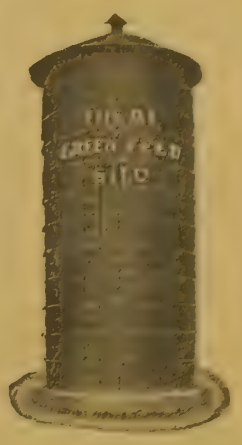
It has the sorghum sweetness of sugar cane, and the stooling and heading attributes of the Sudan, one stool having 57 canes with 161 heads and 12 feet tall would indicate full 75 tons of forage per acre, and may be cut several times during the season, and if cut not too late will survive the winter frosts.

Five pounds of seed is sufficient to plant one acre. Culture is the same as for any other sorghum. Price of the seed is 75c per lb., or 5 lbs. $3.00, postpaid.

Smilo Grass is probably the nearest ideal grass for the range of the southwest. It grows anywhere, anytime. Try it. Send 50c for one ounce, or $3.00 for one pound, which is enough for one acre. For other grasses see our catalog.

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AUCTION

300 Head of Holstein Cows & Heifers 300

2 Pure Bred Registered Holstein Bulls

On the Montana Land Co. Dairy Ranch at Bixby Station on the Salt Lake Railroad. Four miles north of

Long Beach

On Cherry Avenue, north of Signal Hill. From Los Angeles take the Long Beach P. E. cars to Cerritos Station, conveyances in waiting morning of sale at 10 a. m.

Saturday, March 29th, at 9 A.M.

This well known herd includes 120 choice young, nicely marked Holstein cows, mostly with first and second calf. There are no old cows in the herd. A large number are just fresh and milking heavily. Also 25 head of springers.

180 Head Holstein Heifers 180

45 head from 14 to 24 months old. A number of springers in this lot. 50 head from 6 to 12 months old. Balance are fine milk calves. Remember this stock is the result of years of scientific breeding. You could travel all over California trying to find a better marked, smoother lot of heifers than these.

Arrangements for credit can be made by purchasers from a distance by furnishing satisfactory bank reference.

Don't fail to attend this

Genuine Closing Out Sale

Owners: Ex-Senator Clark; J. Ross Clark

Auctioneers: Col. Ben A. Rhoades; Harold B. Rhoades
1505 South Main St., Los Angeles, Cal.

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

State Dairy Bureau Report

The twelfth biennial report of the state dairy bureau has been made to the governor and placed in printed form for the information of the dairy and creamery people of the state. The first two sentences of the introduction cause one to ask if there is anything wrong with California dairying conditions:

"For many years up to the time of writing the last report (December 1, 1916) there had been a steady increase in the production of butter of from one to eight million pounds a year, and it had about kept pace with the increase in population. During the year ending September 30, 1917, there was a decrease of nearly one million and a half pounds, and during the year ending December 30, 1918, there has been a further decrease of over eight million pounds."

However, there has been a material increase in cheese production. Again, there have been very material decreases in the actual number of dairies and of number of head in some of the larger dairies.

One instance: In Central California one of the inspectors found in one day twelve places where people had previously been dairying were now deserted. Scarcity of feed, difficulty in obtaining milkers and attractiveness of other farm products are given as reasons for the shrinkage.

The report does not refer to any discouragement because of the stringency of the state dairy law, but we believe that has something to do with the great shrinkage. However, many dairymen believe that the higher quality product, raised by the law, will increase demand and prices until the reasons for the existence of the law will be manifest.

"The dairymen who sold their cows and went out of the dairy business have undoubtedly made a great mistake as everything points to good prices for some years to come."

The report gives hopeful information as to eradication of tuberculosis. From the state veterinarian information is had that the percentage of nonreactors has increased until now there are 67.24 per cent of the herds free from tuberculosis. This is far more favorable than in other states and countries.

Reports are made in the 14 different inspection districts of the state by the various inspectors, and there is given a series of tables showing butter produced in the state for the years '17-'18, this by counties, the same for cheese, together with other tables showing dairy production for a period of ten years. Then comes full list of creameries and cheese factories and condensaries in the state.

As to Forage Grasses

I have noticed, in your issue of February 15, mention of Napier grass, and at different times articles on Smilo grass. This would lead me to think that considerable interest is being taken in grasses suitable to dry lands.

The London, England, "The Economist" published the report of The National Bank of South Africa, at its ordinary general meeting of shareholders, held in Pretoria, Transvaal, in June, 1918. The Hon. Hugh Crawford particularly drew attention to the world-wide scarcity of animal supplies and also to fodder as having an important bearing on their future as a stock raising country. He went on to say: "I would in particular direct attention to the well known "Kikuyu" grass (Pennisetum longistylum), the feeding value of which is the highest known in the sub-continent. This grass answers splendidly to our climatic conditions and its free introduction should tremendously increase the stock carrying capacity of our farms."

It would appear to the writer that such a grass might possibly be of great value to the drier parts of this state. —Wm. Rennie, Barton Vineyard Co.

Regarding this grass we have asked Prof. P. B. Kennedy for further information, and he writes:

"In reply to your letter regarding Kikuyu grass (Pennisetum longistylum), I may say that it is another name for a common grass used by us as an ornamental in the United States for a good many years. In fact it is very common around Berkeley, and withstands the summer drouth remarkably. In general appearance it has never appealed to me as having possible forage value. Nor do I know of its having been experimented with for this purpose in this country. The roots are offered for sale by seedsmen in South Africa. It is a low growing plant for a grass, that is, namely, about two feet high, and the flowering stalks impress one as being decidedly unpalatable to stock. The leafage, however, may be of considerable value but it has not this appearance."

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Quick Maturity, Uniformity and Size are Hereford Characteristics

84 Registered Hereford Cows, Heifers and Bulls

58 Females—26 Bulls

Tuberculin tested and guaranteed to be breeders

Buyers of foundation females are offered such a selection in this sale as has never before been made in California, including some very desirable young cows with calves at foot, some choice bred heifers in calf to some of the best bulls in the West, and a high class lot of open heifers of excellent breeding.

There are bulls of real herd heading quality in the sale, and the beginner can fit himself out in this offering with a complete breeding herd from the herd bull down.

RANGE BULLS—Leading Western breeders are sending to this sale a selection of good registered Hereford bulls that are especially well qualified for service in range herds. Hereford bulls of this breeding and quality have bred greater profits into literally thousands of range herds, getting the kind of offspring that mature quicker, make greater size with uniformity, and command better prices both at the feed lot and the block.

— Remember the Event, the Date and the Place —

PACIFIC COAST HEREFORD BREEDERS' SECOND SALE

Wednesday, April 9, 1919 **University Farm, Davis, California**

Consignors:

J. H. CAZIER & SONS, Wells, Nev.
J. A. BUNTING, Mission San Jose, Cal.
W. D. DUKE, Likely, Cal.
CHAS. RULE, Duncan's Mills, Cal.
UNIVERSITY FARM, Davis, Cal.
H. M. BARNGROVER, Santa Clara, Cal.
W. J. BEMMERLY, Woodland, Cal.
MRS. D. O. LIVELY, San Francisco.

Sale Under Auspices of

Pacific Coast Hereford Cattle Breeders' Association

W. R. Madden, Sec., Dixon, Cal. H. H. Gable, Pres., Esparto, Cal.

Auctioneer—Col. Fred. Reppert, Decatur, Ind.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.

CATTLEMEN'S MEETING at University Farm, Davis, beginning Monday, April 7.

ANNUAL MEETING of Pacific Coast Hereford Cattle Breeders' Association, Animal Husbandry Building, University Farm, at 10 A. M., Wednesday, April 9.

A catalog of sale will be mailed free on request. Please mention CALIFORNIA CULTIVATOR.

BUTTER AND CHEESE SCORING CONTEST

By S. L. Denning

The following butter and cheese makers will receive certificates from ward for the high average scores received by them for butter and cheese entered in the 1918 scoring contest:

Butter—Grade A (requirement, average score of 92 or above in three entries), N. Nyborg, Modesto Creamery, 93.5; H. Dons, University Farm, 93.25; C. A. Johnson, Bodega Cooperative Creamery, 92.25; Thomas Moran, Oakdale Creamery, 92.16; W. F. Butler, Visalia Cooperative Creamery, 92.16. Grade C (requirements, average score of 90 to 92 in three entries), Ed Hooper, Hooper Creamery, 91.83; Fred Deter, Montague Creamery, 91.66; H. R. Pyke, Orland Cheese and Butter Company, 91.25.

Cheddar cheese—Grade A (requirements, average score of 92 or above in three entries), O. R. Lynch, University Farm, 93.66; H. C. Watson, Watson Cheese Factory, 92.

The 1919 Contest

The 1919 contest will consist of three regular scorings held in different parts of the state in localities which will be convenient for the largest numbers of the butter and cheese makers to attend. In connection with the scoring there will be held a buttermakers' competitive judging and a meeting at which dairy manufacturing subjects will be discussed. Last year there was considerable interest in the judging contests and meetings and as a result these features will be enlarged this year. The butter and cheese makers find it an advantage to attend these scorings in order to compare their product with others entered. The meetings also afford an opportunity for becoming better acquainted with other makers and for exchanging of ideas.

A detailed program of each scoring will be sent out with the call for entries. The first contest is to be held at the Gustine Creamery at Gustine on April 3. The second scoring will probably be held in July and the third scoring in connection with the practical buttermakers short course at the University Farm in November.

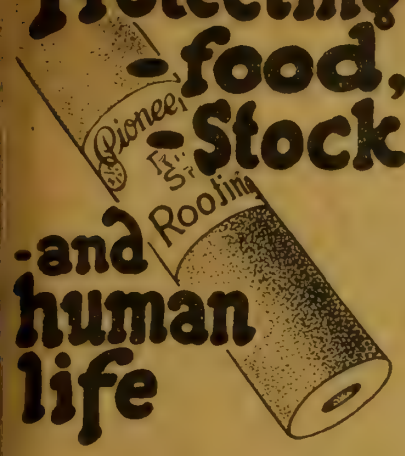
VETERINARIAN'S REPORT

State Veterinarian Chas. Keane has made report to the governor for the two years ending June 30, opening with the statement that the department continues to increase materially from year to year. "This is brought about by several facts, among which might be mentioned new laws, increased general recognition of the value of live stock sanitary control work, increased value of naimals, etc. The new state dairy law with its tuberculin testing provisions has not only increased our work in that direction very materially, but in addition, through the funds appropriated to carry on such testing, we have been enabled to increase the scope of our work without additional expense to the state."

The report is given up largely to the results of the tuberculin testing campaign under the new state dairy law.

As to hog cholera: "I am pleased to report to you that the number of

Protecting food, Stock and human life



Pioneer Roofing is equally good for old buildings or new. It is that reliable brand of READY Roofing that has been used in California since 1888. There is a dealer near you who handles the Pioneer Roofing and can supply your orders. Write for samples.

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In addition to the manufacture of Pioneer Ready Roofing, insulating and building paper, we also are printers of orange and lemon wrappers, roll wrapping paper, paper bags, bread wrappers, etc.

We carry a complete stock of waxed and tissue paper, twine, etc.

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New Harness

is cheaper than second-hand, dollar for dollar of cost. Come in and see what we have to offer you in HERCULES HARNESS and Horse Collars. Our own make and fully guaranteed.

Stallion collars made to order.

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California's Pioneer Harness Manufacturers, 333 Market Street,

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Catalogue of Harness, Saddlery, Trunks and Traveling Bags sent free on request.

Requesting your local merchant to stock articles advertised in the California Cultivator helps your self, the advertiser and the Cultivator.

hogs in the state has materially increased and that losses of the same from the most serious disease of hogs, hog cholera, have decreased, and though outbreaks of this disease have occurred in nearly every district of the state, they have been almost immediately checked or controlled by the prompt use of anti-hog-cholera serum and virus and by the immediate detailing of representatives from this department to investigate all outbreaks of the disease."

Report is also made as to sheep scabies, blackleg, glanders, anthrax and forage poisoning.

BELIEVES JERSEY FUTURE BRIGHT

Dr. H. W. Hand of Orland states that in his judgment the future was never brighter for the Jersey breeders of California. He bases his opinion on the fact that dairymen of this state are coming to appreciate the value of better breeding stock of all kinds and that during the past year there has been more interest manifested in Jerseys than at any time since he came to this state. He makes this point, though, that the breeders must need do more record work than they have done in the past.

The doctor is breeding along the same lines he followed in Illinois and is a strong believer in Champion Flying Fox blood lines.

His herd has been selected with the view of combining true Jersey type and production and the entire herd of Jersey cows are in the Register of Merit.

One of his cows, imp. Brilliant Spray, has been three times grand champion of California, and one of her daughters was junior champion in 1917. Another, Oxford Daisy's Sweet Maid, was third in class in the United States when she finished her record, which placed her in the Register of Merit class.

His herd bulls are Oxfords Daisy's Keep On and Blossom Liberty Bond, both grandsons of Champion Flying Fox and are the only two, so the doctor states, west of the Mississippi.

While the doctor's practice keeps him exceedingly busy he finds time to act as president of the Orland Chamber of Commerce and the Orland Jersey Breeders' Association.

The Keep On herd will be shown at the Sacramento state fair this fall and do its share toward boosting the Jersey breed in this state.

PRACTICAL DAIRYING

The George Junior Republic at Chino is doing some practical work in educating the farmers of the future. It is doing it by giving a farm home to boys, most of them city bred, who come there to fit themselves for bread earning by crop production. We have formerly referred to the fact that this education is given an impetus by holding up before the boys examples of best in methods and best in stock and implements which can be procured.

Recently classes in animal husbandry from Pomona, also from Chaffey, Ontario, union high school, met with the boys of the Republic. These classes plan to meet monthly. At this particular meeting a practical demonstration of work of boys of the George Junior Republic was given; selection of dairy cows, demonstration of the Babcock test and other interesting matters in connection with both dairy and swine husbandry were given by advanced boys of the Republic, after which a general discussion of these matters was held by the two high schools and Republic boys, much to the profit of all concerned.

Both Major Perrin in charge of the Ontario boys and Professor Fieke of the Pomona class expressed their surprise at the knowledge and ability of the Republic boys in handling these subjects.

FARM BUREAU MEETNGS

Glenn County farm bureau, or rather center meetings, are scheduled as follows: Willows, 22; Elk Creek, 26; Grapevine, 26; Larkin, 28.

The main general topics will refer to: Membership round-up, county highways, fat stock auction association, legislation affecting farmers. Between dates of March 16 and 31 the farm advisor will be in attendance at annual farm advisor and farm bureau conferences.



American Horizontal Pump. Can also be furnished direct-connected to motor or engine.



American Vertical Pump. All lubricating done from surface. For deep well work.

American Centrifugal Pumps

—have easy flowlines, split casings so that interior of pump is readily accessible, improved hydraulic thrust balance, minimum of wearing parts, and many other advantages. A type and size for every pumping requirement.

Write For Catalog

It illustrates and describes the entire line of American Centrifugal Pumps and gives valuable information for the irrigator.

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(2)

Pat. In U.S. Dec. 1, 1914
Pat. In Can. Apr. 6, 1915

Second Spring Sale of SHORTHORNS

Under the Auspices of

California Shorthorn Breeders Association

Will Be Held at

The University Farm, Davis, California

on

Tuesday, April 8th, 1919

at 1:30 P.M. SHARP

25 Head of Choice Bulls 25 Head High Class Females

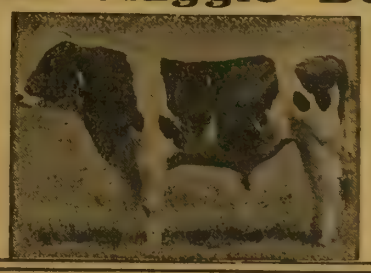
Auctioneer: Fred Reppert of Decatur, Indiana

For Catalog apply

California Shorthorn Breeders Association

320 Sharon Building, San Francisco, California

Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average:

Milk one year....24,089.88 pounds

Butter ..... 1,105.07 pounds

This butter average is equalled by only one other bull of service age in the world. Buy your next bull from

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TREES

For Sale—All kinds Citrus Nursery stock, 1 and 2 year buds, fine roots. Y. Yamaguchi, Box 574. Phone Sunset 470R, Upland. 10th St. and Cucamonga Ave., Upland.

For Sale—Budding Cloth 50c yard, Navel, Valencias, Pomelo, Tangerine, Lime Buds $2.25 thousand prepaid, also leading varieties citrus nursery stock. Selected and pedigreed buds. Order quick for early delivery. Cyrus W. Wilhite, Citrus Nurseries, Glendora, California. Box 154.

For Sale—250,000 **Homegrown fruit trees.** Apricots, apples, pears, peaches, walnuts, etc. All stock guaranteed first class in every respect. You will save money by writing for our descriptive catalogue and low prices. Orange County Nursery Co., Box 235, Anaheim, California.

Royal and Tilton Apricots, Flemish Beauty and Bartlett Pears on Jap Root, Lovell Peaches, closing out at reduced prices. Will deliver by trailer within Kern Co. and Tulare Co. Spengler & Rickert, Jasmine, Kern Co., California.

For Sale—About 1000 each of Eureka Lemon and Late Valencia Stock on Sour Root. 2 year buds from first class high producing trees, splendid root system. Charles Brooks, Sierra Madre, California. Tel. Red 14.

Closing Out—4,000 choice Marsh Seedless grapefruit, Eureka lemons and Washington navels, two-year-old buds in June, thirty cents each in lots of fifty, twenty-five cents each in lots of one hundred. P. M. Bevington, Elsinore, California.

For Sale—Several Hundred Almond Trees at extra low prices. A limited supply of peach, prune, walnut and other fruit and ornamental trees at reasonable prices. Burke's Nursery, Lodi, California.

Grafted Walnut Trees — Placentia Perfection and Eureka. A careful selection of grafting wood from the best groves of Southern California has been used on best black root stock. C. W. Story, Rivera, California.

Bartlett Pears on Japan Roots 3 to 4 ft., also 4 to 6 ft. Extra fine stock, well rooted, at very reasonable prices. Los Nietos Valley Nursery, Downey, California. Phone 692 Downey Exchange.

Florida Sour and California Sweet Seedling Orange Seed—Bed Stock. The time to plant is propitious; order now. SOUTHLAND NURSERIES, 1941 E. Colo. St., Pasadena, California.

Nonpareil and Drakes Almond on bitter almond, $12.50 and $10.00 per 100. Bartlett pears on blight immune root. Packing free. Tribble Bros., Elk Grove, California.

Late Valencias and Washington Navel orange trees. Marsh Seedless Grapefruit. Eureka Lemons. First-class stock. Los Nietos Valley Nursery, Downey, California. Phone 692 Downey Exchange.

Manzanillo and Mission Olive Trees selected stock. Free from scale. One inch and over. Thirty-five cents each at nursery. E. E. Barnes, Highland, Calif.

Walnut Trees, Artichoke Plants, and Wagner Rhubarb plants for sale cheap. Mammoth Walnut Nursery, P. O. Box 826, Watsonville, California.

Sacks and Burlap for balling trees; before you buy sacks or burlap see me or write. Boyle 1800. J. Ross, 313 N. Boyle Avenue, Los Angeles.

Olive Trees—Mission, Manzanillo. Propagated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, California.

Placentia and Eureka Walnuts on black root. A general line of high grade nursery stock. A. R. Marshall Nurseries, 1212 Ross St., Santa Ana, California.

Apricots and Olives. Good thrifty stock and carefully grown. C. E. MOYER, Hemet, Riverside County, California.

For Sale—Fine yearling Valencia orange trees. John L. Preston, R. D. No. 2, Anaheim. Phone 747-R2.

2500 Nonpareil Almond, 250 Peerless, 12¼c:. Packing extra. C. W. Story, Rivera, California.

TREES, TREES, TREES.
No War Prices.
Cash Nurseries, Sebastopol, California.

Grafted Feijoas or Pineapple Guava. Large plants $3.00 each, 10 for $25. Wm. Boyes, Lomita, California.

For Sale—3000 select orange trees. Also 3000 lemon trees; first class trees; 20,000 seed bed stock. A. R. Rideout, Whittier.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—8000 Mission and Manzanillo olive trees. All kinds citrus trees. York Nurseries, Highland, California.

BUDDED AVOCADOS.
MATHER'S AVOCADO NURSERY, 137 N. Fair Oaks Ave., Pasadena, California.

PIPE

"TESTED" and "GUARANTEED" Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.
PACIFIC PIPE CO.,
Main and Howard Sts., Est. 1906, San Francisco.

For Sale: 5400 feet No. 14 10-inch riveted steel pipe, 2500 ft 11-inch, 2800 ft. 12-inch 2000 ft. 4-inch. L. B. Vollmer, Monrovia, California.

For Sale—1000 Feet of 8-inch steel riveted dipped irrigation pipe in fine condition at 35 cents per foot. R. E. Harrington, Simi, California.

MACHINERY

FOR SALE—USED RANCH TOOLS.
Guaranteed to do as much work as new tools you buy, which will soon be second-hand, but not necessarily worn out. WE SELL FOR LESS. CALL AND SEE.
WINDMILLS—8 ft., $29 to $35; 10 ft., $30 to $45; 12 ft., $58 to $68; 16 ft., $135.
REDWOOD TANKS—New, used, all sizes, 1500 gal., $32.50 ea., 25,000 gal., $135; 50,000 gal., $250; 100,000 gal., $350.
NEW GALV. TANKS—1000 gal., $39; 2000, $53. USED galv. tanks, 6000, $125; 7000, $145; 1000, $29.
RANCH TOOLS—6 H. Lambert engine, $95; 10 ft. grain drill $95; mower, $45; Fresno beet drills, $35; Avery tractor, fine shape, $450; brand-new P. O. power-lift tractor, 4-gang disc plow, $230; 4-gang disc plow, $120; double-disc harrow with pony truck, $65; potato planter, $75; single disc harrow, spike harrows, Planet Jr. new potato digger, $20; slip scraper, $5.50; fine galv. water trough, $7.50; 10-ton McDonald pitless wagon scales, $150; 2-row bean cultivator, $35; 4-in. irrigating pipe, $14.90; 6-in., 25c; 10-in., 43c; sundries.
PUMPS—No. 3 Double-Acting Ames pump, with double 24-in. stroke, $250; 1-in. centrifugal, 2-in. American, $35; 2½ B. & J., $45; 4-in. horizontal cent., $82.50; 6 hor. Gould, $110; 4 two stage, $150; 7 vert. Krogh, $150; single Pomona plunger pump, $50; dozer, $98; small size, $49; many others, 50 brass cylinders. Checks, Liberty Bonds accepted. DEMMITT CO., upstairs, 120 N. Main. Yards, 816 Yale, Los Angeles. Also buy first-class used material.

For Sale—Six-foot Double Clark Cutaway disc harrow, three disc plow. These tools are good as new; for half the price of new ones; not worn out, but replaced by larger implements. A. L. Stevens, San Dimas, California.

Retiring from Dairy Business—Will sell one eight unit Calf-Way milking machine, only been used six months. Address J. Devlin, Box 291, Napa, California.

For Sale—Pomona Pump, 28 Head, nearly new, with 25 hp Bean Distillate Engine. W. F. Phillips, Terra Bella, California.

For Sale—Two Bemis Transplanters, only used once, good as new. Apply to John A. Hill, Box 491, San Jacinto, California.

3-inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2.

TURKEYS

Giant Bronze Turkeys — Gold Nugget strain. Prove their superiority by winning Gold Special Sweepstakes for best turkeys at the following great shows: Arizona State Fair, 1916; Texas State Fair, 1917; California State Fair, 1917-1918; Los Angeles Show, 1917-1918; Pacific Coast Land and Industrial Exposition, Oakland, 1918. An unequaled record. Large turkeys can be raised at practically the same cost as small ones. Toms for sale that will increase size and improve any flock. I am the originator of the Gold Nugget Strain. J. Will Blackman, 607 East Third St., Los Angeles, California.

Giant Bronze Turkey Eggs. Can fill orders for latter April and May delivery. Other eggs sold. M. M. Reiman, Planada, California.

For Sale: Mammoth Bronze baby turkeys with hints as to rearing. Palo Pino Turkey Ranch, Box 503, Monterey, California.

For Sale: Bourbon Red Turkeys.—Eggs for hatching $5.00 per setting of 13 eggs. Book your orders early. Albert E. Balmer, Martinez, California.

Pure White Holland Toms for sale. Mrs. E. J. Anderson, Box 632, Hollister, California.

ENGINES

For Sale—1 Holt 75 H. P. Engine. Been used about 3 months; also 1 Holt 45 engine, the old type but in good shape. Also 46 acres of land. R. MANGOLD, Orange and Long Beach blvd., Compton. Phone Compton 23.

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale—Bean Tractor. Entirely rebuilt by Bean's service man, renewing worn parts and adding all new features of 1919 model. W. C. PAINE, 4934 Malta Street, Los Angeles. 39484.

For Sale at a Bargain—18-35 Yuba Ball Tread Tractor in first class mechanical shape; plows and double disk harrow included. Apply D. P. Corcoran, Gridley. Phone 33-F 24.

A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D Co. California.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

HOGS

O. I. C. BREEDER'S NOTICE
I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILITS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

HOGS

Castleview Giant Type Berkshires are the thrifty, typey, quick-growing kind that will make larger profits for you. Prizes and Championship honors are awarded—by the greatest judges in America—only to animals possessing the essential qualities for economical meat production, viz.: heavy bone, good feet, broad strong backs, large hams and easy feeding qualities. Our grand champion herd includes Riverby Princess, grand champion sow of the world; Rookwood Lady 100th, 1917 grand champion of America; Mayfield Laurel 15th, 1917 grand champion of California. Bred sows, bred gilts and fine weaned pigs for sale.
Castleview Ranch, Santa Rosa, Cal.

BERKSHIRES BERKSHIRES
ANCHORAGE QUALITY
We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

BERKSHIRE BOARS AT 2c
SPECIAL OFFER
To introduce my world and national grand championship blood to farmers and breeders, I will sell a limited number of boar pigs, 6 to 9 months old, at two cents above the market price. They are by Baron Duke 201st, national grand champion, Winona Lee Champion 6th, first prize junior yearling 1917 State Fair, and from 650 pound prize winning sows. We will sell nothing that we would not use ourselves. Sandercock Land Co., 906 K St., Sacramento, California. In charge Natomas Land Sales.

BERKSHIRES GUERNSEYS
GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
A. B. HUMPHREY,
Escalon, San Joaquin County, California.

We are sold out of Durocs all except two dandy boar pigs, six months old, sired by the great King Orion and out of King's Pride, a daughter of Kings Col., who won more prizes for get than any sire in the country. These pigs are big, long, high boys, cholera immuned, tuberculin tested and guaranteed right. Send for full information about them. Elliott-Brant Rancho, Owensmouth, California.

Billiken Chester Whites, are all sold except one yearling boar. Am booking orders for spring pigs to be shipped at weaning time. Can still accept a limited number of orders. My boars and sows are of the best blood and most approved type and the pigs I will have to offer will be equal to the best that can be obtained anywhere. C. B. Cunningham, Mills, California.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

For Sale—Poland China — Quality type. Young stock of boars and gilts for sale at all times. At the head of our herd stands some of the best blood—Superba and I. B. A. Wonders, the World and State Champions. Poland China Ranch, C/o H. B. Peake, Mgr., 358 11th Street, San Bernardino, California.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

For Sale — Berkshire boar Pacific Star Masterpiece 2nd 241131—2½ years old. Nil Goethes Masterpiece 198190, dam Star Belle Betsey 226782. Splendid herd header. J. E. Moltzer, Van Nuys, California. South Sherman Way, corner Rita Street.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

Bargains in Poland China Sows. All immune. Good mothers and prolific. Registered stuff. Also boars. Write for details. N. C. Hansen, Coachella, California.

MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Duroc-Jerseys — We breed the champions. Peter, Lamson & Walker, Devore, San Bernardino County, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

FOR SALE: REGISTERED POLAND-CHINA BOARS. J. R. CARHART, FULLERTON, CALIFORNIA.

GOATS

Largest Herd Swiss Toggenbergs on the Coast. 100 grade does bred to my $1000 Buck, Captain No. 256, A. M. G. R. Association, due to kid in February and March, $40.00 each, lots to suit. Crating $2.00 extra. Stamp. Rae P. Williams, Oakland, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. Our chix are doing fine where others are not. Will hatch 1500 to order for May 7th at $180 per 1000. Hatching eggs by the thousand $75. A few settings from our high record hens at $5.00 per 15. Only about ten dozen of our second season hens yet to sell. Eleven of these hens and a 200 egg male will make you a good breeding pen, $25 f.o.b. ranch. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

R. I. Red Chix or hatching eggs from first class Hoganized utility stock, prices no higher than ordinary stock. Chix and eggs from prize winning Buff Orpingtons, quality rather than quantity our motto. Munier Poultry Yards and Hatchery, Cupertino, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs $2.50 per 15. Chicks March and following months 30c each. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose.

Super Quality White Leghorn Chicks, hatched right in Jubilee machines from best strains of foundation stock. Our customers come back each season, we can refer you to them. Write at once before we are all sold out. Newton Poultry Farm, Los Gatos, California.

Hatching Eggs—White Leghorns, Light Brown Leghorns, Dark Brown Leghorns, White Rocks, $2.50 per 15; $10.00 per 100. All bred to highest possible standard of beauty and utility. Mahaj Farm, P. O. Box 597, Sacramento, California.

S. C. R. I. Reds Exclusively. Pacific Coast Aristocrat strain. Baby chicks and hatching eggs from high class exhibition Hoganized stock. Order early. Rosedale Poultry Farm, Route A, Box 200D, Ceres, California.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith Prop., Corning, California.

Hatching Eggs — Oregon Agricultural College Barred Rocks, from 200-egg hens, $1.50 per 15, $2.50 per 30; $7 per 100. W. M. Tetherow, Central Point, Oregon.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California.

White Wyandottes fine cockerels for sale. J. C. Fishels & Son Strain, $5 and $ each. Eggs $3.00 per 15. J. W. Nicholson, Wasco, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Choice White Wyandotte breeding cockerels, $5.00; eggs $3.00 and $5.00 per 1 Baby chix. R. W. Stawetski, Route 1, San Jose, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No week ones charged for. Schellville Hatchery, Schellville, California.

Eggs for Hatching from heavy laying prize winning Golden Buff Leghorns. One fine mating of Buff Leghorns for sale. W. L. Bartholomew, Chino, California.

Save the Baby Chicks—Write today for our valuable free booklet "Making Every Chick a Chicken." Box 593, Modesto, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. V. Ohlen, Campbell, California.

White Wyandotte setting, 15 eggs, $1. Mission 281. G. O. Tetley, 190 Edgewood Place, Riverside.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, Reservoir, Pomona, California.

For Sale—Pit game cocks. Address P. Pritchard, Clarksburg, California.

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Warren's California Ovary Tonic—One of the best, has no equal. By the use of this grand tonic you will obtain from 50 to 300 per cent more eggs. Help birds through moult, brings backward pullets into full lay at once, makes old hens lay like pullets. Strengthens breeders and eggs are more fertile and chicks are stronger. Used by 4,000 breeders in Canada, Great Britain the past 10 years, used in wet or dry mash. Know what you are feeding your birds. Cost little to make and inexperience to use. Recipe mailed for $1.00. Albert Warren, 412 Temple Street, Los Angeles, California. Protected.

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns. CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. L. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Setting Eggs from the Sunny Slope Poultry Ranch is sufficient to warrant quality of production. We will sell setting eggs only during 1919. If you want birds that will produce quality and quantity, place your orders with us. You will then ever be a satisfied customer. Sunny Slope Poultry Ranch, Longden Ave., Box 789, San Gabriel, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for twenty years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Baby Chicks Every Week. Order early and get the date you want. White and Brown Leghorns, Rhode Island Reds, Barred Rocks, Anconas; also hatching eggs. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch, Box F, Palo Alto.

Finest Hatchery in the World. Chicks, White Leghorns, Rhode Island Reds, 10s, 1000s, hatched right in our $60,000 brick and concrete hatchery from our Hoganized heavy layers. Stock, eggs. Pebleside Poultry Farm, Sunnyvale, California.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

Book Your Orders with the Stevenson Hatchery, 19 Center Street, Watsonville, California, for Day Old Chicks Black Minorca, Barred Plymouth Rocks, White Leghorn or Anconas from first class utility stock.

Baby Chix R. I. Reds, Barred Rocks, Brown and White Leghorns from Hoganized stock, bred to lay. Reasonable prices and pleased customers our aim. Wobener Hatchery, Washington Avenue, San Jose.

Buff Wyandottes—Prize Winning stock of high quality. Eggs, $3 and $5 per 15, send for circular which contains price per 100. No baby chicks. Mrs. W. O. Johnson, 1817 Summit Ave., Pasadena, California.

Wanted—1000 Poultrymen to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Inschweller, Box 70, Inglewood, California.

Bowen's Famous White Minorcas—Eggs from special matings: Yard No. 1, $3; Yard No. 2, $2.50; Utility, $2 per 15; $8 per hundred. T. H. Bowen, Box 276, Santa Ana, California.

White Wyandotte hatching eggs from high testing Hoganized hens and cockerels. Selected winter layers. $2, $3, $5 per setting. S. Reyner, Lathrop.

Chix or Eggs—Hoganized W. Leghorns—also limited quantities of Buff Leghorns, Buff Minorcas, B. P. Rocks, L. Brahmas, Reds. S. Martina R. 2—627 Santa Cruz.

Rhode Island Red Eggs for hatching. MRS. RICHARD HOLDRIDGE, P. O. Box 282, Dixon, California.

WANTED

Wanted—To correspond with local sales representatives, residents in small towns and country districts who have spare time, or any others who are receptive to a good sound money-earning proposition where pleasant work, acquaintance and a good selling proposition combined will yield a good income. Address: H. Yetter, Sales Manager, 115-117 North Broadway, Los Angeles.

Wanted—Man or Woman Manager, Every community, town and country, to furnish information, etc. No selling. State your occupation and references. CALIF. DEVELOPMENT LEAGUE, 321A West 3rd. Los Angeles.

Wanted—Place as foreman. Advertiser is thorough in all lines of farming, fruit growing and the care of live stock. Experienced in working all kinds of labor both tenant and wage systems. Address Box 22, Care of Cultivator.

Wanted—Man With Some Capital For manager of one of our hog ranches now being put into shape for production; excellent opportunity for right man. Call 913 Hibernian Bldg., Los Angeles.

Wanted—To hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

RABBITS

Money in Rabbits
Raise rabbits for us. Will pay $6.00 per pair. Send stamp for particulars. H. E. Gibson Co., Arcadia, California.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Zenger, Watsonville, California.

CATTLE

Guernseys—We will sell stock from our prize winning, high producing herd, at reasonable prices, valued according to individuality and breeding. Our supply is limited but if the buyer wants a number of animals and will write us we will furnish him with particulars. Revada Guernsey Farm, Yountville, Napa Co., California.

We have one or two Guernsey bull calves left old enough for service and several youngsters. All out of A. R. cows with big records and sired by the best blood in the country. You need a Guernsey bull to put color, flavor and butter fat in your milk. Herd free of tuberculosis by state test. Write for full information. Elliott-Brant Rancho, Owensmouth, California.

SHORTHORN CATTLE, SHROPSHIRE SHEEP. Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., California. W. P. Dwyer and W. S. Guilford, Owners.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Keep On Herd Jerseys offers young individuals from dams only of high records. Dr. H. W. Hand, Orland, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

Ayrshires—Pure bred bull calves ready for service. Redwood Ayrshire Farm, La Honda.

SEEDS AND PLANTS

Dwarf Milo Seed for Sale—This seed was grown in the San Jacinto Valley and is the best from 400 sacks that was raised on 10 acres of land which is an average of a little over two and one-half tons per acre. This seed is large plump grain and well matured. Price $6.00 per hundred, f. o. b. San Jacinto. W. L. Helwig.

Your Garden Will Not Be Complete unless you have a few hills of the world's finest muskmelon, "Casad's Special," a heavy yielder, vigorous grower, long season, grows where others won't. Send for seed package, 25c. Roland C. Casad, originator and grower, Covina, California.

Sudan Seed First Class in Every Respect, grown in Napa County, and free from Johnson grass. Price 12½c per pound in sack lots or more. Prices quoted on carload lots. Address: T. H. Stice, M. D., Napa, California.

Positively Thornless Mammoth Blackberry, found native at Mountain Pass Ranch, Jamestown, prolific, ripens early. Berries mammoth size, practically seedless. Plants ½ doz. $1.50. G. S. Wills, Box 125, Jamestown, California.

For Sale—Sudan Seed, government tested for Johnson grass, 18c per pound or $15.00 per hundred. Free delivery until April 1st. G. A. Spencer, Jamacha, California.

Everbearing Strawberry Plants. Americus, $1.50 per 100. $3.00 per 250. Send for catalog. F. I. Moffet, Ellensburg, Washington.

Peruvian Alfalfa, Amber Cane, Milo Maize, Sudan Thousand-headed Kale, Artichokes. Seeds. Write for circular. Box 501, Fowler, California.

Onion Plants—1,000,000 California Red, 75c per 1000. Now is the time to plant. Monroe, The Tree Man, Orland, California.

Our New Hardy Hybrid Alfalfa beats the best, don't compare with others, but write for facts. J. L. LAWSON, San Jose, California.

Fenton's Hybridized Dahlia Seed. The World's Best. 35 seed, 50 cents. Fenton's Dahlia Farm, 771 Buena Vista Avenue, San Francisco, California.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees, Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

Rhubarb Plants — Wagner's Giant Crimson Rhubarb plants, extra clean, 50 cents per dozen. $3.0 0per haundred. Currier Bulb Co., Seabright, California.

For Sale—Florida Sour orange seed and California sweet seedling orange seed. Order early. Milo Hunt, Whittier. Phone 250.

Giant Sudan or wonder plant seed. Greatest, best ensilage producer known. C. H. Benedict, Riverside.

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IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches. ARNOTT & COMPANY, INC. The Yellow Front. Established 1892 112-118 S. Los Angeles St. Los Angeles.

GEESE

McNeely's Mammoth Geese. The kind that pay. Eggs 25c each, any amount. Fancy breeding stock ready to ship. Chas. McNeely, Alpaugh, California.

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BEST OF BUSINESS TRAINING.
Munson School
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Private Secretaries.
600 Sutter St., San Francisco.
Send for catalog.

FARM LANDS FOR SALE

For Sale—4,000 acre Michigan sheep ranch, woven wire fenced, all good land, well watered and grassed. R. R. station and loading pens on ranch, 160 miles to Chicago, two railroads. Have decided to make California my future home and will give someone a bargain and easy terms. W. J. Reynolds, 1004 Hollingsworth Bldg., Los Angeles, California.

ALBERTA THE WHEAT GRANARY OF THE WORLD AS CALIFORNIA IS THE FRUIT-BASKET.

We own and control several thousand acres in the choice farming districts of Alberta. Our improved lands are in farms of from 500 to 1600 acres and each farm has considerable acreage ready for spring crop. Our raw lands are in proved districts, surrounded by improved farms. Prices range from $15 up. Small cash payments, balance long time yearly and crop payment. The F. W. Anderson Mtge. & Investment Co., 501-5 Hutton Bldg., Spokane, Washington.

For Sale at a Bargain—1 acre, 3-room new frame house, garage, chicken coop, water, short ways from city. I go on the jitney 10c, street car line ½ block. Paid $600 for acre, want $900 for all or $650 cash, balance $300 on contract at 6 per month all clear title. I need the money for my 10-acre ranch. I have chickens and pigs here now. Mr. C. O. Young, RFD No. 3, Box 101, Sacramento, California.

For Sale—560 acres land. Government Patent in San Luis Obispo County, 12 miles from Santa Maria. Good grazing and timber land. Four room house, big barn and outbuildings. Fruit trees, vines and berries. Stock and growing crops go with place, nearly all fenced and cross fenced, well watered, soft water at house. All farming tools go with ranch. For full particulars address: W. W. Palmer, Santa Maria, California.

For Sale—Alfalfa or Stock Ranch—240 Acres—This ranch is now in grain and under best gravity water system in California. Also 1 flowing well on ranch. Bottom land and is worth $150 per acre, but owner can't use it and has made the price $75. Terms one-fourth cash, balance 6 per cent. Information; see M. S. ROBERTSON, 313 Story Bldg., Los Angeles, California. 63724.

Ideal Dairy and Hog Ranch—160 acres, fenced and X fenced, 90 acres alfalfa, 50 acres barley. Cow barn and stanchions for 25 head cows. Cream house, electric separator, plenty water, $175 per acre. Can add cattle and hogs, if wanted. For terms address C. D. Barnett, Owner, Shafter, Kern County, California.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator, Box B. A. J.

Near Earlimart, Tulare County, 40 or 80 acre tracts, very best alfalfa lands, shallow water, $100 an acre, on easy terms. Near McFarland, 160 acres alfalfa land, $50, terms. Owned by an estate. Write for full information. JOHN RUPP, 318 Story Bldg., Los Angeles, California.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

For Sale—40-acre ranch, in good condition, 18½ acres bearing prunes, 5 acres almonds, 5 acres alfalfa, balance in other crops. Cement piping for irrigating. Electric pumping plant; abundance of water. Close to town. Good location. Address Owner, Box 346, McFarland, California.

Do You Want a good small ranch—37 acres—under irrigation? Plenty of water. Good income property. For sale at a bargain. For particulars address: J. B. Kroetch, Willows, California.

For Sale — 3,000 Acres, level, 20 electric pumping plant. 12 houses and barns. Will sell in tracts of 80 acres and up. Low price, easy terms. Write Jesse M. Davis, Pixley, California.

Wanted to Sell, trade or exchange 80 acres of alfalfa land in Imperial Valley for a dairy having 40 to 100 cows with lease on place to keep them. Address Frank C. Dias, Holtville, California

For Sale or Trade—Equity in 200 acres Imperial Valley. Part in barley. $93 per acre. V. E. Rice, R. R. No. 2, El Centro.

For Sale or Trade for Lindsay City, 10 acres olives, also fitted for raising chickens, 6 miles west of Strathmore. Owner: J. D. Evinger, Selma.

For Sale—80 Acres, seeded to Bart wheat. Bargain for $12,000. One-third cash. Owner: Box 143, Calipatria, California.

MISCELLANEOUS

THE SILOS OF SILOS

The cheapest, best and most practical silo on the market. Write for booklet.
THE LEWIS COMPANY,
Dept. C,
1st Nat'l Bank Bldg
San Jose, California.

For Sale or Trade—Half interest in well established motor machine work, repairing and welding business, including agency for well known lines. Present manager taking other half. Will sell or trade for ranch and some cash to get outdoors. Consider half worth $25,000. Address T. E. B., Care California Cultivator, Los Angeles.

For Sale—Virginia Peanuts from high yielding field, 40 lbs. or over, 15 cents lb.; less, 18 cents lb. J. H. Parker, Hemet, California.

MISCELLANEOUS

Easy Money. Ford "Ketch-A-Kick" prevents breaking arm when cranking. Only $1.50 retail. Big discount to agents. Write for particulars or send $1.00. Sample mailed prepaid. Don't delay. Biggest Ford seller. Automotive Exchange, Hippodrome Annex, Cleveland, Ohio.

Tennessee Homegrown Red Leaf Tobacco, aged in bulk; best chewing or smoking; 3 pounds $1.75, 6 pounds $3.40, 10 pounds $5.25. Grade 2 smoking, 10 pounds $4.00, postpaid. Address McWherter & Ladd Tobacco Co., Martin, Tenn. Reference, Peoples Bank.

You are Losing Money if you farm without a soil analysis. Write me today for free proof of this statement. I can show you. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, California. Phones: Office Pico 843, Residence West 702.

For Sale—Two-story Brick Business Building at Newport Beach on highway. Address or call on H. J. Brainerd, 505 L. A. Trust and Savings Bdg., Los Angeles. Phone 65908.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Ranchers—Be business-like. 250 XXX envelopes with route, town, state printed, $1.10; 500, $2.00 prepaid. You pay that for blanks. Get our prices. Poultry printing, specialty. Elgin Printing Co., Fresno, California.

For Sale Ten Thousand Nursery Stakes, ⅝x¾ inches, 3 feet long. Address 508 West Grove Street, Visalia, California.

FERTILIZER

For Sale—Chicken manure in carloads. Cheapest and best fertilizer. MacDonald Sons, phone 101, Watsonville.

FARM BUILDING PLANS

W. T. Clarke, professor of agricultural extension of the University of California, writes of one work of the public service branch of that division which is sure to prove of material value to California producing interests:

"For the last two years the college of agriculture has been loaning farm structure plans to the farmers of this state. The plans were prepared under the supervision of Professor J. B. Davidson, our agricultural engineer, who has had wide experience in the design of architecturally and agriculturally correct structures."

Here is, for instance, a set of plans for a four-room farm bungalow. Elevations of the four sides are given in large blue prints, also detailed plans complete and ready for the carpenter to work on.

Doubtless there are plans for other types of houses, and a list of some of the plans shows that the university has help for the man who wants to build bunk houses, septic tanks, rabbit hutches, water towers, barns for beef cattle, dairy cattle, general stock, small purpose barn, houses for hogs, sheep and poultry, even details as to construction of sled type of bean cutter.

EARLY BAART WHEAT IN RIVERSIDE COUNTY

By Norman F. D'Evelyn

Early Baart wheat is withstanding the dry winter extraordinarily well in Perris and Murietta valleys, according to a report made to the agricultural department of the Sperry Flour Company at Stockton from the Los Angeles headquarters of the company. Its Riverside representative had made a trip through these two valleys and stated that he had received some fine reports on this new—to California—variety of wheat. It had come up very well, they said, and while other crops showed the effects of the lack of rainfall, the Early Baart wheat was green and appeared to have a peculiar tendency to draw moisture, "showing the dew on the leaves in the morning when the other crops are dry."

Nothing but favorable reports, writes Manager Coates, have come from points south of the Tehachapi regarding Baart. He is quite optimistic about the prospects of the coming crop. The ability of Early Baart wheat to withstand extremely dry weather during the growing period, as borne out in this testimony, confirms what was claimed for it by its sponsors, the Sperry Flour Company's agricultural department, during the statewide campaign it carried on last fall.

ONE OF MANY

"What's become of Bliggins?"
"He's laid up, a victim of the war."
"I didn't even know he had enlisted."
"He hasn't. He sprained his larynx telling how things ought to be done."
—Transcript.



-easy!

How it helps to take the fuss out of breakfast—Ghirardelli's Ground Chocolate! And how it helps to start the day off just right!

Easy to make—just a minute or two; and then—you have this delicious, sustaining food-beverage, piping hot and ready to serve!

Not sold in bulk but *in cans only*. Look for the Ghirardelli label when you buy. In ½ lb., 1 lb. and 3 lb. cans—wherever you do your trading. Look for the Ghirardelli label!

Say "Gear-ar-delly"

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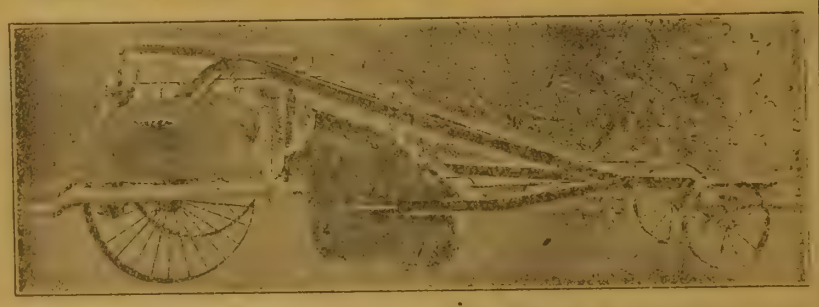
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Ground Chocolate

We Manufacture Levelers for Any Power From 6 Horses to a 75 H. P. Tractor

A Schmeiser Leveler

of the "Giant" Type

WILL WORK WONDERS ON YOUR FARM



Moving immense amounts of dirt daily, and working on ground too tough for horses and Fresnos to tackle, SCHMEISER POWER LAND LEVELERS are now being used with utmost success by a great many ranchers, large and small—also by contractors—saving their owners time, labor and money.

WE SEND THEM ON THREE DAYS' TRIAL

So extremely simple, a child could operate one, as a simple twist of the wrist raises and lowers the bucket or holds it stationary, as the case may require.

YOU SHOULD
send for our LATEST catalog J-600 which is full of interesting information on LABOR SAVING DEVICES and machines for moving the earth.

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Sure Pop Almond Hullers and Separators, 3 sizes; McGarvin Fruit and Olive Graders, any size; Schandoney & Harrington Equalizing Hitches, any size; Diamond Special Harrows, Baker Clips, Clevises, and Schmeiser Portable Automatic Hay Derrick. We sell the Martin Ditcher and Grader.

The California Cultivator

Weekly—24 to 36 Pages One Dollar per Year

Household Department

ON READING A CERTAIN BOOK

I turn a page, read on, and on,
A traveller up a pleasant road
Where others have before me gone
With brains that dreamed, with eyes that glowed.
Unmindful quite of time I fare,
From line to line my glances flit,
Delighted and bereft of care
By quip of humor, flash of wit.

Sometimes I con a paragraph,
Whose beauty makes me pause a while;
A happy fancy wakes a laugh,
An apt allusion lights a smile.
And so a feast my journey seems
Where I partake—yet leave behind
A wondrous board whereon there gleams
Untouched a banquet for the mind.
—Samuel Minturn Peck in Boston Evening Transcript.

THE BUTTERWORTH BAYS

Concluded from last week.

The young farmer stopped, and stared.

"I know I'm late, Joe." Dorothy Butterworth glanced half apprehensively at her husband, and then ruefully at her bedraggled gown. "But you see, there was an accident—it might have been dreadful,"—she shivered a little,—"and—why—what is it, Joe?"

Joe, staring and breathing heavily, still stood as if he were dumb.

She looked at him a moment curiously.

"It wasn't so very bad, after all—the accident," she explained. "It was one of the Bell girls visiting at the Grays'. She slipped and fell on the rails—the storm was awful. She seemed stunned at first, and we thought it was the third rail. The Dean boys were on the car, and one of them ran to the nearest telephone. I don't know what he said. But the girl wasn't badly hurt. She'll be all right in the morning. Did they call you, Joe?"

"Yes, they called me—the Meads." He had taken her arm, and his strong grip and the strange light in his eyes sent a fluttering thrill to her heart. "Let's get over here, Dorrie," he said, "at the meadow fence. It's nearer."

Again the sudden thrill fluttered her heart. He had called her "Dorrie"—the old pet name.

"Joe," she said, "just what did they tell you—the Meads?"

"They told me—" eH stopped, then went on slowly. "They sent Billy. He said that it was you—that you were—dead, Dorrie." The muscles of his throat tightened.

"Why, Joe, how could they! But of course everyone was confused, and the Bell girl did wear a gown like mine." They were at the edge of the ploughing now; the last fresh-turned furrow was just at their feet. She looked about the wide, empty field. "You were ploughing, Joe. Where are the team—the big bays?"

Joe Butterworth gave a sudden start, but the grasp on his wife's arm did not relax. "I don't know, Dorrie," he said. "Billy told me—that, and I—I just started."

With the light of a new understanding in her dark eyes, Dorothy looked round her—at the newly ploughed field, still fragrant of fresh earth, at the meadow beyond, at the green valley below. Her mind was a happy tumult; for over all, certain, but bewilderingly swift, the one thought rose and reigned supreme: this man, her husband—her Joe— cared.

"Joe?" she said, softly. "Joe?"

"Yes, Dorrie."

It was not much to say, but it was enough. Each knew that again there was the old, sweet understanding.

"We must find the horses, Joe."

"Yes, we'll find them now, Dorrie."

They came upon the broad track made by an overturned sulky plough and followed it across the field, and on to the sugar-bush grove. In a clump of "second growth" they found the team. Big Ned was down, but he was lying quietly; his mate was ni



THE TREE

By Joyce Kilmer
Who gave his life in France.

I think that I shall never see
A poem lovely as a tree.

A tree whose hungry mouth is prest
Against the earth's sweet flowing breast.

A tree that looks at God all day
And lifts her leafy arms to pray;

A tree that may in summer wear
A nest of robins in her hair;

Upon whose bosom snow has lain;
Who intimately lives with rain.

Poems are made by fools like me,
But only God can make a tree.



Uncle Sam's Fighting Boys Wear IRONCLAD KHAKI Twill Cloth

You men and women of his "home guard" should wear this patriotic economy cloth, too. It's fast color and wears like leather.

Overalls, Coveralls, Shirts and Pants

made of the genuine Ironclad Khaki (the kind Uncle Sam uses) carry the yellow "army" label, like the above. Look for it and Guaranteed Bond in the garment before you buy.

Write today for free samples of Ironclad Khaki Cloth, and Miss Ironclad Khaki, the kid glove finish ladies' overall cloth.

Garments on sale by dealers—everywhere

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Use Your AUTO As a Stationary Engine.

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Fits: Ford, Fordson, Reo, Hudson, Studebaker, Overland, Dodge, Buick & others

Furnishes plenty of power for filling silo, running shredders, grinding feed, sawing wood, etc.

Get one NOW—hundreds in use—Satisfaction guaranteed—only . . . **$35.00**

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408 Minnesota Street, St. Paul, Minn.

LAWRENCE AUTO POWER CO.

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IPE—Practically all sizes from ½ to 15 inches.
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ll pipe and casings has good threads and couplings on each joint.
IVETED PIPE—4 to 12 inches, as good as new. We also carry valves and fittings.
MAIL ORDERS GIVEN PROMPT ATTENTION
Write, phone or wire for quotations.

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ay and Mateo Sts. Los Angeles, Cal.

HE SELF-OILING WINDMILL

s become so popular in its first four years that usands have been called for to replace, on their l towers, other makes of mills, and to replace, at all cost, the gearing of the earlier rmotors, making them self-oil-



. Its enclosed motor eps in the oil and eps out dust and n. The Splash Oil- System constantly ods every bearing with oil, pre- nting wear and enabling the ll to pump in the lightest breeze. e oil supply is renewed once a year. uble Gears are used, each carrying half the load. We make Gasoline Engines, Pumps, Tanks, ater Supply Goods and Steel Frame Saws. rite AERMOTOR CO., 2500 Twelfth St., Chicago

Big Moneymaker

You can make $180 a week with fruit and vegetable apparatus. Write at once. Cal. Dried Produce Co. New way fruit and vegetable drier. 20 Eighth Street, San Francisco, California.

MACHINERY
OF EVERY DESCRIPTION
Bought, Sold and Rented
BUTTRESS & McCLELLAN
205-7 N. Los Angeles St., Los Angeles

ping at the bushes on either side. Except for a few slight cuts, neither horse was hurt.

Together Joe and Dorothy followed the sugar-bush road out to the meadow bars. Below them, in the little valley, lay the home buildings.

"It's lovely down there, Joe," said Dorothy, softly. Presently she added, "But I'm going to work at our yard the first thing I do. I didn't realize that it was so littered up."

"And I'll fix those barn doors good and strong tomorrow morning," said Joe.

And so they went down through the broad meadow where the bobolinks were singing in the sun, into the quiet home valley, together; and trailing behind them, cropping an occasional mouthful of sweet-scented clover blooms, came Ned and Dandy Jim.—Youth's Companion.

A LETTER FROM NAPA COUNTY

Dear Cultivator: In a recent number of your valuable paper a contributor gave us some fine suggestions relative to uses of various sacks used as food containers.

Not only are these sacks money savers but they may also become trainers in good morals and gentle manners. A few years ago I was laid up by an injury and a 17 year old neighbor girl, willing to add to her spending money by helping me with my work, came attired in a white dress to sweep, scrub, clean windows and do all sorts of so-called dirty work. At the end of the day she was sufficiently tidy to receive callers. The white dress did it. Try making daughter's kitchen dresses of sugar sacks and see if it will not break her of the habit of wiping her hands on her apron. Make it neat and she will feel dressed up, be on far better terms with herself, keep cleaner than she ever did in a faded print and will form the habit of keeping everything about her as neat as she is herself. The cleanliness which is next to godliness needs to invade the home kitchens as well as the parlors and the white dress will do it. I tried it myself and it has worked wonders for me. The white doesn't fade, is easy kept clean and wears well.

Bleach the small meal sacks well, cut into bias lengths, sew together, turn edges under, press and wind on strips of card board and you have bias folds ready for all kinds of underwear, aprons, etc.

When making kitchen dresses and aprons of sacks don't forget to make dainty dust caps to wear with them.

If "Anonymous" in writing for the Cultivator of March 8 will consider the food value of eggs and milk as compared with cornstarch and water, especially for children, I believe she will stick to the former.—A. M. H.

PARIS TO CONSTANTINOPLE

The International Sleeping Car Company announces its intention of re-establishing the Orient express from Paris to Constantinople as soon as conditions render such action possible. Before the war the route from Paris lay through Strassburg, Munich, Vienna, Budapest, and Sofia; but when service is resumed, says the Near East, the train will run to Milan from Paris by the Mont Cenis or Simplon route, and thence through Venice, Trieste, Agram, Nish, and Sofia to Constantinople. From Nish a section will run through Uskub, Saloniki, and Larissa to Athens.

The re-establishment of the Orient express to Constantinople will be only the first step in the development of communication with the East. It is proposed to extend the service to permit of direct connection between France and the Holy Land, and it is believed that this will be done before 1920. The final stage will be reached when the Bagdad railway has been completed and when London and Paris are connected by rail through a channel tunnel. It will then be possible to travel direct from London to the terminus of the Bagdad line near the Persian Gulf.

Does a sweater or other knit article need mending? Use yarn to match and put in cross threads as for darning but do not darn. Chain stitch down through the cross threads and the ridges will be so well matched that the mend will not be noticed.

MAKE ONE BATCH OF DOUGH DO FOR TWO BAKINGS



Make up a batch of dough with Calumet Baking Powder. Use part of it in a baking for your evening meal. Put balance of dough in the ice box—for breakfast biscuits. Fine, flaky, tempting biscuits that fairly "pop" with goodness. The leavening action of

CALUMET BAKING POWDER

never begins until the baking is put into the oven—exposed to oven heat. There is no loss of strength in can *or* in dough. While you are saving minutes with Calumet you are saving money and materials too.

You Save when you buy it—You Save when you use it—You Save materials it is used with

Reasonable in price. Certain in results. Stops bake-day failures. Most economical baking powder you can buy or use. Sold under a guarantee of Money-Back-If-You-Are-Not-Satisfied.

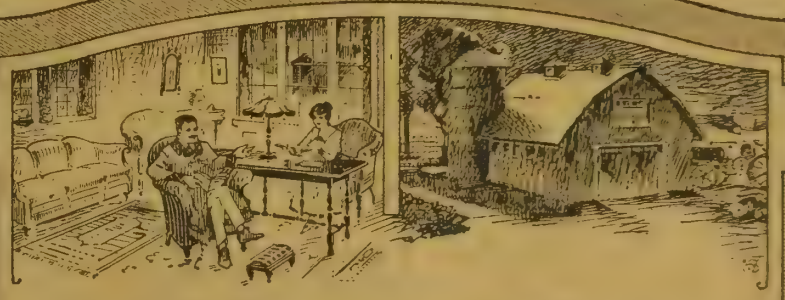
Calumet contains only such ingredients as have been approved officially by the U. S. Food Authorities.

Highest Quality

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This is the great need of the moment. It is just as necessary that the house-wife have the very latest and most up-to-date house-keeping "aids" as it is to have tractors instead of hand plows in the field.

Wouldn't you rather turn to a *really* restful home, pleasingly furnished, than to find the house boresome and your wife too tired to be civil? Be sure also that your home is a credit to your standing in the community—

Write Today for Free Catalog of "Better Home" Furnishings

A postcard request will bring you *your* copy. 128 pages with illustrations from photographic reproductions; rugs in colors.

Dependable home-furnishings only. We pay the freight within reasonable distance and make allowance to farther points.

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GIVES GREATEST VALUE FOR LEAST MONEY
IT MAKES THEM FAT
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It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards SIX times they will not be affected by MILDEW or RED SPIDERS.

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Orange County is working for an increase in membership of the Bean Growers Association.

Los Angeles Market

Los Angeles, March 19, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price, 56 lb.; prices to retail merchants in 1-lb. squares, 59-60.

Dairy exchange prices last week on extras:

Mar. '19 ...	12 57	13 56	14 56	15 56	17 56	18 56

CHEESE

Brokers' prices:
California fresh, lb. 29

EGGS

Fresh extras, Produce Exchange closing price, 42 doz.; price to retail merchants, 45@47 doz.; case count, Produce Exchange closing price, 39 doz.; price to retail merchants, 42@44 doz. pullets, Produce Exchange closing price, 38 doz. price to retail merchants, 41@43.

Dairy exchange prices last week on extras:

Mar. '19 ...	12 37	13 37	14 37	15 37	17 42	18 42

POULTRY

Prices to producers: Hens, 32-33; broilers, 42@50; fryers, 42; roasters, 34; old roosters, 18 capons, 43 ducks, 34; ducklings, 34@35; geese, 28; turkeys, 34@39; squabs, 55.

Belgian hares 17.

LIVE STOCK

By F. P. Allen, Bureau of Markets, Los Angeles

Producers of beef cattle are experiencing some difficulty in finding a profitable market for live steers. The extraordinary demand for cows in this city is mainly responsible for this condition. The extreme range of prices on steers from common 900 lb. grades to 1250 lb. choice steers in Kansas City (where export orders absorb those weighing 1100 lbs. and up) is $10.00 to $18.75 per cwt. At present there are no export or army orders of any size being filled in this city, hence local killers have to depend upon retailers for an outlet for steers, but instead of taking steers, these retailers demand cows.

Very light receipts of hogs in the last week has resulted in sharp advances in hog prices. It appears that hog feeders have sold off their supply very close without regard to the future. There is an active demand for feeder hogs right now, but the available supply of feeder stock is inadequate to fill this demand. The quality of the receipts of finished hogs now arriving here is not very good.

A decided falling off in the receipts of lambs is responsible for recent advances in the lamb market. The bulk of the supply is of inferior quality taken as a whole, but the few lots of choice stock are commanding fully 50c per cwt. more than last week's prices.

Young spring lambs are in evidence in a few of the local killers' yards and they meet a fairly good demand for this product.

Yearlings and wethers are in light receipt and sell on a firm market. Light weight ewes sell well at good figures but the heavier grades are dull and draggy.

Good steers .....13.50@14.50
Medium steers .....11.50@12.00
Common steers .....9.50@10.50
Good cows .....11.00@12.00
Medium cows .....9.00@10.00
Common cows .....6.00@7.50
Hogs—No. 1—175-225 lbs.....17.50@17.75
Hogs—No. 2, 250-400 lbs.....15.50@16.00

Above prices are for grain fed hogs in carload lots, f. o. b. Los Angeles.

Lambs—No. 1, 55-70 lbs.....16.50@17.00
Lambs—No. 2, 65-80 lbs. .....15.00@15.50
Wethers—No. 1 .....11.00@12.00
Ewes—No. 1 .....9.00@10.50

POTATOES AND ONIONS

These are the actual prices obtained March 18 by Los Angeles wholesalers in in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.
on walk.

Demand and movement moderate. Stockton, Burbanks, quality and condition generally good; sacked per 100 pounds extra fy. 2.65@2.75; fy., 2.50; Idaho Russets, quality and condition fair, 1.90@2.00; rurals 1.75@1.90; Oregon, seed stock, White Rose and Red Rose, sacked per 100 pounds, 2.85@3.00; Homegrowns, White Rose, best mostly 2.75@3.00.

Carlot sales to jobbers: Stockton Burbanks sacked per 100 pounds, extra fy., 2.50; ch., 2.00; Idaho Russets sacked per 100 pounds, 1.85; Rurals sacked per 100 pounds, 1.65.

Sweets lug box best 1.00@1.10; sacked 3.00@3.10 per cwt.; poorer, 2.50.

Onions: Demand and movement moderate. Little change in prices. Stockton, sacked per 100 lb.; Browns, best from cold storage, 4.25@4.50; White Globes, 10.00@11.00; Homegrown green onions 15 bunch.

VEGETABLES

These are the actual prices obtained March 18 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz. .....1.10@1.60

Asparagus: Imperial Valley, green, No. 1, 35@40 lb.; No. 2, 25 lb.; Northern White, 30 lb.

Cabbage: Sales to retailers, best cabbage, 2.00@2.25 crate.

Carlots: Demand active, prices advancing. Supplies scarce, market excited. Some growers holding for higher prices. Carloads f. o. b. cash track. Early Winningstadt, California crates 40.00@50.00 ton, crates extra.

California stock remained nearly steady at 2.75@3.35 per crate in most distributing markets, but advanced to 4.50@5.00 in St. Louis. Texas cabbage sold at unchanged prices, ranging 3.00@4.00 per cwt. Shipments were moderate.

Carrots, doz. .....45@50

Cauliflower: Best in cabbage crates, 2.00@2.25; poorer 1.00@1.50.

Carlots: Demand good for good stock. No change in prices, quality and condition ordinary, shipping season practically ended, carloads f. o. b. cash track best stock in pony crates 1.25@1.30.

Celery: Homegrowns, best, 8.00@8.50; poorer, 5.00 per crate.

Lettuce: Sales to retailers, best lettuce in cabbage crates 2.00, poorer 1.25@1.50.

Carlots: Demand good, prices lower. Wide range in prices, market temporarily unsettled. Quality and condition improving. Carloads f. o. b. cash track: Iceberg, California crates, Imperial Valley 5s, 3.50@3.75, mostly 3.50, smaller sizes 2.75@3.25.

Parsley, doz. .....20@25
Peas, Imperial Valley, lb. .....10@12
Peppers, Chili, lb., best 30
Bell, lb., best 35
Pumpkins, lb., best 1½
Radishes 15
Rhubarb: local Crimson, 1.85 bx.; local Giant Strawberry 2.00@2.10 bx.; Northern Strawberry, fy., 4.25 bx.
Spinach, doz. 20
Squash—Hubbard, best, lb.....2½@3
Tomatoes, Mexico, condition generally good; best, 2.75@3.25 lug bx.
Turnips, doz. 25

FRUITS

These are the actual prices obtained March 18 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Bellefleurs, fy. best, medium size, 2.25-2.50; loose, 5-6c lb. Yellow Newtowns, fy. medium size, 3.00@3.50; loose, 7 lb.; Oak Glen, Rome Beauties, Pearmains, 3.50@3.75; Winesaps, large 3.75@4.00, Yucaipa Delicious, fy., 3.00@3.50.

Pears: Winter Nellis, lb., 6@7.

Lemons: Fy. packed, 4.00@4.25; local pack, 3.50@4.00; loose, some tree ripe, 1.75@2.00.

Oranges: Navels, medium and large size, fy., 4.25@4.75; local packed, 3.00@4.00; Tangerines, 6@7 lb.

Grapefruit: Local fy., 2.50@3.00 bx.; Imperial Valley, 3.00@3.25.

HONEY

Demand improving account of the increasing export demand. Little change in prices, remaining supplies very light. Carloads f. o. b. usual terms, California extracted light amber sage, 17½@18 lb.; light amber alfalfa, 15½ lb.; Idaho extracted white alfalfa, no sales reported; asking 18 lb.

BEANS

Demand slow, little change in prices. Market slightly better feeling but no advance in price, warehouse cash to growers, choice recleaned, sacked per 100 pounds, Limas, mostly 6.00; Henderson bush, 5.25@5.75; mostly 5.50@5.75; Small whites, 5.50@5.75; Large whites, 5.25; Blackeyes, mostly 3.00; Tepary, no sales reported.

GRAIN AND FEEDS

For government prices on wheat see San Francisco market.

Carlot prices on local grain exchange.

Corn, sacked Yellow, 2.77½, White 2.71¼
Wheat .....40.00@42.25
Milo .....2.66¼@2.68¾
Barley .....2.16¼@2.22½
Egyptian corn 2.91¼

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....19@24
Barley .....18@22
Alfalfa .....16.00@20.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:

No. 1 dairy.....24.00@25.00
Standard dairy .....21.00@22.00
Standard Alfalfa .....18.00@19.00

San Francisco Markets

San Francisco, March 18, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale dairy produce exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:
Extra 37
Prime Firsts .....Nominal

Prices extras past week and year ago:

Mar. '19 ...	11 59	12 56	13 56	14 56	15 56½	17 57
'18 ...	51½	51½	49½	50	...	...

Rcts. wk. ending March 17, 374,600 lbs.

CHEESE

Dairy exch. quotations:
Cal. Flats 29
Ore. Triplets 38½
Jack, full cream .....25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 42½
Extra Pullets 41

Prices extras past week and year ago:

Mar. '19 ...	11 40	12 39½	13 39½	14 40	15 41	17 42½
'18 ...	39	40	40	40	...	...

Rcts. wk. ending March 17, 16,815 cases.

POULTRY

We quote to producers, lb.:
Hens, 37@40; broilers, 50@55; fryers, 45@50; old roosters, 23@25; young roosters, 45@50; turkeys, dressed. 40@42.
Ducks, 29@31; geese, 29@31.
Belgian hares, live, 18@20.
Jack Rabbits, 3.00@3.50.
Squabs, 60@65.

LIVE STOCK

Cattle—Grass fed, on foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. alive, 12¾@13; 1200 to 1400 lbs., 13@13¼; second quality, 11½@12; thin steers, 9@10.

Cows and Heifers—No. 1, 9@10; second quality, 8@9; common to thin, 6@7.

Calves—Light weight, per lb., 11½@12; medium, 10¼@11; heavy, 8@10.

Sheep—Lb., gross weight: Wethers, 12@12½; ewes, 9@10; lambs, 15@15½; yearlings, 12½@13.

Hogs—Hard, grain fed, weighing 100 to 150 lbs., 16½; 150 to 250 lbs., 17; 250 to 300 lbs., 16½; 300 to 400 lbs., 16.

POTATOES

Per ctl. on wharf: Deltas, 1.50@2.15; Oregon Burbanks, 2.00@2.10; Gems, 2.00@2.15; British Queens, 1.75@1.90; sweet, 100 lbs., 4.00@4.25.

ONIONS

Storage, cwt. .....3.75@4.00
Garlic, lb. .....50@75
Australian, Brown .....4.25@4.50

VEGETABLES

Wholesale selling price:
Artichokes, doz. .....50@90
Asparagus, lb. .....15@22½
Beans, string, L. A. lb. .....40@50
Beets .....1.50@1.75
Brussels Sprouts, lb. .....6@8

Cabbage, Early Flat Dutch, 90@1.00.

Carlots: Demand and movement moderate, demand improving. Quality and condition generally good, prices higher. Carloads f. o. b. usual terms and cash track: Early Flat Dutch, California crates 27.00@30.00 per ton.

Carrots, sk. .....1.25@1.50
Celery, cr. .....7.00@8.50
Cauliflower, doz. .....80@1.00

Carlots: Demand and movement good, quality and condition wide range. No change in prices, carloads f. o. b. usual terms, and f. o. b. cash track pony crates, 12s 1.25@1.35; 15s, 1.00@1.10.

Cucumbers, hothouse, bx of 30 4.00@4.50
Egg Plant, lb., local, ...5@10

Lettuce: Per crate, southern, iced 3.50@3.75; Watsonville, 2.25@2.50; Imperial Valley, 5.00@5.50.

Mushrooms, bx. .....15@50
Peppers, Southern .....12@15
Peas .....10@14
Pumpkins, sk. .....1.00@1.10
Rhubarb, bx. .....2.00@2.50
Strawberry, bx. .....3.00@3.50
Los Angeles .....1.50@1.75
Squash—Cream .....90@1.00
Spinach, lb .....3@5

After serious delay account unfavorable growing conditions in Central California, cuttings will start the second week in March. It is planned to ship some of the early cuttings and possibly later ones, but about 90 per cent of the acreage has been contracted by canners. The average shows a material increase over last year, and prospects are for abundant supply to meet shipping demand which appears dubious.

Tomatoes, Mex., cr. .....2.50@3.00
Turnips, bag .....1.50@1.75

FRESH FRUITS

Wholesale selling price:

Apples: Demand and movement good, little change in prices. Quality and condition generally good. Street sales: California Yellow Newtowns, fy., 3.25@3.50. Oregon, Yellow Newtons, extra fy. medium to large 3.50. Washington, Winesaps, extra fy. medium to large 3.00@3.50.

Bananas .....6½@7¼
Pears—Winter Nellis .....3.00@4.00
Common .....1.50@2.00

CITRUS

Box: Lemons, 3.00@4.25; Lemonettes, 2.00@3.00; grapefruit, 2.50@4.00; Mandarins, half orange bx., 2.50@3.25; tangerines, half orange bx., 2.50@3.25; Navel, 3.50@5.00; Mex. limes case, 8.00@9.00.

RICE

1918 crop, per 100 lbs: Paddy rice, Nos. 1 and 2, 4.32; 3d and 4th grades, 4.16; clean, fy. Japan, 7½ per lb; choice Japan, 7¾ per lb; screenings, 5⅝ per lb; brewers, 5¼ per lb; rice polish, 50.00 per ton, car lots; rice bran, 30.00 per ton, car lots; early prolific, 4.47. All other grades are to be sold on proportional basic value and proper differentials are to be added for the cost of double pockets.

BEANS

Supplies very heavy. Demand and movement very slow. Quality and condition wide range, prices lower. Carloads f. o. b. usual terms. Recleaned, sacked, 100 lbs., Large Whites, 5.50@6.00; Small Whites, 5.75@6.25; Cranberry beans, 5.00@5.25; Red Mexicans, 4.50@5.25; Pinks, 4.50@5.00; Tepary, 2.75@4.00; Black Eyes, 3.25@3.75.

GRAIN

Barley: Feed, 2.05@2.15 cental; shipping, 2.12½@2.20.

Oats: Red feed, 2.02½@2.17½ cental; seed, do, 2.50@2.75; recleaned, 3.00@3.10.

Corn: California yellow, 2.15@2.25 cental; Egyptian, 2.70@3.00 for dry and 2.30@2.60 for rain damaged. Milo maize, 2.60@2.75 for dry and 2.30@2.50 for rain damaged.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Cental
No. 1	2.20	$3.62 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58½
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran, 42.00; shorts, 42.00; middlings, 42.00; rolled barley, 48.00

@50.00; alfalfa, 32.00@34; scratch feed, 3.75 per cental.

HAY

Under date of March 15 Scott-Magner & Miller reports:

Export has been light and lack of freighting facilities is probably the cause. There has been little local demand during the week, although short receipts have been moved without much congestion.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market. For prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.

Fancy Wheat hay (light 5 wire bales)	23.00@24.00
No. 1 Wheat or Wheat and Oat Hay	19.00@21.00
No. 2 Wheat or Wheat and Oat Hay	15.00@18.00
Choice Tame Oat Hay	20.00@22.50
Other Tame Oat Hay	15.00@18.00
Wild Oat Hay	15.00@17.00
Barley Hay	15.00@17.00
Alfalfa	15.00@18.00
Stock Hay (in order)	13.00@16.00
No. 1 Barley Straw, bale	.50@80

Damaged hay (all kinds), according to condition.

Citrus Fruit Market

Los Angeles, California, March 19, 1919.

This year's return from oranges from California will bring the state more than double the amount of cash secured in many of the preceding years, and far more than the greatest of citrus returns. The frost injury is found to be lower than anticipated, and there have been no ill results in lowering quality of the fruit which was not actually frozen. This fact is being appreciated by the trade and invariable good prices and occasional abnormal price are secured. Sales generally are running between $5.00 and $6.00, and many sales above $6.00. This is true not only as to Navels but as to Seedlings, Mikes, and other varieties.

Lemons, however, do not receive much encouragement and general low prices prevail.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 10,839 cars; lemons 2761, total 13,600. To same date last season; oranges 4962, lemons 1388, total 6350. Central California this season; oranges 2968, lemons 347, total 3315. Last season to same date; oranges 1879, lemons 110, total 1989. Northern California; oranges 244, lemons 2. Last year same date; 202.

AT THE AUCTIONS

March 12

New York: 28 oranges, 6 lem. Nav. 4.90-6.60, Bloods 5.80-6.90, Homosassas 5.45, lem. 3.10-4.45, Tang. halves 2.80-3.55.

Cincinnati: 3 or. 1 lem. Nav. 4.40-5.05, Malta. 5.85, lem. 3.55-4.00.

Cleveland: 5 or., 1 lem. Nav. 3.90-5.85, Tang. halves 3.85, lem. 3.75.

Boston: 12 or., 2 lem. Nav. 4.70-6.15, Bloods. 6.55 Tang. halves 2.50-3.90, lem. 3.25-4.15.

St. Louis: 6 or., 1 lem. Nav. 4.75-5.15, lem. 3.10.

March 13

New York: 30 or., 8 lem. Nav. 4.80-6.25, Val. 5.60, Sweets 6.05-6.35, St. Mikes 6.20-6.70, Bloods 5.65-6.90, Seeds 5.95, lem. 2.95-4.00, Tang. halves 2.60-3.35.

Philadelphia: 7 or., 3 lem. Nav. 3.40-5.85, Sweets 5.25-5.65, Tang. halves 3.30-3.85, Blood halves 3.35-3.50 lem. 2.75-4.15.

Boston: 13 or., 4 lem. Nav. 4.45-6.55, Homosassas 5.95-6.30, Bloods 6.60-6.75, Seeds 6.30, Tang. halves 3.50, lem. 2.10-4.30.

March 14

New York: 20 or., 4 lem. Nav. 4.85-6.55, Bloods halves 3.25, lem. 3.10-4.10.

Boston: 9 or., 4 lem. Nav. 4.80-6.65, Seeds 5.00-6.30, Blood halves 3.10-3.40, lem. 2.70-3.90.

St. Louis: 4 or., 1 lem. Nav. 4.55-5.65, Mikes 5.90-6.10, Bloods 2.80, lem. 3.30.

Cleveland: 5 or., 1 lem. Nav. 4.40-5.80, Seeds 5.35-5.80, lem. 3.15-4.15.

March 17

New York: 42 or., 8 lem. Higher on fancy stock. Nav. 3.50-6.95, Bloods halves 2.55-2.95, Tang. halves 2.50-3.35, Navelencias 5.75-6.40, Bloods whole 4.40-6.05, lem. 2.95-4.25.

Pittsburg: 10 or., 2 lem. Nav. 3.75-5.45, Sweets 4.85, Jaffas 4.55-5.05, lem. 2.60-3.65.

St. Louis: 7 or., 1 lem. Nav. 4.20-5.15, Bloods. halves, 2.50, Seeds. 4.95, lem. 2.80-2.95.

Boston: Nav. 4.55-6.15, Homo. 5.10-5.65, Bloods. 2.80-6.05, Seeds. 5.65, Sweets. 6.20, lem. 2.85-3.20.

March 18

New York: 31 or., 6 lem. Nav. 3.75-6.05, Seeds. 4.50-5.20, Tang. halves 2.50-2.80, Blood. halves 2.50-3.00, lem. 2.30-3.85.

Pittsburg: 2 or., Nav. 4.35-4.75.

Boston: 14 cars. Nav. 5.60-6.25, Tang. 3.65, lem. 2.85-3.30.

A farm bureau hog auction sale was held at Modesto March 14.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle it, send 20 cents in stamps and mention your dealer's name and get sample by mail postage paid. Write for prices in larger quantities delivered free by parcel post.

Mfg. by Z. A. MACABEE, Los Gates, Cal.

MARKET NEWS

Asparagus from the Delta districts is arriving on the San Francisco market in small quantities. Prevailing weather conditions will bring receipts up rapidly, but no carload shipping for some time yet.

The cabbage crop in Southern California is not turning out very satisfactorily. Yields are no better than last year. With the reduced acreage for spring shipments, indications are that carlot movement in March to June will not exceed 700 cars. Stanton, Garden Grove, Brookhurst and Como districts are making carlot shipments. Late varieties seem to stand still. In some districts the heads show signs of bursting before they mature. San Fernando district—Apparently no damage was done from heavy winds as crop is too far advanced. There was a strong demand here this week and 9 cars were shipped. The stock is being packed in regular California pony sized cabbage crates with average net weight of about 80 pounds.

The cabbage produced in the Colma district for winter shipment is the Flat Dutch variety. The acreage is above normal, growers having expected a continuous demand from kraut manufacturers on account of government requirements. However, this demand having been satisfied the movement has been slow. During the past ten days dehydrators have been buying big heads while smal'er hard heads are being packed for Middle West shipment, thus causing a fair movement.

Rhubarb shipments are just starting, about two weeks later than usual.

The heavy California shipments of cauliflower are now from the central part of the state.

Three hundred thirty-six carloads of lettuce were shipped from the Imperial Valley up to March 1. Yield is about 45 per cent of normal. Sizes are still small due partly to growers cutting prematurely for high market. Winds and cold weather are also retarding the growth. No period of excessive shipments is expected.

The quality of the lettuce in the San Fernando is fine and the bulk of the crop is maturing well. Heavier shipments are expected about March 15.

The outlook for peas in Central California is dubious. The excessive rain has washed hillsides, destroying seed and injuring blossoms, turning some vines yellow, but good crops are still expected providing weather this month is favorable. The crop is backward. Southern section Eastern shipments are under way from Imperial Valley. Carlots are expected soon with heaviest movement the latter part of the month. With a much larger acreage than last year, fairly good stand, and excellent vine growth, and heavy bloom, prospects for shipments are good. The weather is cold and windy and crop is late, but better quality than last year is expected.

Preliminary estimates of strawberry acreage for the central coast counties are 880 acres. The principal increase has been in Santa Clara, Watsonville, Mayfield, San Juan and Sunnyvale districts. Florin district, Sacramento County, reports 900 acres 1918, 750 acres 1919. Growers are contracting 10 cents per pound for canning.

Carlot shipments of peas have begun from the Brawley district.

Pennsylvania beef feeders are not sending half fat cattle to market as it has been found that fully finished beef commands sale so much more readily and at a material advance.

Reports from 13 potato producing states indicate immense cut in the acreage of potatoes to be planted in 1919. These states report planting for 1918 as 223,845 acres while the indicated acreage the coming season is 132,044. The more important reason given to account for the shortage in acreage this year as compared with last year are, high cost of fertilizer, high cost and scarcity of labor, high cost of seed, high cost of packages, high freight rates and fear of car shortage, low price of product and consequent losses in 1918, excessive rainfall, preventing the preparation of land for planting.

Leon M. Estabrook, chief of the bureau of crop estimates, reports that farmers of Gloucester County, Pennsylvania, are disgusted with trucking with guano at $80 to $90 per ton and labor almost unobtainable. "I have last fall's crop piled in the field and cannot get expenses, freight 52 cents a hundred, barrels 55 cents each, commission 10 per cent, cannot live at these prices."

Los Angeles County expects to plant 1000 acres less of potatoes than last year. The planting last year was 7000 acres. Orange County will likewise shrink her 3000 acres last year to about 2000 this year.

Local seed for spring crop of potatoes is very scarce and high priced and for this reason plantings are not expected to be as heavy as last year. The bulk of the planting will be during March.

PARTIAL LIST CALIFORNIA FRUIT AND VEGETABLE SHIPMENTS

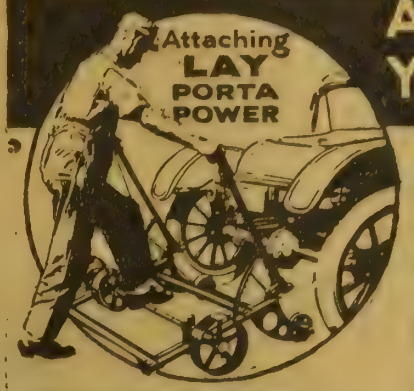
From post card reports to the Los Angeles branch of the bureau of markets, report is made of the following shipments of cars of products from California for the week ending March 17: Apples, 21; bage, 103; cauliflower, 130; celery, 17; artichokes, 22; Brussels sprouts, 2; cabdried apples, 4; dried apricots, 2; dry beans, 67; dried figs, 1; dried olives 4; dried peaches 5; dried prunes, 20; lettuce, 124; mixed fruit, 1; mixed vegetables, 54; mixed fruit and vegetables, 23; mixed dried fruit, 3; pears, 1; peas, 2; potatoes, 65; raisins, 75; rhubarb, 2; spinach, 5; sweet potatoes, 1; turnips, 1; Mexican tomatoes, 43.

WEATHER CONDITIONS

San Francisco, California, March 15, 1919.

STATION	Rainfall — Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	.96	32.50	35.13	54	34
Red Bluff	2.20	25.57	19.53	60	34
Sacramento	.88	16.91	15.49	60	36
San Francisco	1.45	24.85	18.19	64	40
San Jose	2.02	18.55	13.35	68	32
Fresno	.66	8.48	7.35	68	38
San Luis Obispo	2.66	17.26	15.96	68	34
Los Angeles	1.60	7.66	12.60	72	42
San Diego	.48	6.81	8.07	70	40

HOW ONE FARMER PROGRESSED A HUNDRED YEARS IN A DAY



First; you slip Lay Porta Power under the rear axle, press down on two levers, slip on a belt that connects with a line of pulleyshafting in the shed, and start the Lay Milking Machine. Cows are milked in no time. Throw on the separator belt—one more job done. Feed mill next—then the grind stone or churn.

Then you put the saw rig on the back of the car with Lay Porta Power on the running board and drive down to the woodlot. In half an hour you've sawed more wood than you could in a day by hand.

Back to the house and hitch up to your Lay Electric Lighting Plant and charge the storage batteries for modern Lay Farm Light for house and barn; and then fill your tanks with a Lay Porta Pump.

Release the levers and the car is ready to run in town with, or for family use.

This marvelous Farm Power has cost almost nothing. Just a little gas. There is almost no wear on tires. You get the same mileage out of tires and do all this extra work besides.

This whole Farm Power Outfit-Car, Lay Porta Power, Lay Milking Machine, Lay Porta Saw, Lay Farm Light, Lay Porta Pump, Lay Porta Mill, costs about what one laborer would cost for a year and they'll do your farm work for many years for practically nothing.

Cheapest power on earth and most efficient. Each machine sold separately. Lay Porta Power will operate any machinery you now own that can be driven by a belt.

Power on the farm means profit. Portable Power—Lay Porta Power. Write for full information. We can employ a few farmer agents. Every one buys on demonstration—the proposition is that logical.

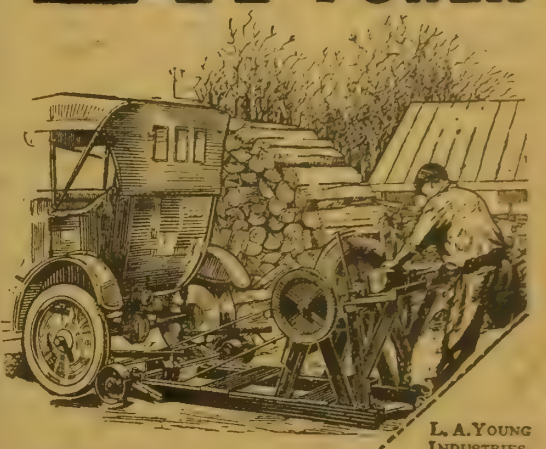
He was puzzling over the labor problem.

"Trouble with me is," he said, "that I'm farming the way they did a hundred years ago. All hand and horse labor. What I need is Power."

He bought an automobile. That saved several hours a day getting the stuff to market. Then we showed him how to hitch up the wonderful auto power plant to do pretty nearly all the hard work of the farm. He could move his power about where the work was—that was the first big point. And the Power was always ready.

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Standard Oil Company (California)



The Fine Art of Brooding

Written for California Cultivator By Jean A. Koethen

FROM the time when the tenderest heart the world has ever known cried out in its agony, "O Jerusalem, Jerusalem, how often would I have gathered thy children together, as a hen doth gather her brood under her wings," the brooding of young chicks has been synonymous with tenderness and love. Here is where artificial brooding fails. There is no tenderness, no motherly cuddling about a distillate stove or a hot water pipe. But the hen also sometimes fails in this respect. When she does, the artificial brooder is to be preferred. If a brooder stove does not cuddle its charges, neither does it trample their little bodies nor kick them around. Mothering is a great thing, and the weaker chicks are handicapped without it. But the most essential element of mothering, warmth, is one that can be supplied by stove or electric light or hot water pipe or sunshine. Which of these is best depends upon circumstances.

Mother Biddy's Faults

I used to be quite firm in my conviction that the hen is the best of all brooders—that the warmth and vitality of her body, and her soothing, motherly cluck, supply something no artificial brooder can give. I still think a good hen is the perfect mother, but I am fully persuaded that a poor hen is worse than any brooder. The past two weeks I have been struggling with a nervous, stupid hen mother whose maternal warmth I had to supplement with jug and hot water bottle. Even with that aid three of her fifteen chicks died from the results of chilling. Another time I shall take her brood away from such a hen at the very beginning.

Hens differ not only in disposition, but in vitality and bodily heat. This hen of mine was a thin little thing, and I doubt if it would have been possible for her under any circumstances to keep 15 chicks warm in our blustery February weather. Had I left her with only the seven she hatched, she would have done better.

When chicks are brooded by hens they must have most careful protection from wind and weather. It has been my custom to keep every hen mother that hatched in cold, windy or rainy weather in the sunny corner of the feed house for from five to seven days. Here the chicks are absolutely shielded from wind and sudden showers, and I have no fear of their getting out onto the wet ground in the early morning.

A very simple brood coop is found in the back yard of Miss Fanny Crosby of Eagle Rock. Part of the top of the coop is removable and there is a door by means of which the hen and her brood can be confined, while their wants are attended to from above. It is a good plan to confine both hen and chicks in a wire run for two or three weeks. As the chicks grow they may be allowed their liberty, but the hen should always be confined.

Raising Chicks Without Heat

The simplest artificial brooder I have seen recently was in the back lot plant of L. Stratton of Glendale. Mr. Stratton keeps his layers in regular Philo coops, and his chick coops are a modified form of the Philo brooder coop. The Philo coop proper, those who have used them will remember, has a hinged top which is held in place by a prop under which is a movable wire cover, and the combination is a difficult one to manage. Mr. Stratton's coop is a frame 3x4' and two feet high, covered with tarred paper. The top is slatted, and on the slats are laid the piece of tarred paper which serves as roof and a long pane of glass. In warm weather the entire top may be left uncovered. In chilly or wet weather the paper covers all of the coop except that protected by the glass. At all times the chicks are out of the wind, and they get sunlight thorugh the glass until quite late in the afternoon. These chicks sleep in a Philo brooder box, 18 inches square for 50 chicks. I saw chicks just out of the incubator apparently perfectly comfortable in one of these coops in spite of a cold north wind, and chicks three weeks old which had never been out of the coop, of extraordinary size and vigor.

A Semi-Fireless Brooder

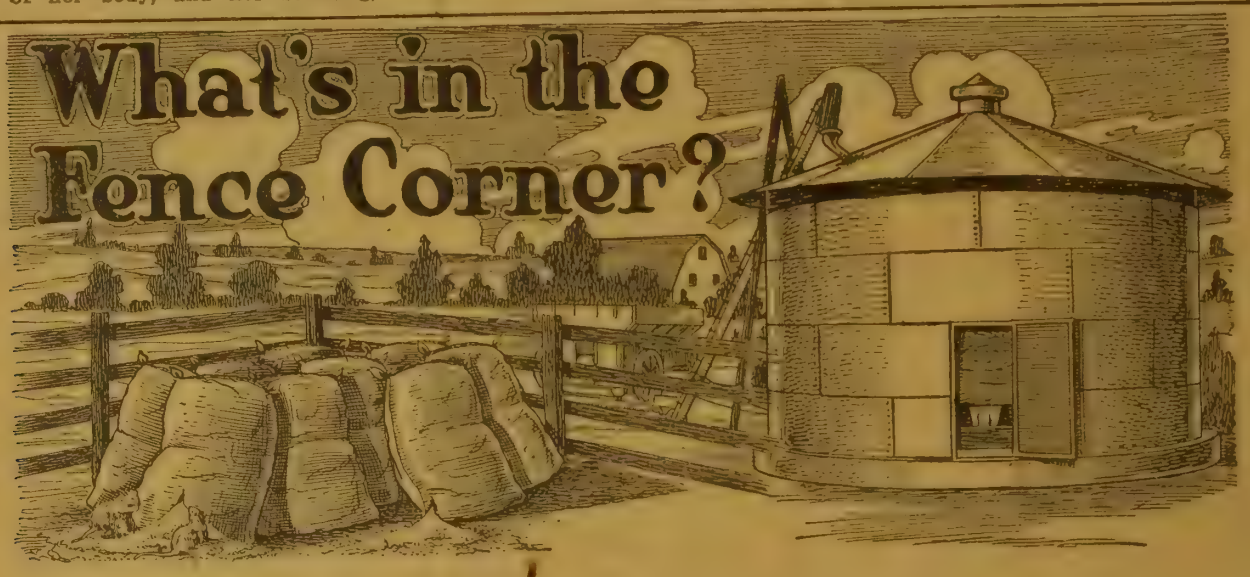
C. P. Shaw of Riverside has devised a very clever brooder which is mostly fireless, but utilizes one electric light to raise the temperature slightly at night. This brooder houses 300 chicks and can be built of new lumber at a cost of not over $15. It fronts east, in order to catch every bit of the morning sun, and is eight feet long by six feet wide, with front five feet and rear three feet from the ground. One end, as shown in the illustration, is built against the end of the laying house. The other end and the back are built double, and the space between the walls is filled with dry earth. This not only adds to the warmth of the brooder at night but makes the walls draft-tight. The brooder is divided into six compartments, each consisting of brooder box and run. In the picture four of the runs are occupied, the two end runs being vacant. The glass at the front end of each run admits light at all times and warmth whenever the sun shines. The hinged door above is held at any desired angle by a strip of galvanized iron. The brooder boxes, which are 26 inches long and 16 inches wide, have felt curtains across the front, and are covered by a large quilt which is rolled back to admit fresh air. Above these boxes, in the center, hangs at 32-candlepower electric globe which raises the temperature considerably on a cold night.



Semi-Fireless Brooder
Designed by C. P. Shaw, Riverside.

The Electric Brooder

The hot water pipe and stove brooders are being superseded in many localities. This, I am told, is largely because of the poor quality of the gasoline they have had to burn, which makes the hot water brooders in particular very hard to control. I asked C. R. Brown of Arlington, who has just replaced his hot water brooders with one 1000-chick electric brooder, what he considered the advantages of the



IN CALIFORNIA, grain is generally harvested by the combined harvester, which threshes the grain and spouts it into sacks which are then sewed and left in the fields.

Sacks from the harvester remain where they are thrown for some days or weeks; later they are gathered into a pile, usually in a fence corner, where they remain for some time.

But there are other things in that fence corner besides grain. Field mice, rats, gophers, birds—gather in glee. Valuable sacks and more valuable grain is destroyed.

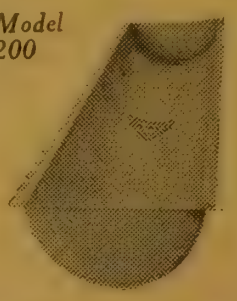
Early rain soaks that fence corner. Sun blisters, thieves invade—and general destruction is in that fence corner with your grain.

Stop that waste—stop that drain on your profits. Install a Calco Metal Grain Bin. Put your grain where it is safe from rats, rain and ruin. Calco Grain Bins are inexpensive, and cost but once. Afterwards they SAVE. They save grain and save money for you.

Get the free booklet, "Calco Grain Bins." Sent upon request.

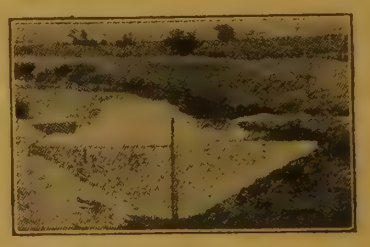
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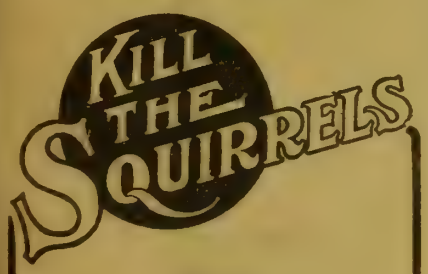
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Druggists and seed dealers sell GERMOZONE, the best poultry remedy and preventive. For old and young,—bowel trouble, colds, roup, musty or spoiled food, limber neck, chicken pox, sour crop, skin disease, etc. Sick chicks can't wait. Do it now.

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latter. "I don't know," he replied, "that it is any cheaper or better than some of the large brooder stoves, but it is adaptable to any building. I could not have used a stove in this building, but the electric brooder can be used under a tent or anywhere. It is no more expensive for it cost only $40 to install the 1000-chick size, and ventilation and temperature are both more easily controlled than in other brooders. Then there are no corners to crowd in, for a curtain suffices to keep the heat in. As to whether the chicks are likely to be burned, I have not tried it long enough to say. Adaptability is, however, its main advantage."

Every system of brooding, from natural to electric, has its advantages and its disadvantages, and each depends largely on the intelligence of the man or woman that is running it for its efficiency. Not even the hen can raise a brood without human oversight. Given human intelligence and care the simplest equipment is sufficient.

COMMENT ON ALL-NORTHWEST EGG LAYING CONTEST

By Jean A. Koethen

It is rather humiliating to admirers of other breeds to note how completely the White Leghorn walks away with all the honors. Leghorns made the highest per cent of production, 60 per cent, for the month of January, and did this at a feed cost for the average bird of 29.3 cents, while Rhode Island Whites made only 55.1 per cent production, and did it at a feed cost of 35.3 cents per bird. The feed cost for Wyandottes for the average bird for the month was 31.8 cents; for Barred Rocks, 31.7 cents; for Rhode Island Reds, 31.4 cents; for the three miscellaneous breeds, 30.5 cents, and for Black Minorcas, 31.5 cents. Perhaps the most interesting list of figures is that of return above feed cost. This for Leghorns is 63.6 cents; Rhode Island Whites 50.1; Wyandottes, 53.1; Barred Rocks, 50.7; Rhode Island Reds, 41.5; miscellaneous, 37.4; Black Minorcas, 28.4. From which is appears that a Black Minorca is likely to be but half as profitable as a Leghorn. But this is only one month's record. The high hen for the three months, which produced 74 eggs in 88 days, had a sales value for eggs of $4.01 for the 88 days. She was a White Leghorn.

Exceptional Birds Pay

The return above feed cost for the average Leghorn was 63.6 cents for the month of January, but the return above feed cost for the best Leghorn was $1.106. She was nearly twice as profitable as the average bird. The return above feed cost for the average Rhode Island Red was 41.5 cents, but the return for the best was 98.5 cents. For the average Rhode Island White the return above feed cost was 50.1 cents, but the return for the best was $1.146. This was the most profitable hen in the lot, leading the best Leghorn by 14 cents. The best Barred Rock made a return above feed cost of $1.082; the best Wyandotte, a return of 98.1 cents; the best Black Minorca, a return of 88.4 cents. The selling price per dozen of the eggs for the month was 60 cents, and the feed cost per dozen eggs 18.9 cents for Leghorns, 25.8 cents for Rhode Island Reds, 24.7 cents for Rhode Island Whites, 23 cents for Barred Rocks, 22.4 cents for Wyandottes, 31.5 cents for Black Minorcas. Twelve per cent of the Minorcas and nine per cent of the Barred Rocks laid no eggs at all, while only 1.4 per cent of the Leghorns were in this unenviable class.

Of what use is such a report as this? Just this, I think. It gives the casual reader, who has not time for careful record keeping, an idea of what should be the approximate cost of egg production for his breed. Most of us when we are asked can give little idea of what it ought to cost. We do not know whether we are feeding extravagantly or economically. Many of us do not even know whether we are breaking even or not—we backlotters, I mean. Here we have in black and white what it ought to cost to produce a dozen eggs, and what profit a good layer ought to bring her owner. As for the breed data, no accurate conclusion can be drawn from the figures for a single contest, but take them by and large, they come out a good deal alike the country over.



Will not break

That's a statement that will be clear to any one who examines the construction of the Splitdorf Spark Plug.

Its long life is assured because the insulation (which is the vital feature of any plug) is of imported ruby mica, a material that is *indestructible*.

The mica core of the Splitdorf Spark Plug simply *can't* crack, chip or leak. Therefore, with only ordinary care, it will last practically forever.

When you find SPLITDORF Plugs as regular equipment you'll know that the engine manufacturer is determined to give the purchaser the highest priced and longest lived plug made.

Although Splitdorf Plugs cost the manufacturers more than any other plug they'll cost YOU no more than the ordinary plug. All Splitdorf Standard Plugs, except Specials, $1.00.

There is a type of Splitdorf Plug best suited to every engine. Our booklet will tell you the exactly right type for YOUR engine. Write for it TODAY.

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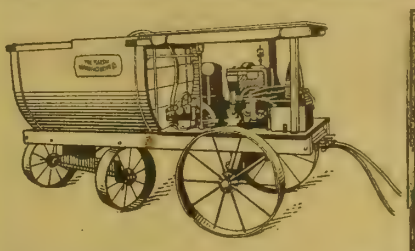
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The Famous Hardie Junior is a Real Power Sprayer



It has sufficient capacity for two lines of hose. It has plenty of power for high pressure effective spraying. It is little in first cost, engine power, pump capacity and ability to do successful spraying. We believe this is the greatest small power sprayer ever manufactured, and placed on the market with phenomenal success in every fruit section in United States and vouched by thousands who own the Famous Hardie Junior. Equipped with one and one-half horsepower engine, battery ignition, 150-gallon tank with mechanical agitator, capacity of four gallons per minute with a steady working pressure of 200 pounds, and two 25-foot of the best spray hose, fitted with spray rods and nozzles; 4-inch tire truck with pole or shaft.

ALL FOR $300. DELIVERED ANYWHERE IN THIS STATE.

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Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

Healthy, hardy chicks—do you know the secret?

WHY, OF COURSE, it's an *open* secret! You can sum it up, and boil it down, in two words: *proper feeding*. And proper feeding is an easy or a hard job—depending upon how easy or hard *you* make it! If, for example, you depend upon Sperry Baby Chick Feed—there isn't anything to worry about. For this perfectly mixed ration makes healthy, hardy chicks—and that's no secret, either!

This explains why thousands of chicken raisers are so enthusiastic about it. They realize that, to make money in the chicken business, they must save a big percentage of each hatch. And, what's more, they have proved that chicks fed from the very start on Sperry Baby Chick Feed develop into sturdy, *profitable* chickens.

Remember—Sperry Baby Chick Feed is *absolutely gritless*. (You should, however, add about 5% fine shell and grit when using.) It contains the food values and constituents which Nature has taught the mother hen to scratch for her baby chicks. It is clean, uniform, properly granulated and proportioned for the delicate organs of the baby chick.

Also remember this: the amount of feed eaten by a baby chick during the baby chick period is so small that the slight difference in cost between poor feed and Sperry Baby Chick Feed means nothing—especially when you realize that the saving of a very few chicks more than makes up for it.

So—why take chances, why experiment, when Sperry Baby Chick Feed puts the whole secret in the hollow of your hand? It is a perfectly *balanced ration* that gives your baby chicks *exactly* what they need.

If you want to know just how to feed your baby chicks for better results and bigger profits—send today for the new edition of our booklet, "Makes Hens Happy." Full of practical hints and profit-pointers! Send for your copy at once—it's *free!* Don't bother to write a letter—simply fill in and mail the coupon below. Do it today—NOW!

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STOCKTON, CALIFORNIA

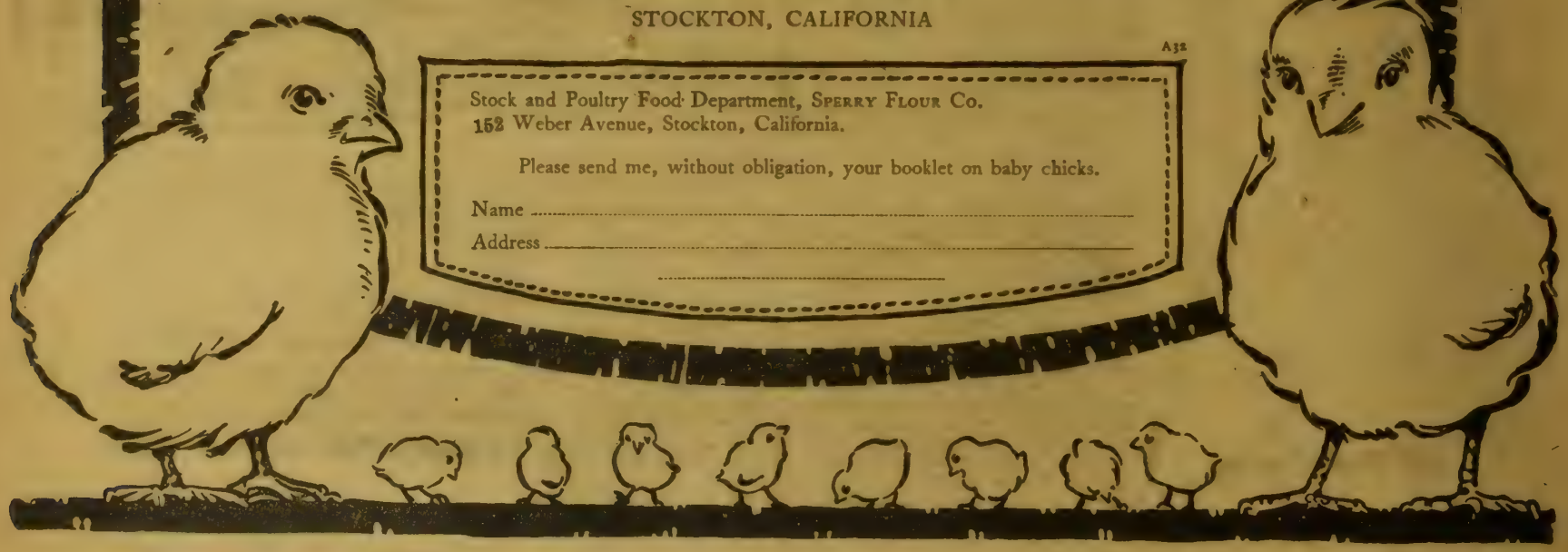
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CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — March 29, 1919 — No. 13



50 FARMS at AUCTION

April 1, 1919, 10 A.M.

5-10-20-40-80 and 160 acre tracts

THE PRIEST RANCH adjoining the town of PIXLEY

Vineyard, Orchard, Alfalfa and General Farming Land

WATER CONDITIONS IDEAL

Title perfect and clear of encumbrance. Terms 10% cash and 10% annually until paid. Second payment on improved land due in four months. Payments may be deferred by purchaser making permanent improvements or setting out trees or vines.

Interest 6% payable annually. Discount of 2% per annum for cash at time of purchase.

Several tracts of alfalfa just ready to cut. Majority of land in grain which with seasonable weather will more than make first payment.

New $18,000 school house on land bought off this tract.

Power lines and several pumping plants already installed.

Large ranch house and two bungalows ready to move into.

Graded roads throughout the tract.

Pixley is on the main line of the Southern Pacific Railroad and on the STATE HIGHWAY. It is fifty miles north of Bakersfield, eighteen miles south of Tulare, and twenty miles south-west of Porterville. Take a look at the land before the day of sale.

Sale will positively take place and every piece be sold regardless of price, as indicated by the following resolution passed by the Board of Directors:

RESOLVED, that this corporation, Farm Lands Investment Company, do sell at public auction, without reservation, the tract of land adjoining Pixley on the east, and known as the Priest Ranch, and that the President and Secretary of this corporation be and they are hereby authorized, directed and empowered to sell said ranch at public auction on the first day of April 1919, and generally do all things necessary in the premises for and on behalf of this corporation. Read letters from successful farmers and land owners:

FRANK J. BRUNDAGE.

Farmersville, Calif., March 5th, 1919.

Mr. H. G. Cattell, Pixley, Calif.

My dear Sir:

The Priest Ranch, taking the tract as a whole, I think it one of the best pieces of land in Tulare County for home building and the raising of grain, alfalfa, deciduous fruits and grapes of all kinds; the soil being a deep sandy loam is easy worked at any time and being close to the main State Highway and railroad will make it very desirable for small farms. Anyone contemplating the purchase of land for a home or an investment will do well to investigate your tract before buying elsewhere.

Yours very truly,
(Signed) FRANK J. BRUNDAGE.

Dinuba, Calif., March 3rd, 1919.

Mr. H. G. Cattell, Pixley, Calif.

Dear Sir:

Regarding your land at Pixley, I can say that it is as good as the land at Dinuba. It is simply ideal for alfalfa, grapes, figs and peaches. While it is a pumping proposition, this is more than offset by entire lack of hardpan, uniformly level soil, and freedom from grasses, attending ditch irrigation.

Respectfully,
(Signed) G. W. WYLIE.

TULARE MERCANTILE COMPANY.

Tulare, Cal., March 5, 1919.

Mr. H. G. Cattell, Pixley, Calif.

Dear Sir:

I have been a resident of Tulare for the past twenty-eight years and have long advocated the breaking up of large holdings which in most cases comprise the most desirable lands in the community. This particularly applies to the Priest Ranch, which, I consider, offers exceptional opportunities for the home builder, situated as it is near the main line of the Southern Pacific and the State Highway, it is easily accessible. This is wonderfully fertile soil and will produce almost anything, with water, of which there is proven to be an abundance near the surface waiting for the pump. By seeding, cultivation and energy well directed, there is no reason why this should not be made one of the garden colonies of Tulare County.

Knowing the Priest land as I do, I shall not hesitate to recommend it to the home seeker as being particularly adapted to alfalfa and dairying. I do not believe better land for Thompson Seedless Grapes can be found in Tulare County and for fig culture, one only has to look to lands adjoining on the north to satisfy oneself of the practicability of raising this type of fruit.

Very truly yours,
(Signed) W. A. HIGGINS.

COUNTY ASSESSOR.

Tulare County, Cal.

Mr. H. G. Cattell, Pixley, Cal.

Dear Sir:

The Priest ranch has always been known and recommended as one of the best parcels of land in Tulare County. In looking over this land today I am impressed with what our land could be made to produce with the application of work, water and a little money.

I sincerely believe this land to be admirably adapted to the production of vines, alfalfa, peaches or figs. I believe this land to be just as well adapted to the production of Thompson seedless and Sultana grapes.

I should feel safe in recommending anyone contemplating making investments in this valley to make careful personal investigation of this tract of land. I feel sure that they will be profited by doing so.

Very truly yours,
(Signed) THOMAS H. BLAIR.

COPIES OF LETTERS FROM SUCCESSFUL LAND OWNERS.

Orosi, Calif., March 3, 1919.

Mr. H. G. Cattell, Pixley, Calif.

Dear Sir:

We have this day seen your land at Pixley that you propose to sell at auction.

We consider this land well adapted to alfalfa, vines and deciduous fruits and believe that anyone interested in land of this nature will find it well worth their while to investigate.

Yours very truly,
(Signed) V. E. SLOAN,
W. M. BEINHORN,
W. A. OXFORD,
R. H. ANDREWS.

Dinuba, Calif., March 5, 1919.

Mr. H. G. Cattell, Pixley, Calif.

Dear Sir:

On making a visit to your land southeast of Pixley I found it to be in my opinion better than the average of the land in the San Joaquin Valley.

I have lived in the valley more than 40 years and I think it is especially adapted to certain varieties of grapes, especially Emperors and seedless grapes, peaches and alfalfa, and although it is a pumping plant proposition there seems to be plenty of water. I see no reason why a man could not make a fine home there.

Respectfully,
(Signed) R. M. LEWIS.

FIRST NATIONAL BANK.

Tulare, Calif., March 5, 1919.

Mr. H. G. Cattell, Pixley, Calif.

Dear Sir:

The writer has been acquainted with your large ranch south of Pixley, known as the Priest ranch, for the past 25 years, a wonderful two sections of the very best ground. I have no hesitancy in stating that it will make an ideal colonization for a large number of small farms, the soil is especially adapted for the small rancher in that he may produce successfully diversified crops. Soil, sunshine, and moisture are the essentials of production, you have good soil and warmth and with the moisture within reach through the medium of irrigation, the small farmer controls the situation. Intensified farming with fewer acres better farmed is now the watchword leading to success.

Wishing you every success, I am,
Very truly yours,
(Signed) H. M. SHREVE, President.

For further information call on or write

Farm Lands Investment Co.

H. G. Cattell, President J. H. Dickey, Secretary
Auctioneers: Shores and Son, Tulare, Cal.

444 Chamber of Commerce Bldg. Pasadena, Cal.

California Cultivator

Vol. LII, No. 13 | Los Angeles, March 29, 1919 | One Dollar Yearly

California Opportunities in Beef

By R. P. Royce

THE American Shorthorn Breeders' Associations recently issued a list of breeders by states.

California is credited with an even hundred—not bad—but Iowa has 5370 breeders, over 53 times as many as this state. Iowa isn't 53 times as large in acreage or population, neither does Iowa own 53 times as many cattle. Of course Iowa has been in the game longer than California—not 53 times as long, however—but the farmers of Iowa have learned the value of well bred cattle. They have evidently proven to their own satisfaction that there is more money in the better sorts.

In the list of breeders referred to, Washington is credited with 231, Oregon with 205, Nevada with 20 and Arizona with seven, a total of 463 breeders—and if California's 100 are added, 563—which is only about 100 more than is credited to Tennessee or Kentucky.

We have no data relative to the status of the Hereford situation, but there is little doubt that practically the same proportion would hold true, while with the Angus the figures would be even more striking.

The figures just cited should furnish ample confidence to the man who is considering entering the pure bred beef cattle game, and to the established breeder, grounds for the expansion of his operations. Particularly should this apply to California.

There is a vast territory embraced within this state, Washington, Oregon, Nevada and Arizona, that will of necessity always be utilized as cattle range. Then too as the agricultural resources of the states named are developed beef cattle will occupy an increasingly important part. To imagine otherwise would be an assumption for which little or no basis can be found.

Further, to imagine that with each passing year there will not be an increasing demand for better cattle is equally wrong. The movement toward better live stock is as certain and as plain as the coming of night and morning. Perhaps at times it seems that if there is a movement it is very, very slow — in some cases heartbreakingly slow. But the trend toward better live stock is irresistible. It could not be otherwise; the value of the improved breeds is supported by too much evidence.

Western cattlemen have seen how the Shorthorn bull and the Hereford bull have, in a comparatively short time, as such things go, succeeded in blotting out the one time famous longhorns. They have been the chief factors in evolving a better and more profitable type of range cattle, and they will continue to be the chief factors in the future. There exists no more alluring possibility in the live stock world than can be found in the production of pure bred beef cattle in California.

The reason for the statement just made can be found in facts set forth above, but to make the reason a bit clearer it might be well to direct attention to the following:

Geographically, California occupies a strikingly strategic position from the standpoint of supplying better cattle to the great area represented in the five states named. In a way it is the middle ground and is the one state in which can be found conditions paralleling conditions found in each of the states mentioned. Again, as a source of supply for that territory this state is more accessible than any other. There is another and very wide field for which California is the natural source of supply. The Pacific island trade is developing very rapidly and there is little doubt but that the far east offers a field of tremendous possibilities. To the south, the west coast of Mexico, Central and South America constitute a field of operations for our breeders. Study a map of the western hemisphere. Is there any real reason why California produced breeding stock can not find their way to the east coast of South America? The more one studies the situation the more impressed one becomes with the importance of our geographic location.



Wonderful Ranging Opportunities for Beef Cattle in California Forest Reserves

But even more important than our geographic location (for buyers have a way of going where good cattle are produced regardless of location) is the proven fact that climatic and feed conditions in California are such that make possible the production of the highest type of cattle.

In most sections of this state, aside from the high mountain ranges of the north, cattle have a twelve month growing year. That is, young stuff does not have to suffer the serious and unprofitable setbacks due to blizzard temperatures. They can be out of doors every day of the year, growing and developing extreme constitution and hardiness.

One of the first facts to impress Eastern live stock men is the unusual size they remark in our live stock that has been properly developed. The writer has on many occasions heard leading live stock judges comment on this point, and on one occasion he heard a nationally known authority make this statement: "California live stock producers have not as yet begun to realize what a wonderful advantage they have over breeders of other sections. I have never seen any section where live stock is produced where I believe more size for age can be developed than on the Pacific Coast. It seems to me that here one finds to a high degree every condition necessary for the production of all kinds of live stock of an extremely high character. With such natural conditions there is no reason why this state can not be made a great live stock nursery and if California breeders will grasp their opportunity and bestir themselves in the matter of establishing herds of the first rank they can be certain of attracting the best trade of the world."

Quite recently we made note of the fact that a carload of California Berkshires had been shipped to an eastern state. Now, if California breeders can produce Berkshires of such high quality that buyers will cross the continent for them, is it not reasonable to assume that breeders of other kinds of live stock can likewise produce a quality of stock that will be sought after by the best breeders?

So far the dairy interests of this state have made more progress than the beef interests. Some of the greatest dairy animals in the world were bred and developed in California. And in the case of one breed of dairy cattle the statement may be made with assurance that beginners or established breeders do not find it necessary to pass by California herds when in search of a herd bull. They can find what they want, either from the standpoint of individuality, breeding or production right at home. Furthermore it is definitely known that some of the leading breeders of the East are casting their eyes toward California.

Continued on Page 457

More Beef Herds for California

By Gordon H. True, Professor of Animal Husbandry, U. of C.

Professor True probably has as intimate acquaintance with the beef industry of the state, and the West in general; as any man. For a number of years he was identified with live stock interests in Arizona. Later he was in charge of the animal husbandry department of the University of Nevada. Since coming to California his work has been of a most conspicuous character. Professor True believes that this state has a wonderful future in meat production. He bases his opinion on his observations made throughout the great live stock producing centers of the United States, and upon observations made last summer in the Pacific Islands.

It was due to True's enthusiasm that the University of California was induced to exhibit fat stock, steers, wethers and barrows, at the 1916 and 1918 International Live Stock Exposition at Chicago. The accomplishments of these exhibits are too well known to recount, but the statement may be made that nothing has served to so well advertise the live stock possibilities of California.

CALIFORNIA and her neighboring states comprise a region that undoubtedly furnishes more advantageous conditions for the production of high class breeding stock than any other part of the United States. The comparison has often been made between this region and the British Isles, the home of practically all leading breeds of meat making animals, not to the disadvantage of this coast country. That the live stock industry has not been developed to anything like that of other leading live stock states is California's misfortune. Other forms of extremely specialized agriculture that have been most highly developed are beginning to look toward an accompanying development of animal industry as a means of maintenance of soil fertility.

The markets of the coast have not in the past been such as to encourage the production of high class market animals. The high prices prevailing at the present time, without a corresponding increase in cost of production, have practically opened an eastern market for the best of our product so that the wider spread in value between low grade and high class market animals is offering a new encouragement to the stockmen to improve the quality of their product.

Never was the outlook for the future of the cattle industry better than at the present time. Especially is this true in the case of the pure bred end of the business. There is a prevalent notion among some people that the raising of pure bred live stock is principally a fad for the rich. While this may be true in the case of some individuals, by far the largest part of any breed is in the hands of the comparatively small breeder whose living is made from the sale of pure bred animals for the improvement of grade stock raised for market. That pure bred industry thrives the most in which the largest percentage of the herds are of this character.

California with a beef cattle population of probably 1,700,000 head has less than 10,000 registered animals of all ages and breeds. The writer estimates that this vast herd requires the use of 75,000 breeding bulls, of which number one-half to one-third need to be replaced each year. If one-fourth of the animals in the pure bred herds are breeding cows raising calves regularly they would furnish but 1250 head per year as their contribution toward the annual demand for 25,000 to 30,000 in the range herds of the state. A consideration of these figures should convince any man that the raising of pure bred bulls for the range should be a profitable undertaking.

It is largely for the purpose of encouraging new breeders that the breed associations of the state have adopted the policy of holding public sales such as those to be held at the University Farm on the 8th and 9th of April. Few men desiring to start in the pure bred cattle business by the purchase of two or three females feel that they can afford to travel about the state from herd to herd for the selection of foundation stock. Auction sales furnish the opportunity for selection and purchase without this expenditure in time and money for travel. California breeders have been very insistent that their sales shall be conducted in the interest of the purchaser and such animals are offered as they feel sure will give satisfaction in the hands of the buyer. The continuance of the sale system also insures the beginner, who may otherwise find difficulty in marketing a small number of head, a ready means for getting his cattle on the market. Live stock sales have come as a legitimate part of the general movement for the development of the industry of the state, and for those who do not contemplate purchase they furnish—like the live stock shows—one of the best means of education to be had along this particular line.

It is significant that the California Cattlemen's Association, which has been organized for the development of the market industry, should plan to hold its meeting in conjunction with those of the breed associations at the time of their annual sales.

Agricultural News Notes of the Pacific Coast

Northern California

Eldorado County is making a fight for better highways.

Some early potato planting sections have entirely finished planting of Garnets.

Marysville, Butte County, proposes to hold a tractor show some time during April.

Some Butte County producers of Adriatic figs report receiving as high as 12½ cents.

The Sutter County grand jury charges the state reclamation board with incapacity.

Marysville, Yuba County, has a community council, aiding in locating returned soldiers.

Sonoma County grape growers are considering advisability of grafting wine grapes to currant grapes.

The Gridley Cannery picnic which has been an annual feature for the past 23 years will be held this year on June 14.

Growers of peas near Hayward, Alameda County, have perfected an organization which has aided materially in securing better prices.

What was probably the greatest live stock event on the Pacific Coast was the Guaranty Sale in Sacramento on Thursday of this week.

Rice growers are killing ducks and saving crops. The state fish and game commission insists that it must not be done out of season.

The spring rains have not been heavy, but so perfectly distributed that grain and every other crop is looking exceptionally well.

The Sacramento and San Joaquin drainage district in its Sutter Basin flood control has made certain concessions which it is asserted will lessen opposition.

The authorities of the Plumas National Reserve will establish a community range for the coming season in order that owners of small herds may combine and secure pasturage.

In the Sacramento County Cow Testing Association a registered Holstein of Fred Kiesel topped the honor roll with 2578 pounds milk, 94.9 fat. Kiesel's herd of 67 cows averaged 30.7 pounds fat.

Cattlemen of Shasta County report this one of the best seasons for mountain ranging of many years. One ranger, with 400 head of stock, did not lose a single animal in the mountain pastures.

The grape growers have deferred circulating petitions in the matter of referendum on adoption of prohibition amendment. They will now include all prohibition laws enacted by the state legislature.

Dean Van Norman of the University Farm, in an address before a milk producers' convention at Boise, Idaho, recommended an advertising or educational campaign to inform the consuming public of the real value of milk and milk products.

The directors of the various county farm bureaus in the northern part of the state plan a statewide traveling farm bureau conference to be held from March 26 to April 4. The start will be made from Alameda County, traveling south through the San Joaquin to Los Angeles and Riverside Counties. Reports of delegates will be made to April meetings of the farm centers.

Central California

A county weed drive is planned by Stanislaus.

Modesto's first fat hog auction was held on Friday the 14th.

Prof. Bioletti recently gave pruning demonstration at Kearney Ranch, Fresno.

The California Fish and Game Commission is to establish a hatchery on Kaweah River.

Stanislaus County's rainfall prior to the last week's precipitation was about nine inches.

The Southern Valley Honey Producers Cooperative Exchange has been organized at Hanford.

Kings County creameries disbursed $218,000 to farmers of that county during the month of February.

Stanislaus County fat hogs recently commanded $16.75 for toppers, with other sales running down to $14.85.

Growers of canning peaches of Stanislaus County have decided to pool their interests in marketing of fruit.

The raisin output of 1919 is estimated at close to a quarter million tons by the Associated Raisin Company.

The new law as to ripeness of citrus fruits provides for the eight to one test as to solids and 25 per cent color.

Cotton growers of Central California are getting together and pooling their interests in the endeavor to secure fair returns.

Crop Reporter Risser reports central part of the state sending out the best cauliflower ever, with over half the crop shipped.

Some fig growers are hopeful for a 20 cent price on 1919 Smyrnas and perhaps 15 cents on Adriatics, with 11 for Black Missions.

At the recent annual of the chamber of commerce at Fresno George C. Roeding urged serious consideration of the Pine Flat dam project.

Senator Brown sets up the claim that Sacramento milk consumers who are paying 13 cents should be supplied at not to exceed 10 cents per quart.

One buyer recently purchased $11,000 worth of hogs at a Tulare County farm bureau sale. The toppers commanded $16.10. The bottom price was $14.80.

Irrigators near the Turlock district who are on colony ditches are starting movement to have these ditches taken into and become a part of the Turlock district.

The first three year period of the California Peach Growers, Inc., ends on April 1, but the corporation has the option of extending the original contract two years longer.

Inspectors working under direction of the Cattle Protection Board in Kings County met at Hanford last week to get a thorough understanding of their duties. Their work began March 10.

In order that the paving of the 18-mile stretch on the ridge route may be completed, the state highway commissioners are considering closing that portion of the valley highway for a period of about nine months. It has been estimated that two miles of paving a month can be successfully handled. If the road is closed all travel north and south will be detoured through Bouquet canyon.

Southern California

Farmers at Perris have organized a chamber of commerce.

Hemet walnut growers have shipped their last car of the season.

Southern California will plant more extensively to chayotes than any preceding season.

Coachella made trial planting of rice last year and this year will make larger plantings.

The larger part of the olive crop of Santa Barbara County has been salt cured this season.

San Fernando Valley, Los Angeles County, has 800 acres prepared for cantaloupe planting.

The Brawley district, Imperial County, is shipping something over 100 cars of lettuce weekly.

"Save the irrigating water by putting it into the soil", is the slogan in many producing sections.

The Hemet cannery of the California Growers Association handled a large pack of olives this season.

San Diego County shipped about 30 cars of spinach this year. Cannery demand has been lighter than usual.

Ventura County bean growers are feeding Blackeye beans to hogs because of quotations reaching $3.00 to $3.10.

Palo Verde Valley, Riverside County, has shipped over 8000 bales of cotton. The total production will be approximately 13,500.

Potato planting is generally much lighter than last year, though it is reported that California is reaching nearer to normal acreage than Eastern sections.

Residents of Ventura County in certain sections of improved highways are taking steps to prevent high speeding autos near schools. There have been fatalities resulting from carelessness.

The Anaheim Citrus Fruit Association has finished on Navels and all varieties of oranges excepting Valencias and is now planning for a great association picnic to be held some time in May.

A combination or pool of independent bean growers and shippers with the California Bean Association will result, it is hoped, in moving last year's crop of beans and at a fairly satisfactory price.

The Elsinore Valley, Riverside County, Growers Association recently met in annual session, with 35 stockholders present. The association still has 15,000 cases of canned goods, or approximately 15 cars.

Orange County farm bureau has now established headquarters in large and commodious rooms in which are gathered data and exhibits of interest to producers. There is a library, rest room and other desirable features.

The first and second plantings of cucumbers in Southern California were generally a failure because of the cold preventing germination. The third planting is now up and doing well. Shipments, it is estimated, will begin early in May.

The last storm gave a precipitation of from half an inch to an inch in most Southern California producing sections. This, with the inch and a half to two inch storm of the few days preceding, gave Southern California assurance of a successful season.

The Coast and General

Salt River Valley, Arizona, is planting 600 acres of watermelons.

The Hawaiian Islands are up to date with cow testing associations.

Considerable quantities of bass and other fish are being taken from Roosevelt Lake, Arizona.

Utah farmers have found excellent results from the feeding of beet top ensilage to horses.

The growing of sisal for its fiber is one of the most lucrative industries in British East Africa.

An irrigation development is planned near Pocatello, Idaho, which will cover 1,200,000 acres of land.

A large plantation of 18 varieties of eucalyptus is being made on the island of Oahu, Hawaiian Islands.

The Arizona Bankers' Association has voted $500 as a fund for prizes to stimulate interest in farm club work.

Australia proposes to eradicate wheat weevil. Warehouses will be cleared of the pest by creating a heat of 140 degrees Fahrenheit.

One of the largest saw mills in the United States is being built at Cooley, at the end of the new railroad from Holbrook south into the big pine forest of Arizona.

Alberta, Canada, is shipping great quantities of cattle over the line into the United States. Scarcity of feed and high prices over the line is the cause of the movement.

One of the creameries in Phoenix, Arizona, will finance a number of farmers in the Casa Grande Valley, 50 miles south, in buying dairy cows.

The state will complete the financing of the Lyman dam project on the Little Colorado in northern Arizona. Original estimate of the cost of the dam was $150,000, but increased cost of material and labor will increase the cost to $250,000, it is said.

The legislature of Nevada has enacted a law prohibiting the employment of alien labor by the state or any county or city in Nevada. Employment of such labor may entail a fine of from $100 to $500. The governor has not yet signed the bill.

Lieut. Thomas Maddox, recently returned from service in France, has been appointed state engineer of Arizona. It is now believed that from various sources there will be a considerable amount of money available for road building the coming year.

Ramsey Patterson, a hunter employed by the United States Biological Survey, recently killed in Yavapai County, Arizona, what is claimed to be the largest mountain lion ever known. The animal was 10 feet from tip to tip and thought to be 50 years old.

Hiram Shouse, a 17-year-old boy of Mesa, Arizona, is the champion boy cotton grower of this state. He grew on one acre of land 2,479 pounds of seed cotton, or more than a bale and one-third of lint cotton. The cost of growing the acre was $106.98 and his net profit was $289.66. Duncan Brown, also of Mesa, raised 1,185 pounds of seed cotton on one-half acre at a cost of $54.80 and a net profit of $182.51. Another Mesa boy, Wendell Butler, raised 1,062 pounds of cotton on one-half acre at a cost of $50.98 and a net profit of $155.98.



There Are Many California Ranches on Which Small Herds of Pure Bred Beef Cattle Will Prove Highly Profitable

Shorthorns in California

By B. O. Cowan

THE history of pioneers, whether men or cattle, is an interesting one. There is always a sentiment and oftentimes a romance that make plain facts fascinating. The early settlement and subsequent development of California is so fraught with romance and tragedy that any story concerning it has more than a passing interest. But this story is not of the men who made the glories and possibilities of California known to the world, but of a breed of cattle that has contributed no small part in the state's past development and that gives assurance of still greater aid for the future.

The Shorthorn breed of cattle had its origin two or three centuries ago in England in the counties of Durham, Lincoln, York and Northumberland. An early name of the breed was "Durham," and they were also called "Teeswater Cattle" because their native habitat was the valley of the river Tees. As these cattle were improved and refined by careful, painstaking husbandmen they came to be called Shorthorns in distinction from a breed called Longhorns. The first importation of Shorthorns to America was made about 1790 when a few were landed in New York. During the first quarter of the next century large importations were made in Ohio, Pennsylvania and Kentucky and from these commonwealths their descendants were taken to other states and thus marched westward with Empire.

The earliest record of Shorthorn blood being introduced into California was in 1852. In that year Nave and McCord, wholesale grocers of St. Joseph, Missouri, sent a wagon train across to California and with the train they sent some grade cows and a roan Shorthorn bull. To save the bull unnecessary travel he was not driven with the cows, but was led behind a wagon and got through the long journey in good condition. At Marysville, California, he was sold and he made such a marked improvement in the cattle of that community that he was long remembered by ranchmen.



The Blood of An Aristocrat

Ringmaster, one of the most popular Shorthorn bulls ever shown in America. The blood of this bull is represented in the offering to be sold at Davis, April 8th.

The earliest record of the introduction of recorded Shorthorns, of which I have knowledge, was 1857. In that year W. D. M. Howard brought to San Mateo some Shorthorns bought in New York, and they furnished the foundation for an extensive herd afterward maintained by the Howard Cattle Company. This herd was dispersed but three years ago, following the death by accident of Edward Howard, a son of the founder of the herd. In 1859 Shorthorns were brought from Onondago County, New York, by Egbert Judson of San Francisco, and in 1861 Robert Ashburner imported the bull Water Prince 13112 from England and landed him at the Golden Gate. Mr. Ashburner later located at Woodland, where he bred Shorthorns until his death about ten years ago. In 1860 John D. Patterson, Westfield, New York, shipped some sheep and a few Shorthorns from New York City to San Francisco by sea, driving them across the Isthmus of Panama and reshipping on the Pacific. The very high transportation charges made such shipments impracticable, but as Mr. Patterson desired to stock his ranch in California he decided to try an overland shipment and drive. In 1861 he sent forward 20 Devons, 50 Shorthorns and 600 sheep. They were shipped by rail to St. Joseph, Missouri, the western railroad terminus at that time, and were then sent by boat to Nebraska City and from there were driven to Sacramento. The train had eight wagons and 30 men and started from Nebraska City May 1, arriving in Sacramento October 28. During this long, tiresome journey one-third of both cattle and sheep died, supposedly from inhaling dust and drinking alkali water. The story of this disastrous drive I had from a man who went with the cattle.

During the next 15 years shipments of Shorthorns from states in the Mississippi Valley were numerous and many new herds were started in California. As indicating the size of some of these herds, it can be said that Coleman Younger of San Jose had 70 head recorded in a volume of the herd book that was issued in 1872. And as evidence that some choice Shorthorns were being brought into the state, Thomas Page paid J. H. Kissinger, Clarksville, Missouri, $1800 for the noted show cow Caroline Airdrie at a public sale held in 1871.

Continued on Page 460



Shorthorns on Yolo County Ranch of H. M. Elberg. Many Sacramento Valley Ranches Afford Equal Opportunity

California's good soil, rich feeds and pure bred cattle are great factors in the state's prosperity.

Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

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Saturday, March 29, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Cattle are increasing on the thousand hills of California and in her valleys are adding wonderfully to the state's prosperity. Of the beef classes the Herefords and the Shorthorns are favorites, but there is an occasional Aberdeen-Angus and Galloway and a very few Red Polled. We are glad to give this week on the leader page views which are an inspiration to live stock lovers, and especially to give the magnificent view on the cover page.

FARM BUREAU TREK

Delegates from various farm bureaus are enjoying a most practical institute and trip this week. After meeting at University Farm and Berkeley they are now on their way south. On Monday Los Angeles County farm bureau and Mrs. Anita Baldwin will entertain the delegates on the Baldwin ranch. Live stock judging features, luncheon and other instruction and entertainment provided.

A UNION STOCK YARD?

Speaking of live stock markets, we are reminded of an advertisement offering stock in a proposed packing plant and stock yards to be built at Sacramento. The advertisement was for the purpose of announcing the general aims of the concern, and as noted, drew attention to the fact that the general public was to be permitted to buy a limited amount of stock.

In reference to the possibility of profits the statement was made that "The packer gets his profits be the price high or low"—As much has been suspected. What the average producer wants is some system whereby he can do as well!

The statement is also made that in connection with the plant there will be a union stock yard. We are almost tempted to ask: "Wha'd'ye mean union?" Our idea of a union stock yard is a yard adjacent to and surrounded by killing establishments—not a yard adjacent to and in connection with a single plant. Of course such a yard could be made to operate as a union yard if other buyers would come to them for their buying—but would they? Is it reasonable to suppose that Bay killers (most of the killing is done in the Bay region) would fall very hard for such a plan? If the yard furnished competition then it would be expected that the nearby plant would only have to "hike the ante" to a fraction above what the Bay buyers could afford to pay. In view of the fact that the out of town buyers would have to reload and reship they would most assuredly have to buy at a margin that would permit them to compete with stuff laid down at their home plants that had not been subject to reloading and reshipping charges.

We believe in the efficiency of a marketing system built around a regulated union yard, but we do not believe that Sacramento is the logical place for such a yard.

VICTORY LOAN SLOGAN

We did not give last week the address of the Victory Loan Committee's headquarters to which the slogans competing for prizes should be sent, and several subscribers have mailed to this office. These have been forwarded. Those sending other slogans should address Room 524 Merchants National Bank Building, Los Angeles, or Victory Loan Headquarters, San Francisco.

ROCKING THE DAIRY BOAT

The Cultivator believes in cooperation on the part of producers. We believe that only through legitimate cooperation can producers hope to get a fair and square deal. We recognize the fact that, unorganized, the producers are at the mercy of organized agencies that handle their product. We have seen how effectively certain producers' organizations have handled their products. We know that these organizations have been effective. Therefore we see no reason why the milk producers can not effectively organize and handle their products to better advantage. And for that reason we have watched with interest the fight that is centering around the milk producers' associations. So far we have adopted a "hands off" policy, believing that when several thousand practical dairymen unite on a common cause, the chances are they are right. A few men may make mistakes, but a large number—rarely.

Since the inception of milk producers' organizations in this state, there has been a powerful force, backed by those interests that profit most in an unorganized industry, straining every nerve to wreck the new launched craft on the rocks of public opinion. It was but natural that such opposition should develop. The milk producers effected their organization to protect and transact their own business. If they were to accomplish their ends the interests that would be affected most seriously would be the privately owned plants. This being the case is it unreasonable to suppose that those interests would leave the field without a struggle? One of the most effective ways of combating the new organization would be to discredit them in the eyes of the public. And the most effective way to do this would be to make the public believe that the sole purpose of the producers was to organize so strongly that they could dictate an exorbitant price of milk, and it is quite certain that the general public will stand most any advance on commonly used commodities with less hullabaloo than the advance of a cent or two, or even five cents, on the price of milk. Each new advance is seized upon by newspaper space writers as a basis for a sensational story on the high cost of living and they delight to point an accusing finger at the dairyman and hold him before the public a gross profiteer—citing the fact, usually, that he rides in an automobile!

Not long ago a state senator made the charge, on the floor of the senate, that back of these producers' organizations was a deep laid plan to sell them out to a Chicago packer. Perhaps an effort to cause dissatisfaction within as well as without! It struck us at the time that such a charge was perfectly idiotic. Now comes the president of the affiliated milk producers' associations, who was charged with being an active partner of Armour, and he denies pointblank every charge and states that he is not, never was and never will be a partner of the Chicago packer. We take him at his word, no proof to the contrary being offered.

Since the original charge was made, other charges relating to mismanagement have been brought in in an effort to create dissatisfaction among the association members.

To all these charges we are inclined to pay small attention. Dairymen need not get panicky—no one will "sell them out". No man or set of men could—even if they wanted to. There are a lot of brains among the producers—keen, practical brains—enough to head off and squash any such Don Quixotic plan.

We make no doubt but what the various associations, through their representatives, have made some mistakes—in any new proposition as large as this organization mistakes are bound to be made. Again, among several thousand men will always be found a few disgruntled souls who can not be satisfied—who are suspicious and who are apt to lend themselves to the aid of the opposition.

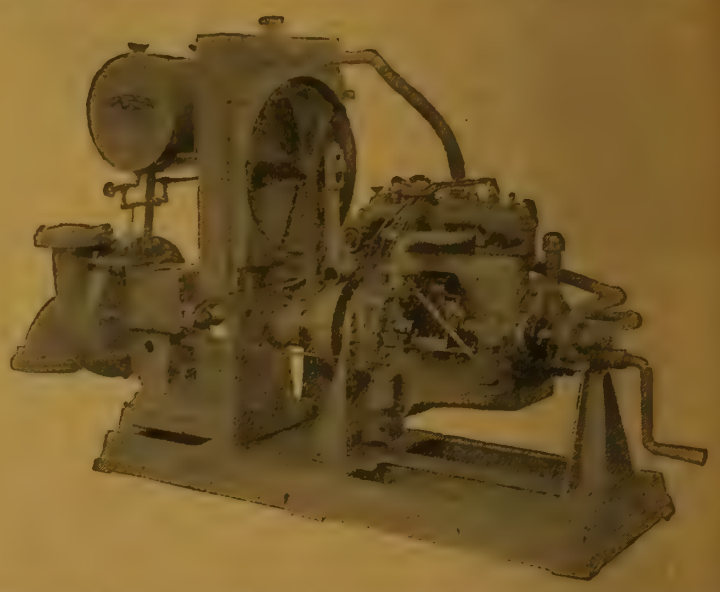
Some have been inclined to question the alleged overhead expenses, and have raised the question, in an insinuating way, as to what was to be done with "all" the money that was poured into the treasury. Without attempting to fight the association battles or to defend them, we would like to point out that a large working capital is needed and that the early expenses incident to setting such a large proposition on its feet are necessarily seemingly high.

As we have stated above, we have no doubt but that occasional mistakes have been made, but we believe that the idea back of the association is sound and in the end will work to the advantage of both the producer and the consumer—the charges of the privately owned plants to the contrary notwithstanding.

Apparently, the lusty milk producers' association is going through a spell of "growing pains" aided and abetted by those interests that would profit most through its demise. We expect it to pull through and eventually accomplish its object—that of making dairying more profitable. We respectfully suggest that the various officers strive to correct any weak points in their operating plans. If the plan fails it will fail because of bungling guidance and not because the idea is unsound.

Producers must recognize the fact that the organization is not to be used to continually boost the price of dairy products—supply and demand will largely regulate the price—but rather as a stabilizing factor. Profits can be increased by cheapening the cost of production and distribution and the association should adopt a broad plan—should educate the producers to the possibilities along these lines.

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JUSTICE IN TAX ASSESSMENTS

THE situation of the bean growers because of the great depreciation in value — and even inability to dispose of the crop at any price—is now further complicated by the fact that immense stores of beans are held subject to taxation because of being in the possession of the farmers on the first of March. Ventura County bean growers are taking steps to secure justice in the matter of assessed valuation, as is indicated by the following letter which was written by John Eastwood of the Oxnard farm bureau center to members of that organization:

"I wish to call your attention to a situation in which it seems to me that it is not only the privilege but the duty of the farm bureau to take some definite action. It is in the matter of the coming assessment valuation to be placed upon our holdover beans.

"In order to get a proper viewpoint upon this subject it is necessary to go back about a year—or just before last season's work began. At that time the western front was bulging farther and farther west. Village after village and town after town were being evacuated and the inhabitants made their way through the lines of the Allies in a destitute and starving condition. In our own country large bodies of men were being called from the factories and the farms and placed in concentration camps. Upon the seas we were losing ships almost daily, which were usually loaded with full cargoes of either food or war supplies. About this time the president issued a call to the farmers throughout the country to increase production to the utmost. This call seemed so timely and its need so apparent to all, that it was echoed right on down the line, through the department of agriculture, through the state universities, the press and by the four minute men.

"The farmers responded nobly to the call and produced a bumper crop of almost every staple. Some were stimulated with a hope of profit and some worked for sweet pity's sake. But all hoped for and expected a good price for their product, and most of them were willing to put an additional hundred cents into their crop if there was a bare chance of producing a dollar's worth more of the product.

"During our bean harvest conditions were very distressing. While there was a large number of the men who entered nobly into the spirit of the situation and tried to do their best, still there were sufficient whose sole aim seemed to be to draw big pay and then tie up every operation upon which they were employed, and thus made the situation not only very acute but at times almost heart breaking.

"When the threshing was finally over it was the almost universal belief that Limas would be worth about 12 cents. The farmers probably would have got that for them if they had only all pooled their beans and then had a litle patience while they moved off slowly. But, instead, our large and expensive crop has become a sort of football among some unscruplous brokers and has been kicked from pillar to post, until the price has been battered down not only to half what the producers expected, but in many instances to less than the actual cost of production. But this is not all. While the price has been steadily declining there has never been a sale for any large quantity of beans at any time or at any price. The consequence is that, when this year's assessment goes into effect it will find a large quantity of beans still in the hands of the unfortunate growers who are holding them against their will and at the same time carrying a heavy burden caused by the high costs of production and investments in Liberty Bonds and war donations, which were made with the belief that the beans would bring a good price and find a ready market.

"Under these conditions I think that the good offices of the farm bureau should be used in an endeavor to get the assessment on these beans placed at the lowest point possible, which is consistent with good judgment and the exigencies of the situation."



No. 10

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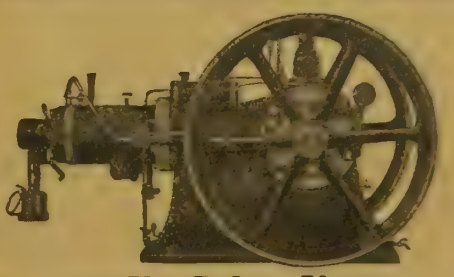
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Seeks to Aid Wine Grape Growers

HOW to help growers of wine grapes to readjust their farming to meet new contions under national prohibition is a problem receiving the attention of the United States department of agriculture. Most of the growers in California, principally in the bay counties around San Francisco, where about 20,000 acres of wine grapes are grown, have depended wholly upon these vineyards for their support. The department sees a ray of hope in the complex situation through conversion of a small proportion of this acreage into "currant" grapes.

Raisin Production Not Practicable

Perhaps thought has turned, somewhat naturally, toward a conversion of the wine vineyards into raisin vineyards. This, the department experts think, would be folly. Climatic conditions in the wine vineyard districts are such that raisin grapes could not be cured. They ripen at a time when the fall rains are beginning, and, with rare exceptions, would represent practically a total loss. But even if the curing could be effected by artificial means, the matter of relative yields would make the raisin industry in the dry wine vineyard regions unprofitable. The yield of the raisin grape varieties there ordinarily does not exceed three to six tons to the acre. In the raisin vineyard districts yields range from six to 20 tons an acre. This difference would render it impossible for vineyardists in the former region to compete with those in the latter in raisin production.

Some hope is held out, however, for the successful conversion of some wine vineyards into currant vineyards. Currant grapes ripen very early and would be ready for curing in the dry wine districts before the fall rains begin. Their yield, under favorable conditions, is relatively high, running from four to eight tons to the acre.

There is an established market in the United States for about 30,000,000 pounds of dried currants annually, department specialists say. That was the average quantity annually imported prior to the beginning of the European war. The demand for them has become thoroughly fixed and may be fairly depended upon. From 8000 to 10,000 acres of grapes would be necessary to meet this demand, heretofore supplied from abroad. Domestic consumption of currants, no doubt, could be greatly increased by proper educational efforts, thus affording a larger possibility for the conversion of wine vineyards.

This conversion could be accomplished and would pay only where the vines are phylloxera resistant, comparatively young and have not previously been grafted.

Experiments With Currant Grapes

For about 15 years the department of agriculture has been experimenting with currant grapes in California.

Two cardinal points must be observed in order to grow the choicer currant grapes successfully. They should be grafted on phylloxera resistant stocks congenial to them, but such stocks must also be suited to the soil and other conditions. In an extensive test on various resistant stocks, a sufficient number of varieties of these stocks has been found from which to select such as are adapted to the various soil types and other conditions and that are congenial to currant grapes.

The other essential is that the vines be thoroughly girdled at blooming time. It has been definitely ascertained that this is necessary to make the blooms set and to secure a full crop of fruit. This girdling consists in making two parallel cuts entirely around either the trunks, arms, or canes of the vines and taking out the bark between the cuts. The girdling must be thoroughly done and it must be done while the vines are in bloom.

Grape Syrups Another Possibility

There may be possibilities for the wine vineyardists in the making of grape syrups. As the University of California has pointed out, the manufacture of syrups could be accomplished with comparatively little expense for special equipment, as some of the wineries already have syrup making machinery, and much of the equipment used in wine making is also used in syrup making.

A table syrup produced from grapes necessarily would be a high priced syrup. It could not compete with the commoner kinds of syrup in price and the establishment of special markets for it among discriminating consumers would be necessary. Something has already been attempted in the way of manufacturing preserving syrups from grapes. This might offer rather a large outlet, were it not for the fact that canners thus far decline to use such syrups and prefer paying more for the sugar syrups they have used, as they feel that their canned products if sweetened with grape syrup might be discriminated against by consumers who are accustomed to canned fruit sweetened with sugar.

San Joaquin Valley Cover Crops

Relating his experience as to cover crops in the San Joaquin Valley J. D. Fryer of Kingsburg writes in the Sun-Maid Herald:

In 1914, about the middle of February, I sowed 14 pounds of alfalfa seed per acre on land that was very lean from producing fruit for perhaps 12 to 15 years without any fertilizer. The ground was well prepared by plowing deep and following by a thorough harrowing and clod smashing to make the seed bed compact to insure an even stand. When a foot high the alfalfa was clipped about June 1 and given a good watering. About August 1, I cut a fair crop of hay, and September 20 another, watering the land well after each cutting.

Then about November 15, after another good soaking, I plowed the land, turning under a hay crop, using a chain and an iron weight to cover it completely. As a result this soil is almost like new, easy to work and will not pack. So I believe the above treatment is of great benefit to exhausted land.

Tries Bitter Clover

About September 15, 1915, I sowed eight pounds of melilotus indica, or bitter clover, per acre on another tract, and plowed it under in March, 1916. This also made a good, heavy cover crop and was of great benefit to the soil, causing it to plow easily for at least two or three years.

I sowed about 50 pounds of rye per acre on a two-acre tract for winter feed in September, 1918. I used the feed for my team and the cow, and planned to turn under a good cover crop this month.

Something Each Winter

I sold this place to C. W. Anderson. I will not have an opportunity personally to complete this test of rye as a cover crop, but I will say that I will never again let a season pass without having a cover crop. The $5.00 I invested in the rye seed has already paid 10 per cent interest on an investment of $2400. Put in another way, it has paid me $20 a month in saving of hay through the winter. The rye is now about 30 inches high. I mow and feed it noon and night, making a saving of two-thirds on hay, which I calculate would cost me $20 a month if I had not the cover crop. There will be a cover crop three feet high to turn under the last of March.

Favors Alfalfa

Summing up these experiences, I believe alfalfa is no doubt the best. But it will not grow winter feed. Yet it deposits much nitrogen and its roots go deep and penetrate and loosen the subsoil. The melilotus indica or bitter clover is a real good one purpose cover crop, but is of no use for feed. The rye, I believe, has much merit as a winter grower, furnishing a vast amount of good rich green feed for stock during the cool weather. It will no doubt produce 100 per cent more than winter barley.

I would suggest where it is possible to sow alfalfa first and then skip two or three years then follow with rye. I believe our land with cover crops

will hold its fertility indefinitely and produce double the fruit that it will without the cover crop.

FRUIT GROWERS MAY MEET AT CHICO

It will soon be time for announcement of the 51st fruit growers' convention which would have been held in Riverside last fall had it not been for the flu quarantine prevailing all over the country. It was postponed until some time during the spring or early summer. Announcement has not yet been made but the people up in Butte County have determined to have the first convention, after the Riverside convention, held in Chico. The state commissioner's office has been approached regarding the matter and reports:

So emphatically are the people of Butte County supporting this movement to bring the convention to Chico that the board of supervisors has already set aside $500 for advertising, hall rent and other expenses connected with the convention. A similar sum is pledged by the Chico chamber of commerce to provide for the service of a reporter and issuing the report, thus making $1000 to insure the success of the convention.

Should the Chico convention become a reality, Mr. Durkee points out that Butte County has many interesting features to show visiting farmers and fruit growers. The orange and olive orchards in the vicinity of Oroville, the state land colony at Durham and the United States Plant Introduction Gardens are only three of the many attractive trips already being planned.

CODLING MOTH ATTACKING WALNUTS

Since the announcement that the walnut worm has been identified as the codling moth, Laspeyresia (Carpocapsa) pomonella Linn, there has been some discussion as to the effect this determination might have on proposed control measures planned for the coming season. The state commissioner of horticulture desires to allay any doubts on this matter which may exist in the minds of those interested in the walnut industry.

Regardless of the identity of the insect in question, the fact that it is capable of doing serious injury to the walnut crop cannot be disputed. The codling moth has attained the status of a real pest when attacking walnuts as well as apples and pears. Professor Ralph E. Smith of the University of California, who has been studying the work of this insect during the past season, writes as follows: "I want to go on record as believing that this is the worst pest which has struck the walnuts thus far, and that its spread into new territory can be and ought to be hindered by every possible means along the lines already commenced this season."

The codling moth can undoubtedly be checked more or less by proper precautions in the handling of the walnut crop and by thorough disinfection of used walnut sacks before returning them from the packing houses to the groves. The traffic in culls must be closely watched and all sacks used as containers for cull walnuts should be disinfected before they are returned to the groves.

Assembly Bill No. 645 by Assemblyman H. A. Miller seeks an appropriation of $10,000 for the purpose of determining and applying control measures to combat the spread of the codling moth. If this bill passes, the state commissioner of horticulture will at once call a meeting with the walnut growers and with representatives of the University of California to determine upon a plan of action in order that the greatest possible benefits may be received by the industry concerned. There is acute need for this money in carrying on the fight against this insect during the next two years. Now that the identity of the insect has been definitely established, it should not be considered that the fight has been won but this information should be used merely for the more intelligent prosecution of the best known methods of control.

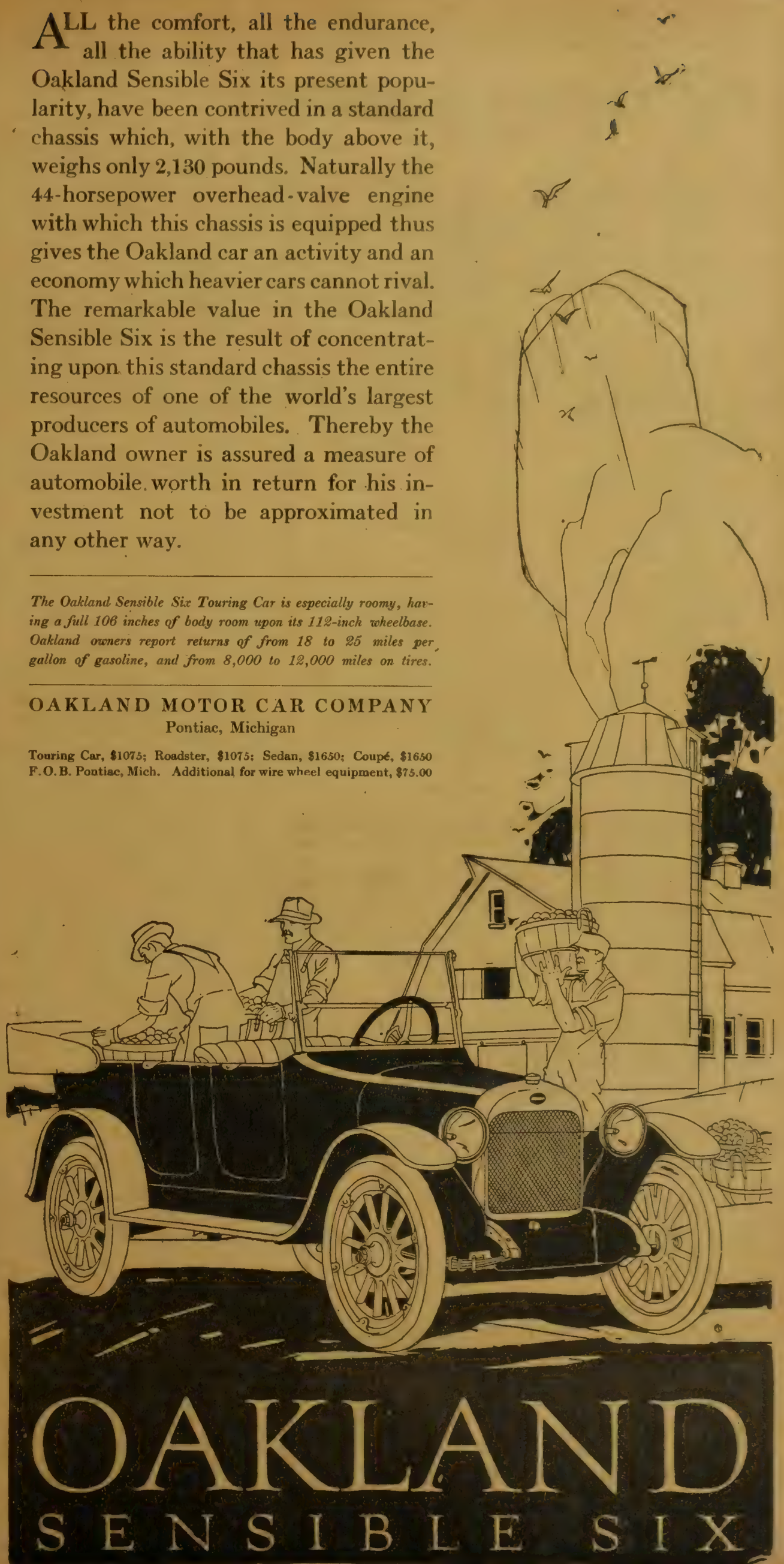
Memorial trees for soldiers from that community who have died in service were recently planted in the Roosevelt school district in the Salt River Valley.

ALL the comfort, all the endurance, all the ability that has given the Oakland Sensible Six its present popularity, have been contrived in a standard chassis which, with the body above it, weighs only 2,130 pounds. Naturally the 44-horsepower overhead-valve engine with which this chassis is equipped thus gives the Oakland car an activity and an economy which heavier cars cannot rival. The remarkable value in the Oakland Sensible Six is the result of concentrating upon this standard chassis the entire resources of one of the world's largest producers of automobiles. Thereby the Oakland owner is assured a measure of automobile worth in return for his investment not to be approximated in any other way.

The Oakland Sensible Six Touring Car is especially roomy, having a full 106 inches of body room upon its 112-inch wheelbase. Oakland owners report returns of from 18 to 25 miles per gallon of gasoline, and from 8,000 to 12,000 miles on tires.

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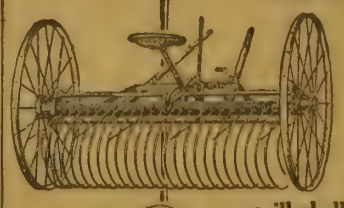
Touring Car, $1075; Roadster, $1075; Sedan, $1650; Coupé, $1650
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Moline Mower

"I have about two acres of soggy land. The sweet clover on this land was as high as the horses, and with the old stalks from last year still on the land. The Moline Mower is the only mower that I was able to cut this clover with, and I have tried them all. I consider the Moline Mower the best that is built. The mower is the lightest draft machine I ever hitched a team to, and certainly do recommend the Moline Mower to any one considering the purchase of a mower."—*A. C. Maneman, Payette, Idaho.*

This letter shows what service you can expect from a Moline Mower. The Moline gives such satisfaction wherever used and will give you better service than you ever obtained from a mower before.



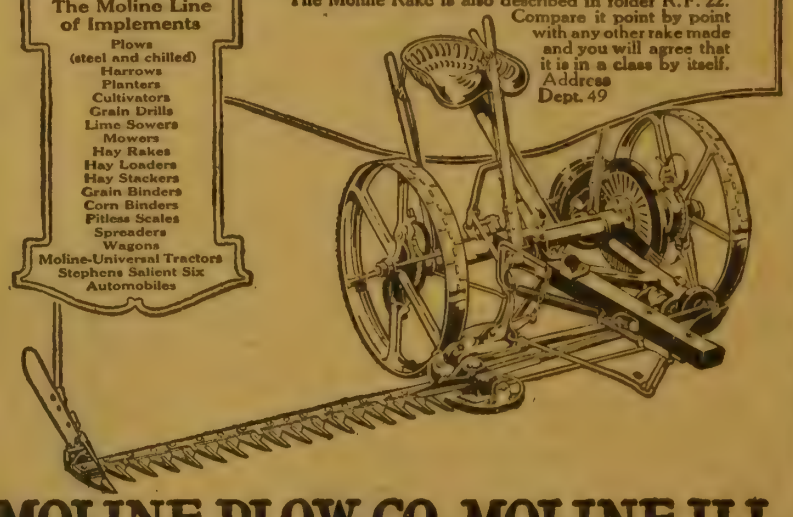
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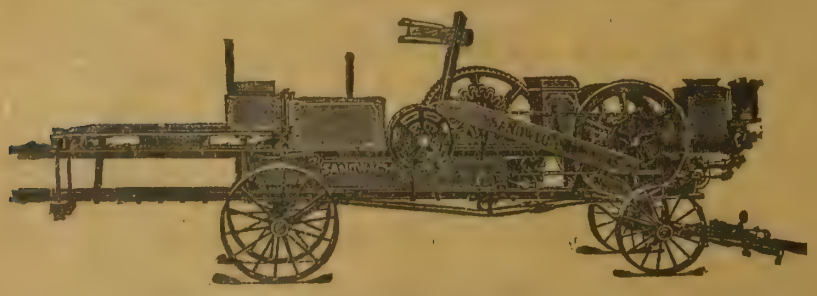
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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Need Bone-Making Material.

Would like to learn through your columns the exact appearance and condition of the bones of a healthy chicken. Our small flock seem to be in perfect health and lay well, but the bones of every chicken we kill seem to be filled with a dark red colored marrow, and the outside shell of the bone seems very thin. Sometimes you can crush the bone with your fingers. The legs of the fowls seem to be most affected, but all the bones show the trouble. We are eating the chickens and they taste all right. Do you think we should eat the fowls? Would like to have your diagnosis of the case.—E. A. Watson, Santa Ana.

Your chickens are suffering for lack of bonemaking material in their ration. Perhaps there is less lime in the water in your locality than in others, and so your chickens need an extra amount in the ration. Oyster shell and grit should be before them at all times, and they should also have coarse bone meal in the dry mash. Make it about 10 per cent of the whole mash and let them have free access to it. This soft condition of the bones is not a disease and does not affect the birds' fitness for food at all.—J. A. K.

Baled Sudan

Is there any demand for Sudan hay in the open market? Can it be baled and what is it worth per ton?—Subscriber, San Luis Obispo County.

In the Los Angeles market it has been handled baled but there seems to be none in the market at the present time. Dealers are rather cautious in handling it unless it be on a consignment basis. Anyone having stock should get in touch with the large wholesale dealers before making shipment. From such a condition of market it is impossible to state with any definiteness as to cost, but it probably would not exceed $16 or $17 f. o. b. cars Los Angeles, or San Francisco.

Dark Yolk

We have some hens that lay eggs with a dark yolk. Will the eggs be good to use?—Subscriber.

The color of the yolk depends upon the character and amount of green feed. A pale yolk indicates lack of greens. Alfalfa gives a rich yellow color to the yolk, and other greens a still deeper color. As I do not know what your hens have been eating I cannot say just what has made the yolk so dark, but whatever it is, it has done no harm.—J. A. K.

What Breed of Duck?

I bought from a dealer six ducks and a drake. He claimed they were Indian Runner ducks; others have called them Mallard. I questioned him at time of purchase for I have never heard of any Indian Runners excepting white and fawn. The ducks are brown with a little touch of white and blue on edge of wings and three have a slight indication of a white ring round their necks. They weigh about four and a half pounds each and are laying heavily. For 16 days now they have laid six eggs each day, which is 100 per cent. They lay a large greenish colored egg. The drake is a dark slate in color tinted with brown with a green head. Will you kindly advise me through the columns of your paper what breed they are?

From the description given your ducks would seem to be a cross of Mallard on Fawn and White Runners. The Runners have absolutely no color except fawn and white. The Mallard drake has a green head with white collar, the back of the neck and the breast dark chestnut, rump black, wing spot greenish purple fringed with white, and the under surface grayish white. The four central upper tail coverts are black and curly. The female is brown and buff, with a green wing spot. Your birds are probably from a cross of Mallard male on Runner female.—J. A. K.

Planting in the Moon

Is there any advantage in planting tuber crops in the dark of the moon and top crops in light of the moon? Is there any advantage in plowing or grubbing in August when the moon is in a certain position?—Subscriber, Long Beach.

We presume nine-tenths of our farmers today have no faith whatever in planting in the various phases of the moon. However, the question is discussed in an article in the Cultivator of March 1, page 314. The time was when the setting of posts, laying of fences and planting of nearly all crops were influenced largely by the moon's phases.

Tuber Moth in Seed Potatoes

Is there danger of spreading tuber moth by planting seed which is infested? Should it be treated with or dipped in any solution?—Subscriber.

So far as spreading tuber moth is concerned, there would probably be no danger in planting infested seed. In all probability the seed would give very low percentage of thrifty plants because of the havoc wrought by the worm in the potato. A dip would not be effective so far as treating the moth in the potato is concerned. Potatoes are dipped, however, to prevent scab and to destroy fungus spores. The solution commonly used is 40 per cent formaldehyde, one pint to 40 gallons of water.

Hens Eating Beans

The diversity of appetite in our hens must be most pronounced, for some hens will not touch beans while others will take them readily. Blackeyes seem to be their favorites. A subscriber, Mr. Jacques of Fontana, calls attention to the fact that his hens have been fed beans to the extent of 40 per cent of their hard grain ration, and they prefer the beans to barley, milo or kafir and even yellow corn. In feeding he has noticed that some of the hens even prefer the beans to the wheat which is now fed to a very limited extent, and with this feed he is getting a 65 per cent laying efficiency. The beans are fed whole.

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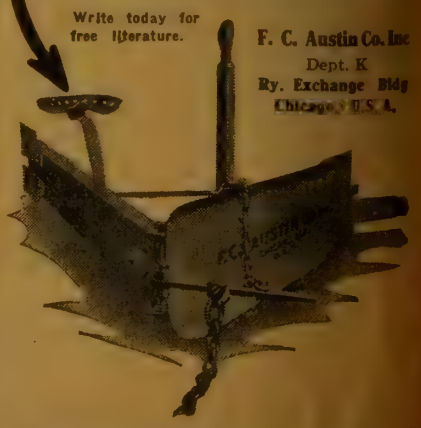
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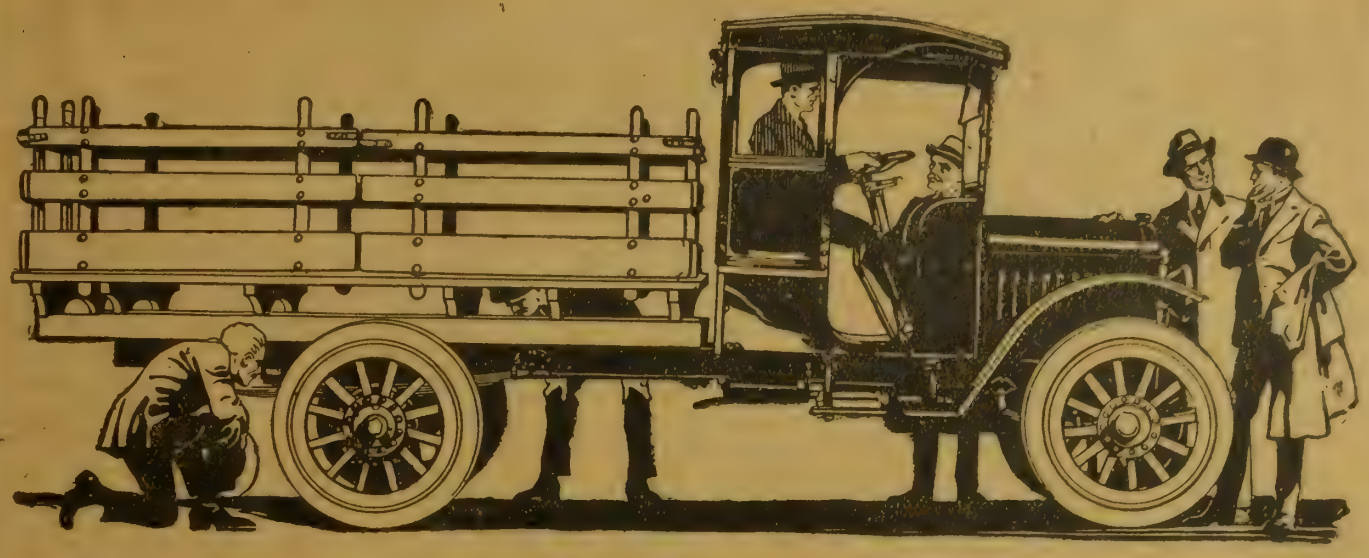
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Tractor Points Often Ignored

By J. B. Neff.

OVERENTHUSIASTIC salesmen will often tell the farmer that he can spend almost all his time in the field running the tractor at profitable work. Statements that one hour a day is all that is required to keep a tractor in good working order are frequently made. Such statements almost invariably result in dissatisfied customers who might have been contented if the facts had been presented and they had been informed that the tractor which was to replace and do the work of three to six horses would require no more time for care and cleaning than the horses would during the working days of the tractor, if economical results as to amount of work done and durability of the tractor were considered.

Oil Thoroughly

Oiling the tractor is one item which takes more time than many operators are willing to give but which must be done if success is to be secured. The principal oiling should be done after the day's work is finished and while the machine is warm. Bearings using cup grease should have the cups removed and the bearings filled with a good grease gun which has been fitted with pipe which can be screwed in and temporarily take the place of the cup. In this way grease can be forced into the bearings until it shows at each end. This pushes out any grit that may be finding its way into the bearings and insures grease on all the wearing parts. The cups should then be filled and screwed in place for use the next day, the transmission gears and crank case examined and replenished with the necessary oils, and the gasoline or distillate tank filled.

When this is finished it will be found that the hour has passed and most likely the half of another hour has gone with it. The grease cups should be turned up a few rounds after running two hours and those places having heavy work should have the cups refilled at noon. The stops for oiling and an occasional look at the water in the radiator will take at least another hour of the day. There will also be some adjustments and the amount of repairs will depend on the care given the machine and the workmanship and material placed there by the manufacturers.

Only the best oils and greases should be used in any place. The transmission grease should be such that will stick to the gears even when hot, and the lubricating oil used in the crank case should retain its "body," that is, it must stand a high degree of heat and not get so thin as to be useless as a lubricant, while it must be light enough to go through the oil pump when cold. The oil must be kept clean in the crank case. Poor quality oil may have to be renewed every 30 to 50 hours, while good oil could be used 100 hours without danger.

Rating

The rating of power of tractors is often misleading since the rating is sometimes given on the best performance and under conditions not always found in the field. Then, too, the tendency of the user is to overload almost invariably. Too high rating of power and too much load make a bad combination. This comes largely because the tractor users do not quite understand the resistance of the soil to the implements used nor the resistance of the soil to the wheels or track of the tractors. The resistance of medium or sandy sediment soil to the plow will be about three pounds per square inch of cross section of the furrow. If the plows are set to cut six inches deep each 12-inch plow will move a cross section of 72 inches and have a resistance of 216 pounds to overcome.

Tractors will not sink so much on heavy soil, and consequently can deliver more power to the plows on clay land than on sandy land, so the tractor will frequently draw the plows equally well on the heavier soil.

Worth Remembering

It will take one actual horse power to haul a load having a resistance of 150 pounds at a rate of two and one-half miles per hour, but in field work a horse will be very tired if he overcomes a resistance of 125 pounds and walks two miles per hour all day. From this we see that a 12-inch plow running seven inches deep in medium soil is all the load two horses should be expected to pull. A team can be depended upon to exert reserve strength for a few minutes to move two or three times as much as they can in an all-day pull, but when a tractor is so badly overloaded it must be run at a very high speed, which is destructive of the tractor engine, otherwise it will slow down and stop. The effect of grade is often such as to overload a tractor and a rise of two feet in 100 feet in soft ground may increase the load 20 per cent. and be an overload.

Crisis in the Potash Industry

THE United States geological survey manifests concern as to the American potash industry. Prior to the war the country used more than a million tons of the crude potash. Much of this was from Germany and the supply was practically all cut off at the beginning of the war. Production has been increased in this country until it has reached practically one-fourth of the former importation. Under the encouragement of special high prices the warehouses have been filled and yet it suddenly appears that there is no sale for the product for which it was thought the country would suffer if not supplied. No satisfactory explanation of this situation seems to be offered.

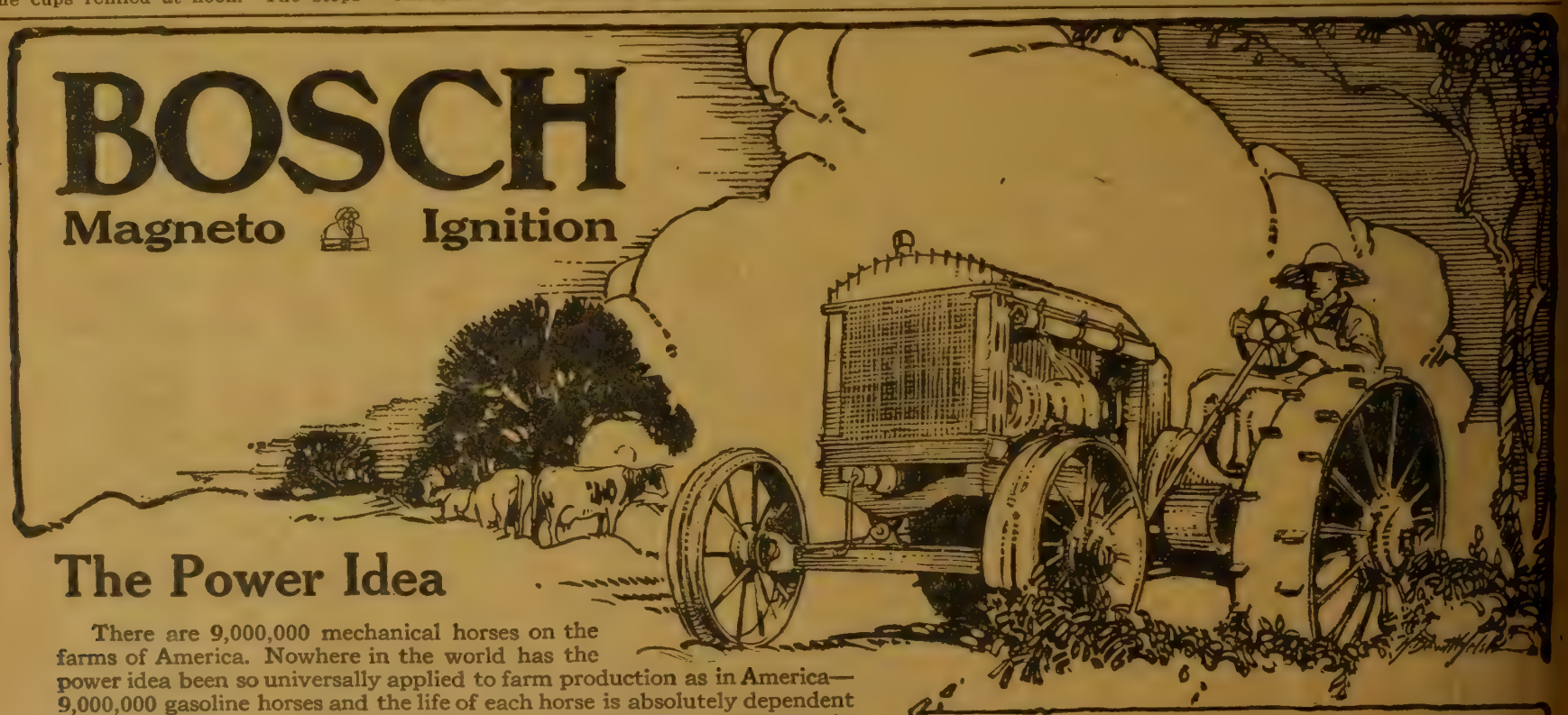
In a statement issued by the geological survey there is a good deal of discussion about present sources and production of potash and apparently some confusion in the use of the terms by which this production is expressed. The following is therefore a brief summary of the situation based on the latest available data. The statistics for the year 1918 are not yet complete, referring to the miscellaneous materials carrying potassium which are used or valued chiefly for the potassium contained in them. In 1913, the last year before the war, there was imported into the United States 1,092,588 short tons (gross weight) of the miscellaneous potash-bearing materials; equivalent to 270,720 short tons of "pure" or "actual" potash.

Our greatest source of American-produced potash is Nebraska alkali lakes from which brine is obtained. These deposits are now reported to be producing at the rate of 600 tons (gross weight) of potash salts a day, which is 219,000 tons a year, equivalent to approximately 50,000 tons of "actual" potash. This district produced 43,219 tons (gross weight) of potash salts, equivalent to 10,232 tons of "actual" potash, in the first six months of 1918, these being the latest statistics of production now available.

Searles Lake, in California, is a large deposit of mixed salts containing a somewhat complex brine that is unusually rich in potash. Estimates of the amount of recoverable potash in this deposit indicate that it contains enough to supply the entire needs of the country for at least 80 years. This deposit is now yielding a substantial part of the country's supply of potash from lands that were but recently unutilized public lands. The deposit has now been subdivided by the secretary of the interior into a number of leaseholds, under authority of the potash leasing law enacted October 2, 1917, and a much larger production may be expected. At present this deposit is yielding about 4000 tons (gross weight) of potash salts monthly, equivalent to about 2000 tons of "actual" potash.

Other sources, such as distillery wastes, alunite, kelp and certain silicate rocks, are referred to as all affording limited supply. The potash recovered as a by-product from the dusts of cement and blast furnaces bears great promise for future production that may be maintained in the

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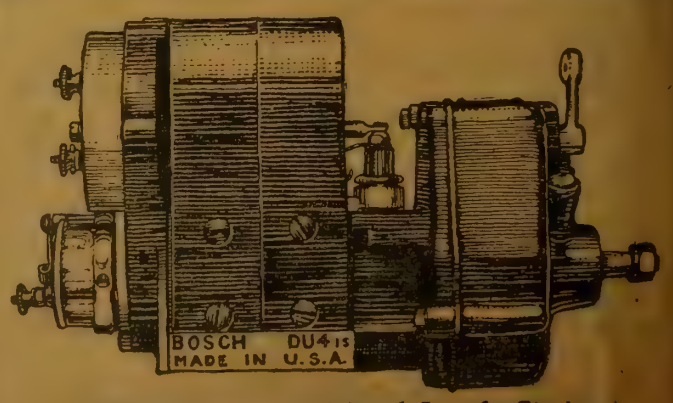
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face of competition. It appears that a quantity of potash equivalent to nearly one-third of our normal annual requirements is now going to waste in cement furnace dusts. The quantity lost in blast furnaces seems even greater, but we are probably not yet in a position to say what part of this is practically recoverable. The cement dust collected in the first six months of 1918 amounted to 5909 tons carrying 658 tons of "actual" potash, which was less than three per cent of the total domestic production. The recovery from cement dust increased during the latter part of 1918.

But unless the large stored supplies already on hand find more ready disposal there will be little encouragement to increase the industry. Fortunately potash is not a long question to Californians on California soils.

CORN BORER QUARANTINE WITHHELD

A hearing to determine what is to be done with regard to quarantine of the territory in Massachusetts and New York infested by the European corn borer was held at the offices of the federal horticultural board, United States department of agriculture, February 26. It was previously determined that the insect may infest in addition to corn many herbaceous plants, including such garden or flowering plants as celery, Swiss chard, green or string beans, beet tops, turnip tops, spinach, dahlias, gladioli, and chrysanthemums. A great many truck growers and others who would be affected by the proposed quarantine against interstate shipment of such plants appeared at the hearing.

The state governments of Massachusetts and New York, it was brought out at the hearing, are anxious to do everything possible to eradicate or control the pest. State authorities are now making preparations for handling the situation by state quarantine and otherwise, including the passage of additional legislation deemed necessary. The department of agriculture has already established a provisional quarantine with respect to this corn borer in Massachusetts. Additional federal quarantine action will depend on the extent of cooperation, if any, needed to supplement quarantine and other control operations conducted under state authority. The areas infested, both in Massachusetts and New York, are entirely within the state boundaries, and the efficient control promised by the states may eliminate the necessity for further federal control of interstate traffic.

FARMERS WORK TOGETHER IN THRASHING AND SILO FILLING

At a county meeting of the farm bureau of Trumbull County, Ohio, to secure cooperation of thrasher men in special grain and labor-saving practices, a compromise price for thrashing service was agreed upon between the thrasher men and the farmers. It was understood that farmers wherever possible would organize thrashing rings. To accomplish this, meetings were held in 13 townships, and those present divided the township into convenient districts of 10 to 14 farmers. For each of these a chairman was selected to call together the men of his district and perfect plans for the encouragement of thrashing outfits and exchange of service.

Delay in thrashing and silo filling and consequent waste and disadvantage, with increasing shortage of available thrashing outfits, had convinced them of the necesity of such measures, and 42 thrashing rings were formed.

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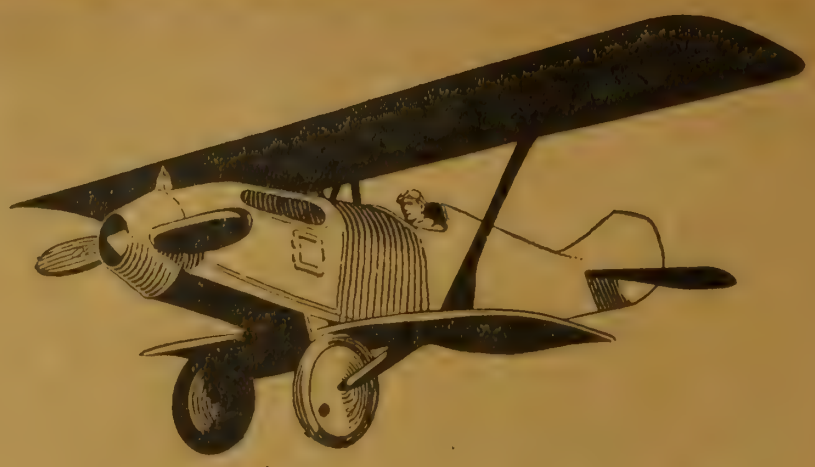
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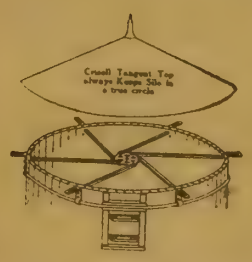


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How and Why I Entered the Hereford Business

By John A. Bunting

THERE were two reasons, the first being my own experience with cattle in California; the second, my observations in Wyoming.

In running my herd of grade cattle I had been using Hereford bulls as well as another breed. Believing it was necessary to get the best results I thought I must interchange the breeds, but since it has been proven to me that this was a foolish idea. If bulls of the right kind are used this interchanging is unnecessary.

During the years of 1912 to 1916 I spent a good deal of my time in Wyoming in the Big Piney country. That section is about 60 miles south of the Yellowstone Park and about 90 miles from any railroad and is strictly a cattle country.

I have watched the range cattle come southward in the fall from the North, most of the cows having large calves at their sides. These cows were almost always in medium flesh, but some of the cows were very weak and thin. The calves were weaned as soon as all the cows were in and the thin and weak cows put in a good pasture where they were fed hay to help them along. While the herd showed about half white faces, only about ten per cent of the thin and weak cattle were white faces.

The Hereford bulls always came South in better condition than bulls of other breeds. In the range where I spent most of my time the Hereford bulls and bulls of another breed were about evenly divided, but almost always the following spring about 65 to 75 per cent of the calves had white faces. The cattlemen with few exceptions told me that the Herefords were by far the best cattle for Wyoming. My experience in California was about the same.

During one of our hard winters the cattle got thin and weak; the cattle being divided between Hereford and another breed. It was very common to find cattle down in the ravines or bog holes, and during this particular winter we pulled 16 head out and only four were white faces, the rest different breeding. Of the four whitefaces, as soon as we pulled them out, three got up and tried to hook, the fourth never got up. Of the remaining 12 it was a different story—only two getting up and pulling through the winter. This made me absolutely certain that for range cattle I would never buy anything but a Hereford bull, and I have stayed by my conclusions.

In 1915 the University of California was giving short courses in different lines of agriculture, and the course that attracted my attention was "Beef Cattle." I left to take up this course. After arriving at Davis and looking over their wonderful cattle, I soon saw where I was feeding too many of the wrong kind. They soon showed me where I could keep one good pure bred registered animal and make more money with greater pleasure than I could out of four range animals.

I soon became acquainted with Alex McDonald, Professors True, Royce and Miller, who were all very kind, and it seemed that each one of these men went out of his way to help me. I certainly appreciated their kindness more than they knew.

Herefords being my choice, I soon decided to take up registered Herefords as soon as possible. I even got a price on one heifer, but it seemed so high to me at the time that I did not buy anything. On coming home I took my horse and went out among my own range cattle. They never looked so bad to me as on that ride, although they were good range cattle. When I got back to the house I got my pencil and paper and began figuring. The result was I soon returned to the University Farm at Davis and bought this one heifer; my only fear being that she would not travel my hills, as so many people told me that registered animals that had been raised in small quarters would not stand the hills. The heifer was two years old. When I got her home all admitted she was a beautiful animal but were quite certain that she would die if I turned her in my hills. However, she was turned out in October with the rest of the cattle, and winter soon set in. The first week the heifer hung around the buildings, never going out of sight, and I began to believe my critics were right, but within a week she mixed with the rest of the cattle and it was then seldom that I saw her unless I hunted her up. On December 24 she dropped a heifer calf and both mother and calf ran together on the range.

At the end of this severe winter this registered heifer and her calf were in far better condition than any of the others, and she was the only cow that had her calf to support during the winter months; the other cows calved in March. This so thoroughly convinced me that I have been selling range cattle to buy registered animals of quality ever since.

I have never had the money to go into registered cattle very fast, but I can say from the bottom of my heart that the University Farm at Davis, with the help and encouragement of the four men above mentioned, helped me into the most pleasant work I have ever had.

The registered animals have proved themselves in another way. I have a young bull out in the paddock that is only 18 months old and yet he tipped the scales at 1550 pounds. Had this bull been a steer he would have brought 14 cents a pound, making him worth for beef alone $217. A buyer last week offered me 14 cents for some grain and hay fed steers. When it is possible to get $217 for 18 months old steers it surely looks good to me.

The more I see and study Herefords the more wonderful they appear to me. My cows have not been under shelter this season, and most of them have calves at their side and they are in perfect breeding condition.

I have showed my cattle ever since I have owned them, with a good deal of success and pleasure.

If a person's ranch is suited for the raising of registered cattle of quality, I know of no more interesting business, affording a good profit, than the raising of quality registered Herefords. It is my intention to add to my herd from time to time and I expect to put in only the best females I can afford as I have found that buyers are always willing to pay good prices for the better kind.

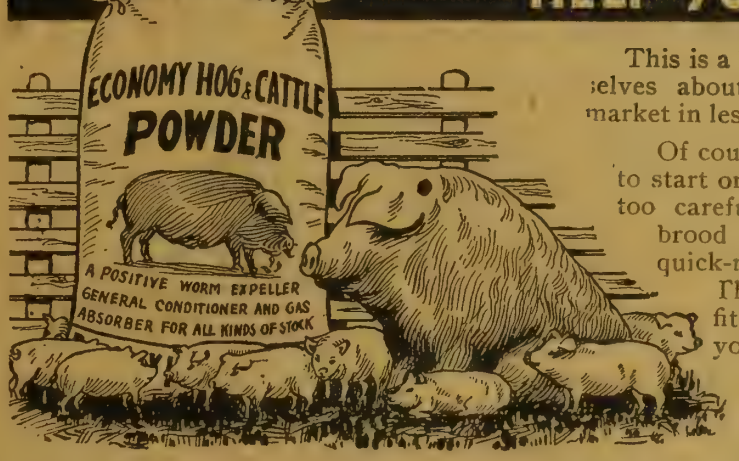
As I remarked before, I have found pleasure and profit in my small herd and I look forward to the day when there will be many more herds of Herefords in California. There is a wide and certain demand for better bulls.

BEANS FOR FEED

J. F. Callahan finds that his hens eat Hale Blackeye beans readily, but that he fails to induce them to eat other varieties.

Your Little Pigs Well Started are Half Raised

LET ECONOMY STOCK POWDER HELP YOU



This is a boiled-down personal talk between ourselves about raising and sending more hogs to market in less time, in better shape, for more money.

Of course you ought to have good individuals to start on—the best you can buy. You can't be too careful in selecting your herd boars and brood sows if you're looking to breed to a quick-maturing, strong, easy-feeding type. Then, too, you should have everything fitted for the comfort of the animal. Give your brood sows good, warm sleeping quarters, with plenty of room to exercise. Take special pains with their feed. Give them only those foods that will supply the nutriments they need for themselves and for nourishing their young. Keep your hog houses thoroughly disinfected, well ventilated, light, dry and warm, and your hogs free from lice, scurf, mange, etc.

Brood sows, being naturally feverish, should be kept in good condition—their stomachs sweet, liver and kidneys regulated, their fever kept down to prevent constipation. See to it that your brood sows are in good condition before farrowing. Don't give your sows any feed whatever from 24 to 36 hours after the pigs are born. She has enough milk, and all that is necessary is plenty of warm water—nothing else. After that start her lightly on feed.

Give your young pigs plenty of exercise. Keep them warm. See that they get lots of sunlight and be sure to keep them dry the first two or three weeks. Watch your pigs and sort out the ones that are not doing well and put them in a pen by themselves. If they have a rough coat of hair, heavy paunch or belly, watery or gummy eyes, they are probably wormy.

Our Powder will keep your pigs in condition by acting on the liver, kidneys and blood. Keep the stomach sweet. Acts as a general cleaner of the system—expels the worms, aids digestion, purifies the blood, keeps the bowels loose and active, prevents scours, thumps and all other ailments.

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Animal Industry Department of

PARKE, DAVIS & CO.

DETROIT, MICH.

What I Look For in a Herd Bull

By W. M. Carruthers

THE problem of selecting a herd bull—or any herd sire, for that matter—is a very vital one. Examples are not difficult to cite where the success or failure of many breeding establishments can be checked up to the character of sires used, and yet when one notices the rather indifferent manner in which many men go about selecting their bulls he is impressed with their utter disregard of some of the fundamental factors of herd improvement. It is my frank opinion that at least 80 per cent of the breeders of this country give little or no thought to those points which make a great sire. These men are usually governed by their pocketbook or by some fad or fancy. Of the other 20 per cent I would say that three-fourths of them do really give some thought and time to the problem in hand and are a bit more liberal in the matter of price. The remaining five per cent constitute the constructive breeders. They are the men who are in the game for the love of the business and who, because of their enthusiasm, have studied the science of breeding from every angle. They know pedigrees as well as individuality and they have familiarized themselves with the most successful blood lines and the methods used by other successful breeders. This five per cent does not include owners who depend entirely on their managers for advice, but does include many men who have reached the top after an apprenticeship with the feed bucket. These men are the constructive breeders and the work they are engaged in, that of improving animal efficiency and form, is as noble and dignified as any profession.

Speaking from a beef standpoint, it is difficult for me to properly express all my ideas regarding the selection of a herd sire with the expectation that all would agree. It has been my observation, covering a period of over a quarter century, that, even among successful breeders, there is apt to be a difference of opinion. However, I believe that the majority do recognize the more essential fundamentals and are generally agreed as to what these essentials are.

The real breeder, as the years go by, develops in his own mind an ideal form. This ideal is the result of careful observation and study and with the ripeness of age the real herd bull, conceived in his imagination, comes nearer a fact. The real breeder is just as much a genius as the poet and, like the poet, he is born, not made. It takes years of experience to tell accurately those characteristics that indicate a prepotent sire. Amos Cruickshank knew more about this sire business when he was 70 years old than when he was 30. I have not reached the three score and ten mark and do not feel that what I may have to say will be of especial interest to men who have had years more experience than myself, but it may be that what I have to say will prove of interest to the beginner, and possibly some help.

To begin with, I assume that a successful sire must be well bred—that he is good because of the carefully selected ancestry behind him, and I am thoroughly convinced that a bull, as well as a man, must have a good mother. Perhaps I am inclined to lay more stress on the dam than is justified, but I am firmly convinced that most of the great herd bulls follow the maternal side, and for that reason I would emphasize that the greatest point to be considered in the selection of a herd bull is the mother. I am not discounting the influence of the sire, but simply stressing the importance of the dam. As Tom Sotham used to say, a bull should be individually great by inheritance.

It is always advisable to select a tried and proven sire, but at the present time it takes a great deal of money to buy a developed bull and for that reason many breeders are buying bull calves and doing their own developing. Here again hinges a problem which can only be successfully solved by breeders of experience. The rearing of a bull calf to maturity can easily be a failure even if the calf looks well in its calfhood. The man and the feed bin will make the bull.

Now to refer to the more visible characteristics I look for.

Assuming that we have located a bull, either mature or a calf, that is bred to suit, he must be a good individual. Too many men buy on pedigrees and don't get enough bull!

An old Scotch sage is responsible for the maxim: "The head, the paunch and the hind legs are the three principal requirements for a great sire—the head indicating character; the paunch, feeding quality, and the hind legs the props to carry the meat when it is fed on."

The head of the herd bull has perhaps caused more difference of opinion than any other point. Men jump to conclusions and make bold statements, but the really great breeders — men who have studied the head and worked out this problem—say very little until the bull has reached his full development. Like most breeders, I like to start at the head and insist that the bull carry a head full of breed character (character can not be defined on paper—one gains a knowledge of what character means through observation and experience) and that he shows plenty of masculinity. With a calf I rather like to see what some might term a slight femininity, because I have observed that calves showing marked masculinity are apt to develop into rather coarse headed bulls. I like a short broad head—a typical head; a good clear open eye—and I prefer that the eye has a little "fire" in it—not a small, sleepy eye; the nostrils should be large, likewise the mouth, and the jaws strong. The neck should be fairly short and nicely crested, depending on age, and should carry the head with style and blend into the shoulders nicely. The shoulders should be well laid, not too coarse or open, and particularly do I want the shoulders well covered. The crops (just back of the shoulders) should be wide and well covered. The heart girth should be both wide and deep—plenty of circumference indicating constitution—and constitution is fundamental. The top line should be level to the tail setting and the ribs should show ample spring and length—thus making for paunch capacity; the underline should be practically parallel to the top line and by all means should the flank be well let down. The coupling should be short and the loin wide and thickly covered. The rump should carry out level and the width should be carried down into the quarters, and the hooks well covered. The legs, both front and hind, should be placed under "each corner" and should show plenty of bone. On top of all the above points I look for a thick covering of natural flesh — the thicker the better, but not fat—

Woodland, California,
February 28, 1919.

The California Cultivator as a medium for selling pure bred live stock is unquestionably delivering good service.

As evidence of its pulling powers we are pleased to state that the small ads that we have recently run have in each instance produced buyers. In the case of three bulls advertised in one issue, all were sold the following week and two orders were received for one of them.

Yours very truly,
A. W. MORRIS & SONS CORP.
By F. L. Morris.

The above letter is but another proof that the California Cultivator is reaching the class of readers who know and appreciate the value of pure bred live stock.



Retained After-birth

Cows can be made to clean easily without using force.

When cows do not clean properly after calving, it indicates a germ infection which is likely to run through the entire herd and result in Abortion and Barrenness.

The after-birth should be removed at once without force by means of the B-K douche and the cow treated to prevent her becoming an aborter or sterile. Authorities state that while there is no absolute cure for abortion and sterility, nevertheless the infection can be controlled by prompt treatment and the animal saved for successful breeding.

B-K is scientifically correct for this work. Used as a douche for the uterus, it quickly brings the after-birth, dissolves the slimy albuminous matter, kills the germs, stops discharges and controls the infection. B-K does not cause straining, but is soothing and heals the tissues.

Send for "evidence" and free Bulletin No. 52 "Contagious Abortion." If your dealer does not have B-K send us his name.

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Registered Shorthorns
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Berkshires---Both Sexes

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Two High Class Jr. Boars, choice $65.00. Six Fall Boars, choice $50.00.
Sired by Ames Rival.

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THE Jersey has ever been noted as the profit breed. But these days of high-priced feed are making her even more famous. You must look into this Jersey matter. It will show you the difference between keeping a cow and having the cow keep you. Ask breeders for prices and pedigrees. Write us for important Jersey facts, free.

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Young bulls from proven dams in Register of Merit

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ALL MY RECORDS
are made under ordinary dairy conditions. The farmers cow is

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YOUNG BULLS FOR SALE

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Young Jersey Bulls

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One at the head of your herd will pay big dividends on his cost. Write to

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Get One of My Jersey Bulls

to increase the production of your herd. They are rich in the blood of the great cow, Gertie of Glynllyn.

Visitors Welcome Correspondence Invited

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R. R. Box 46 Tulare, Cal.

Calf Enemies

WHITE SCOURS
BLACKLEG

Your Veterinarian can stamp them out with Cutter's Anti-Calf Scour Serum and Cutter's Germ Free Blackleg Filtrate and Aggressin, or Cutter's Blackleg Pills.

Ask him about them. If he hasn't our literature, write to us for information on these products.

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Reduces Strained, Puffy Ankles, Lymphangitis, Poll Evil, Fistula, Bolls, Swellings; Stops Lameness and allays pain. Heals Sores, Cuts, Bruises, Boot Chafes. It is a

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Does not blister or remove the hair and horse can be worked. Pleasant to use. $2.50 a bottle, delivered. Describe your case for special instruction and Book 5 R Free.

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Only Bull Calves For Sale

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"Specialist" in Pure Bred Stock, Dairy Cattle and Real Estate Will Appreciate Your Work

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P.S.—Will buy any good Dairy Herd or Beef Cattle

smoothly laid on and covered with a mellow good handling hide showing plenty of quality and a rich, mossy coat of hair. In a herd bull I want ruggedness, not coarseness, combined with quality, and in addition I want style and carriage and presence.

Some breeders like to show their herd bull during the different stages of his development. This practice has certain advantages, but likewise disadvantages. It allows the general public to watch him on the fair circuit and is often excellent advertising, but I am convinced that early and heavy fitting shortens the bull's career by three to six years. To get the best results from a really great bull I have my doubts as to whether he should ever be seen in the show ring. I can refer at this time to the great herd bull March Knight, who was never shown, and many breeders believe him to be the greatest heifer sire of the last quarter century.

I have tried to set down in a brief way a few of the things I have learned during a lifetime with Shorthorn cattle. I have left much unsaid, but one never reaches the point where he can be certain that he has mastered the breeding business The longer I handle cattle the more convinced I am of the value of carefully bred bulls and of the certain possibility of cattle improvement through the use of good bulls.

California has unexcelled natural conditions for cattle raising and some day this state will be a great live stock center. Just now we need many more herds of good pure bred cattle to help supply the existing demand for bulls and the big demand that is sure to come with each year.

Control of Tuberculosis on the Ranges

By F. M. Hayes, Assistant Professor Veterinary Science, University Farm, Davis

THE list of diseases affecting animals commonly fed upon the ranges of California is a long one. In it are included such important ones as infectious abortion, tuberculosis, anthrax, blackleg, sheep scab, sheep and calf parasitisms and plant poisoning. There are others of less importance. Blackleg and sheep scab, considered from the efficaciousness of the present methods of control, are not the menace that they once were. The others are still with us and instead of being controlled and reduced to a minimum are actually increasing in extent, particularly the abortion disease and tuberculosis.

That tuberculosis exists to any important extent among our range cattle may be considered in doubt by many people. It is, however, a fact and a reality which should be recognized so that methods of control that are applicable to range conditions may be inaugurated before the disease becomes as prevalent on the range as it is among the dairies of our interior valleys. It is estimated that from 10 to 15 per cent of the dairy cows in California are affected with this disease. This percentage, however, is no higher than exists in all other dairy sections of the United States, which means that we are not below the average, a fact of which there is no reason to be proud, when our remoteness from the congested animal population east of us, and our excellent climatic conditions are considered.

Tuberculosis among our range cattle does not exist, of course, to the same extent as it does in our dairy cattle which are kept under intensive systems that bring about closer contact between the healthy and diseased. There is every evidence, however, that this disease is gradually and insidiously, as is its nature, reaching the ranges. Range cattle of the beef breeds are just as susceptible to tuberculosis as dairy cows. This is proved by the fact that pure bred beef cows, kept under the same conditions as dairy cows, have just as much tuberculosis. The only reason that there is not as much of it among range handled cattle is that their environment is cleaner and the opportunities for spread by close contact are not so great. Evidence that cannot be disputed proves the paradox that tuberculosis does spread on the range where fresh air, pure water and sunlight abound in unrestricted quantities.

In 884 slaughtering plants in 263 cities, where the federal government makes inspection of food animals killed, there were 68,208 entire carcasses and 178,940 parts of carcasses of cattle condemned for tuberculosis in 1917. No small part of these condemnations were from the strictly beef breeds raised upon the ranges. The writer is not in possession of knowledge of what part of this loss to owners and to the food supply may be justly accredited to California. It is known, however, that there are grade and pure bred herds maintained under range conditions as well as some not under strictly range management that are notoriously affected with tuberculosis in California. On the other hand there are known herds under both conditions in which tuberculosis does not exist. The former fact is unpleasant to face, but the latter lightens the burden because therein lies one of the most important opportunities for the prevention and eradication of the disease among the range cattle.

While there probably is a great deal yet to be learned concerning the tubercle germ, its effect in the body, its existence outside the body and the manner in which it spreads, there is no reason for delaying the application of the principles and practices of control in the light of what we already know about it. We do know that the cow already affected is a center or focus from which the germs may spread from the manure, the milk, the genital and the respiratory organs. It is such individuals that must be located and removed by slaughter or strict separation from those cattle not yet diseased. The problem of doing this has its obstacles under range conditions but there is yet no better method than to apply the tuberculin test efficiently, systematically and courageously until the reactors are discovered. The disposal of those reacting will then depend upon their value and the opportunities on the individual ranch or range for proper segregation. It is not always necessary to slaughter reactors. In fact, in the case of valuable breeding cows and bulls it is not to be recommended unless they cannot be kept separate.

LIVE STOCK WEEK

University Farm, Davis, April 8-11.

Tuesday, April 8

Meeting of California Cattlemen's Association.
Sale of 50 Shorthorn bulls and females.

Wednesday, April 9

Meeting of California Cattlemen's Association.
Sale of 80 Hereford bulls and females.

Thursday, April 10

Meeting of California Swine Breeders' Association.
Sale of 25 Polled Hereford bulls and females, under auspices of American Polled Hereford Breeders' Association, State Fair Ground, Sacramento.

Friday, April 11

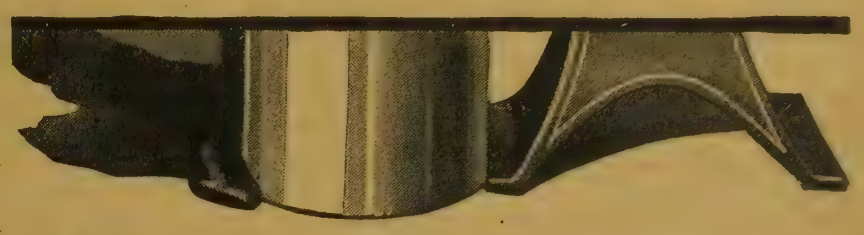
Meeting of Western Duroc-Jersey Breeders' Association.



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THE best time to buy a De Laval is when you need it most. With cows freshened, or freshening soon, you will have more milk to handle.

And with butter-fat at present prices you can't afford to lose any of it.

If you are still skimming by the "gravity" method or if you are trying to get along with an inferior or "half-worn-out" separator, you certainly are losing a lot of valuable butter-fat.

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Right Now

The best cream separator you can get is the only machine you can afford to use these days, and creamerymen, dairy authorities and the 2,325,000 De Laval users all agree that the De Laval is the world's greatest cream saver. They know from experience that the De Laval is the most economical machine for them to use.

If you buy a De Laval you will get a machine that is tried and tested and true—a machine that will give you genuine service—and you will get the cleanest skimming, easiest turning, longest wearing cream separator that money can buy.

Order your De Laval now and let it begin saving cream for you right away. Remember that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or, if you don't know him write to the nearest De Laval office as below.

De Laval Dairy Supply Co.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

ALPHA GASOLINE ENGINES
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EVERYTHING FOR THE DAIRY

Catalog of any of these lines mailed upon request

61 Beale Street **San Francisco**

California "Breed Promotion" Sales

Polled Herefords



State Fair Grounds

Sacramento, Cal.

Thursday, April 10, 1919

at 9 A.M.

25 Head Outstanding Individuals 25

Some Wonderfully Attractive Heifers
A Great Line Up of Young Bulls

Purely a "breed promotion" enterprise. About 20 of the most enthusiastic boosters of Polled Herefords in the United States have contributed twenty-five head of strictly high-class cattle to make the first sale of the breed ever held west of the Rocky Mountains. Each contributor has done his best to have a better animal in this sale than any of his fellow breeders. Cattle have gone here that could not have been bought at any price within reason at private treaty, but for the advancement of the interests of Polled Herefords in new territory they are consigned to this sale. "Strictly Choice" has been the requirement and nothing that will not be a real advertisement for the breed has been accepted.

California and other Western breeders will have rare opportunity to buy at their own door and at their own price very choice specimens of the breed. Every precaution has been taken by the association to see that the sale shall be so made up and so conducted as to result in future demand for hornless Herefords from the coast states.

Buyers unable to attend in person can safely send mail bids for anything in the offering. Nearly all these cattle are yearlings or just past two years old. They will stand the change in good shape and quickly become acclimated. They have their whole useful lifetime before them. They are old enough to show promise of what they will eventually develop into. Many of the yearlings can be shipped in crates by express if necessary and thus save time and money in getting them home.

SPECIAL NOTICE—Because of the importance of beginners getting started right and recognizing that most of the buyers will be establishing new herds, we have arranged for the presence of Mr. John Letham (dean of Hereford judges and newspaper men), to be at this sale to assist buyers in selecting cattle and appraising pedigrees. Mr. Letham is doubtless the best known breeder, feeder, fitter, and judge of Hereford cattle in America. He is everywhere recognized as a student of pedigrees and his services are always in demand wherever Herefords are known. Californians should avail themselves of this unusual privilege of getting the judgment of this man without cost. If you cannot attend, send your bids to Mr. Letham. If you do attend, get him to assist you in choosing. He knows cattle, pedigrees, and values as well, if not better than any man in the country, and his services are absolutely free.

WRITE TODAY FOR CATALOG AND PARTICULARS.
THE TIME IS SHORT.

Col. Fred Reppert, Auctioneer.
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Jno. Letham, Special Representative
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SALE HEDQUARTERS, SACRAMENTO HOTEL, SACRAMENTO, CAL.

Address mail there for any of the above named parties.

American Polled Hereford Breeders' Association

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B. O. Gammon, Secy., Sacramento Hotel, Sacramento, Cal.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

In many instances a serious injury would result to the breeds in the loss of blood lines. On the other hand, if control of some sort is not attempted the loss will come, not so swiftly as from slaughtering, but slowly and certainly. The writer knows personally of several owners of pure bred beef breeds in whose herds tuberculosis has unfortunately gained such headway that the problem of eradication which they are now undertaking is requiring dauntless courage. Notwithstanding the fact that the immediate monetary loss will be heavy they realize as business men that tuberculous cows will not pay dividends in the long run. The other reason for endeavoring to exterminate the disease is the altruistic one that only healthy cows should represent the breed and that the purchaser of a pure bred bull or heifer should receive a guarantee of health.

The pure bred herd is going to be the foundation for the profitable development of the range cattle business. Therefore, if tuberculosis is not to spread to ranges now clean, the pure bred breeder must have tuberculosis free cattle and the purchaser must demand and receive record of a properly performed tuberculin test which indicates an absence of tuberculosis not only in the individuals purchased but in sufficient number of the entire herd to show that tuberculosis is entirely absent, or present in not over ten per cent of the herd. A similar idea is being developed by the bureau of animal industry in some of the Eastern states among pure bred herds in the form of establishing herds accredited free from tuberculosis after two or more tests show them to have no reactors. The advertising value of an officially recognized tuberculosis free herd is considerable. The plan, while susceptible to some faults, is nevertheless a step in the right direction.

Since there are yet in California ranges which are clean there is ample opportunity for the owner of a badly infected herd of grade cattle to replace the unhealthy by healthy from the clean range herds. This plan naturally would only appeal to the owners of grade herds in which cattle could be sold for slaughter for beef prices and the range restocked with grades at not far from the same price. The most economical method of handling tuberculosis grade cattle is to sell them for food purposes subject to inspection.

The writer has dealt in generalities in the above lines more than in specific details for the purpose of suggesting thoughts that are timely for the consideration of those interested in a profitable range cattle business in both the production of beef and pure bred breeding beef cattle. Nothing can be accomplished toward the prevention and eradication of tuberculosis on our ranges unless the progressive leaders of the industry realize its importance and cooperate to the fullest extent with all those concerned. It profits no man to raise a two-year-old steer at a cost of $60 and get the tankage price when sold to the packer, nor to raise a pure bred heifer or bull that should be worth $250 if she did not have tuberculosis.

DISTINGUISHED LIVE STOCK MEN TO VISIT CALIFORNIA

Not since the Panama Pacific International Exposition has this state attracted so many prominent and nationally known live stock men as will be in this state the week of April 7-12. Apparently the Eastern live stock world is turning its eyes toward this state as a very attractive field for development and the various breed associations are each making strenuous efforts to build up their influence in this state.

During the week Coast breeders will have an opportunity to meet the following men:

Frank W. Harding, secretary of the American Shorthorn Breeders' Association, Chicago; R. J. Kinzer, secretary of the American Hereford Breeders' Association, Kansas City; B. O. Gammon, secretary of the American Polled Hereford Breeders' Association; John Letham of the American Hereford Journal, Kansas City; Fred Reppert, Decatur, Iowa, one of the most popular auctioneers in the United States, and O. M. Plummer, manager of the Pacific International Live Stock Exposition, Portland.

SANTA ANITA RANCHO

Anoakia Breeding Farm

Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion and Don Castano, five gaited saddle stallion, winner in many prominent shows.

Mammoth Jacks

We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

Poland China and Berkshire Boars

Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited

Anita M. Baldwin
Santa Anita Calif.
W. H. Taylor, Supt.

New Harness

is cheaper than second-hand, dollar for dollar of cost. Come in and see what we have to offer you in HERCULES HARNESS and Horse Collars. Our own make and fully guaranteed.
Stallion collars made to order.

W. Davis & Sons

California's Pioneer Harness Manufacturers, 333 Market Street,
SAN FRANCISCO, CAL.

Catalogue of Harness, Saddlery, Trunks and Traveling Bags sent free on request.

Use a Shorthorn Bull

and add 200 pounds to every steer you raise. A load of Shorthorn yearlings sold for $20.75 at Denver in January, the record price for feeders. Four loads of Shorthorn steers brought $524, $361, $358, and $349 per head at Chicago in December. Why not start a Shorthorn herd by putting in two or three registered females and keeping the female increase? You would soon have a valuable herd at small cost. Pure breds pay the best.





Holstein Veal

No Kind or Quality of Veal is so much in demand as that of the Holstein-Friesian breed. It is an important source of revenue to Holstein dairymen, adding an important item to the credit side of the dairy farmer's account. Holstein calves weigh 100 to 135 pounds at birth.

If interested in

HOLSTEIN CATTLE

Send for our booklets—they contain much valuable information.

HOLSTEIN - FRIESIAN ASSOCIATION OF AMERICA, Box 120 Brattleboro, Vt.

Polands for Profit



I Breed and Raise

Strictly big type Polands of best blood lines properly developed. Bred sows and gilts, and a few fall boars for sale at prices that are reasonable. Satisfaction guaranteed. **R. J. Yates, Orland, Calif.**

CALIFORNIA OPPORTUNITIES IN BEEF

Continued from Page 441

From the standpoint of beef cattle this state is woefully understocked for its own needs, not to mention any possible needs from adjoining states. That this is true is attested to by the fact that each year hundreds of high grade and pure bred bulls are shipped in for distribution among range outfits. There is not one sound reason why such a condition should exist. California should at least produce enough bulls to supply her own needs. California should produce a surplus of bulls that would be readily absorbed by the vast cattle country to the north, east and south. It can be done —will be done in time—but it can only be accomplished through the establishment of many new herds — and that means more females. Aside from the few head of females that the breeders contribute to the annual sales, a buyer would have difficulty in buying 50 head with which to found a herd. Of course, they are here, but the men who are producing them are not anxious to sell, preferring to add them to their own herds.

It is generally conceded that the pure bred beef herds in this state could be increased ten-fold and still not produce enough bulls to supply the existing demand. If this is true, and there is ample evidence that it is true, it would seem that it is but logical to predict an attractive future for the beef industry in this state.

In brief, then, here are the conditions that exist in this state:

California is the natural breeding ground for a vast territory that will always be a cattle country.

There is a constant demand for better cattle.

Because of natural conditions it is possible to produce in this state the very highest class of cattle — and cheaper than any section of the world.

California breeders do not produce enough bulls, by thousands, to supply the present demand.

Our own needs and the certain demand from adjoining states furnish a basis for the establishment of many new pure bred herds.

CATTLEMEN'S CONVENTION AT UNIVERSITY FARM

The opportunity will be afforded cattlemen attending the Shorthorn sale to be present at the convention of California cattlemen to be held afternoons at the University Farm, Davis, on April 8 and 9. While the program for the cattlemen's convention is not yet complete, we are authorized to announce that Gilbert J. Waller, founder of the Hawaiian Meat Company, will make an address outlining the details of the method employed in establishing the cooperative system among cattle producers now in vogue in the Hawaiian Islands.

O. M. Plummer, general manager of the Pacific International Livestock Exhibition at Portland, Oregon, will deliver a talk and in his direct way enlighten those present on the market systems practiced in other states.

OPPORTUNITY FOR DAIRYMEN

April 2, 3 and 4 will certainly be red letter days for buyers looking for pure bred and grade Holsteins in the San Joaquin Valley. Immediately following the Putz and Mitchell sales of registered Holsteins at Hanford and Visalia on April 2 and 3 respectively, Mr. C. L. Knestric of Reedley will dispose of his entire herd of Holsteins at public sale.

Mr. Knestric has been in the dairy business for a number of years and the herd that he is offering on April 4 is the result of 15 years of breeding. Without a doubt it is one of the finest herds of grade Holsteins that has ever been offered at public sale for a long time. And while they are grade cows they are practically fifteen-sixteenths pure bred.

Mr. Knestric also has several head of registered Holsteins which will be sold. This should interest buyers who might attend the two preceding sales and be short a few head to fill a car.

Mr. Knestric's ranch is located just three miles south of Reedley and seven miles east of Kingsburg on the highway between Kingsburg and Sanger.

The sale will be conducted by Col. John A. Rhoades of Los Angeles, who is also conducting the Putz and Mitchell sales.

84 Registered Herefords 84

At Public Auction

1 P. M., WEDNESDAY, APRIL 9, 1919

UNIVERSITY FARM, DAVIS, CALIFORNIA

56 FEMALES - 28 BULLS

Tuberculin Tested - - Guaranteed Breeders



Size, Quick Maturity, Uniformity --- HEREFORDS

Establish a Hereford Breeding Herd Now

Success depends not so greatly on how much you invest as how well you invest. Brains, labor, and money invested in good registered Herefords right now will prove to be well invested right from the start, for there is a waiting market for Hereford breeding stock in the west that is steadily growing.

Buy the Right Foundation in this Sale

Leading western breeders have consigned to this sale choice young cows and heifers, richly bred, and the right sort to use as foundation stock. Many of the cows have calves at foot, and the bred females are in calf to such bulls as CALIFORNIA PRIME DONALD, Grand Champion at 1918 California State Fair; ALAMO REUBEN, who topped the sale last year as a senior calf; HARRIS STANDARD 2ND, sire of Alamo Reuben; and others of high merit.

Bulls to Head Registered Herds

Not only can you buy foundation females in this sale but you can secure a read herd header as well, there being an excellent selection from which to choose.

Range Bulls of Size and Quality

There are some extra choice bulls suitable for range service in the offering. Remember that these bulls were bred in California and needing no acclimation will go right ahead from the day you get them home. They will breed profit into your herd, getting offspring that will market at earlier ages with greater size and uniformity.

Contributors to Sale:

J. H. CAZIER & SONS, Wells, Nev.
H. M. BARNGROVER, Santa Clara, Cal.
J. A. BUNTING, Mission San Jose, Cal.
UNIVERSITY FARM, Davis, Cal.
CHAS. RULE, Jenner, Cal.
W. D. DUKE, Likely, Cal.
W. J. BEMMERLY, Woodland, Cal.
MRS. D. O. LIVELY, San Francisco.

Catalog of sale free on request. Please mention CALIFORNIA CULTIVATOR.

CATTLEMEN'S WEEK
APRIL 7, 8, 9, 10, 1919
UNIVERSITY FARM, DAVIS, CAL.
Something interesting every day.

ANNUAL MEETING
Pacific Coast Hereford Cattle Breeders' Association,
10:00 A. M. Wednesday, April 9,
Animal Husbandry Bldg., University Farm.

Sale Under Auspices of

Pacific Coast Hereford Cattle Breeders' Association

W. R. Madden, Sec., Dixon, Cal. H. H. Gable, Pres., Esparto, Cal.

Auctioneer—Col. Fred. Reppert, Decatur, Ind.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.



Get Bigger Money Harvests Easier

You farmers can save *all* the grain you raise—with an E-B Osborne Grain Binder.

Cutter bar can be set close to the ground. Reel can be adjusted to push down grain onto platform. Platform canvas runs one-seventh faster than elevator, straightening grain before elevating. Seventh roller avoids grain dropping through onto main wheel and helps prevent clogging. Drop leaves, grain springs and three discharge arms prevent stringing grain. Get all the interesting harvesting facts about the

E-B Osborne Grain Binder

from your dealer at once—or write us.

The uniting of E-B with Osborne means much to you in harvesting your crops. The Emerson-Brantingham Implement Company represents an organization of 4,000 men and 7 factories, and 67 years' experience in building fine farm machinery. Combined with this is the Osborne reputation for making harvesting machinery of all kinds.

H. C. Shaw Company
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Los Angeles, California

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THE E-B LINE

HEREFORDS

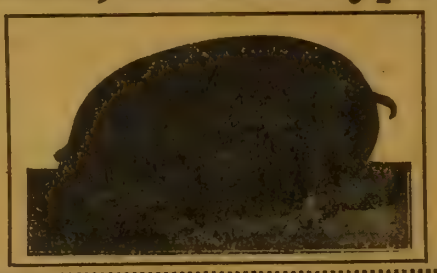
ALAMO HERD
(Founded by the Late Gov. Sparks)
Registered Herefords
Herd and range bulls reasonable. Largest Hereford herd in California.
W. D. DUKE, Likely, Modoc Co., Cal.

Hereford Farms
Geo. Watterson, Owner
Bishop, Inyo County, Cal.
Anxiety, Repeater, and Bonnie Brae breeding. Bred and raised on mountain range.

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett
Hanford, Kings County, Cal.





REGISTERED DUROC-JERSEYS
You can bank on this breed of hogs. The demand is greater than the supply. Every point the buyer demands for a profit-making hog is found in the Duroc. We can supply you with weaning pigs, either sex. Our herd boar has the blood of Ohio Chief, Defender, Crimson Wonder, Jack's Friend, Joe Orion, etc.
THE GARDINER RANCH
ROUTE 4, BOX 735. SACRAMENTO, CALIF.

Carruther's Shorthorns and Berkshires

Choice collection of breeding cows—mostly Scotch—and representing the leading families, headed by Count Glory, grand champion at the last three state fairs, and Hallwood Villager. Bulls for sale at reasonable prices. Berkshire herd headed by the noted boar Ames' Rival 100. Correspondence invited.

W. M. CARRUTHERS, Live Oak, Cal.

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families.

Registered Berkshire Pigs

Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.

Careful attention given to mail orders.

Whittier State School
Whittier, California

When writing advertisers, mention The Cultivator.

Second Spring Shorthorn Sale

Glowing accounts reach us as to the quality of the cattle entered in the second spring sale of Shorthorns to be held under the auspices of the California Shorthorn Breeders' Association. The opportunity will be afforded of selecting choice herd headers. For instance, the London Estate is entering the great bull Roselawn Choice, while the University of California has an excellent offering in California Model, sired by the bull which produced the great steer, California Favorite. A half brother of this calf sold at the recent Harding sale for $7,500.

It is said that "coming events cast their shadows before," and if this be true breeders of Shorthorns in the state have a great future in prospect. Never before in our history has there been such an appreciation of the merit of quality cattle and where, up to within the past few years, those broad-minded men who engaged in the production of pure-bred cattle played quite a hazardous part, the beneficial results of their efforts warrant both profit and pleasure to those now engaged in the business.

It is earnestly to be hoped that a strong attendance will be in evidence at the Shorthorn sale, and this seems assured by reason of the fact that a convention of California cattlemen will be held at the University farm, Davis, on the mornings of April 8 and 9, at which time the matter of improved marketing conditions will be gone fully into, free discussion had, and addresses made by men eminent in their knowledge of marketing, from this and neighboring states.

Veterinary Queries

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Lump on Cow's Jaw

I have a Holstein cow that has a bad spot under the jaw. It started about four months ago with only a small lump which I lanced, removed some pus and sponged out with disinfectant. It grows continually and is now about three inches across. On the outside of the raw spot there is a ridge or roll as though the skin had been rolled back. Have used bluestone water and sulphur on it but it is getting worse.—Subscriber, Stockton.

It may be caused by an injury or may be the real lump jaw (Actinomycosis) which is caused by a germ getting into the bone through the gums. This can only be cured by the continuous use of iodine for some time. Wet the lump with the tincture of iodine once a day. For internal use get four ounces of iodide of potash dissolved in a quart of water. Give once ounce of the solution in the feed or in the drinking water once a day while it lasts. Better call in a veterinarian to see the cow.

Ewes With Blue Bags

Please advise through the Cultivator what would be a good treatment for ewes having blue bags.—Subscriber, Los Angeles.

The blue udder is caused by inflammation and may be due to an injury or from influenza. Sheep are usually considered healthy, hearty animals, but at this time of the year they are apt to get bilious and in such condition are subject to all kinds of troubles. They need a bitter tonic to stir up the liver and eliminate the bile. Give each one ten grains of aloes and five grains of powdered nux vomica mixed with two tablespoons of raw linseed oil. Repeat by giving half the dose in a few days.

Warts

We have a heifer calf that has large warts on her neck. Please advise us what to do for it.—Subscriber, Aguanga.

Oil them once a day with castor oil and they may go away soon; if not then use nitric acid. Apply the acid with a swab once or twice a week. Be careful with the acid and do not allow it to touch your skin or clothing. It is a powerful caustic and will burn a hole.

Pigs With Sore Eyes

We have some two weeks old pigs that have sores about the head and nose that seem to come from the eyes. The eyes are swollen and they cannot see well. The mother seems to be all right.—Subscriber, San Andreas.

Bathe the sore parts with a solution of permanganate of potash. Use warm water and put in enough to make the water red. While the eyes are affected keep them in a dark place but keep them clean and warm.

Worms in Goats

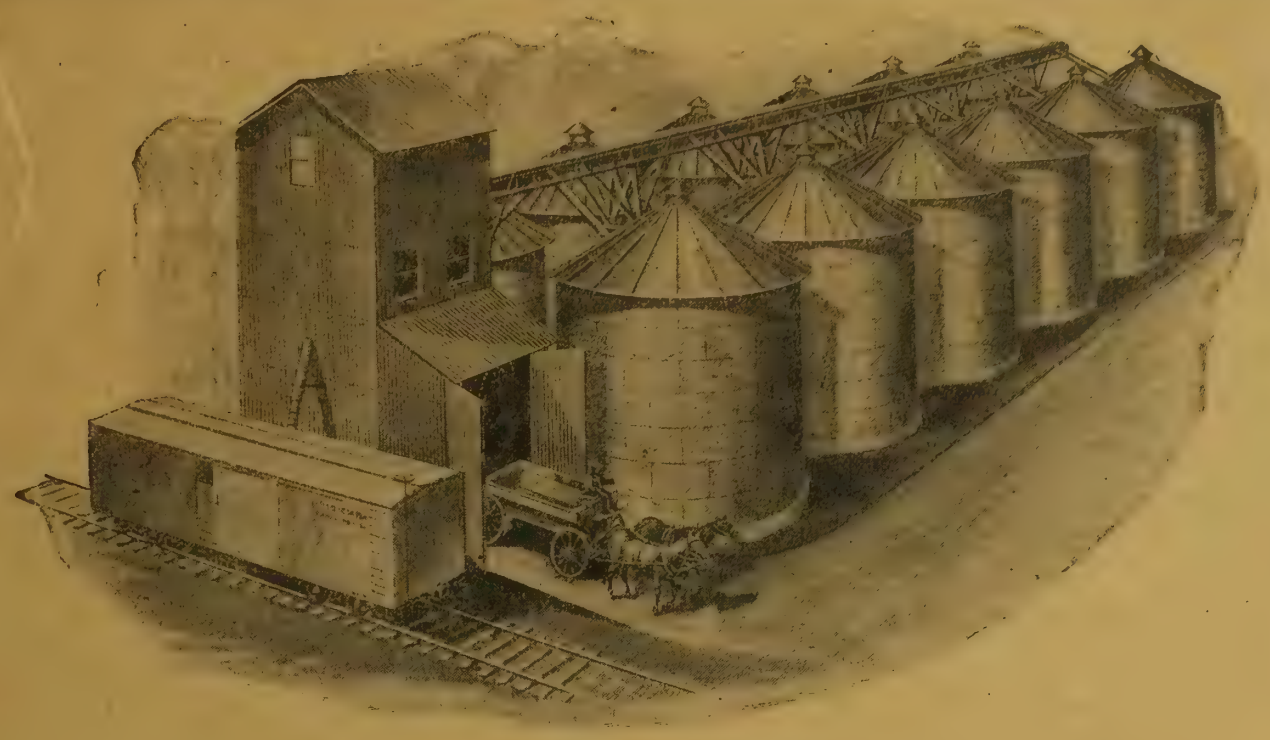
I have a buck and several does suffering from vent gleet. Two of the does passed thread-like worms. I have been giving them worm powders and also injecting a one per cent solution of Lysol but am unable to effect a cure. Please advise what to do.—Subscriber, Inglewood.

Worms are rather uncommon in goats. Give each one a teaspoon of the tincture of iron in the mash once a day for a week. You might also inject a solution of the tincture of iron, a teaspoon to the pint of warm water. If the iron causes constipation give a dose of salts, two parts of epsom salts to one part of common salt. About two tablespoons dissolved in warm water is a good dose.

Sick Goat

I purchased a milch goat about three weeks before kidding time. She now has three kids born about three weeks ago. The mother goat refuses to eat very much and will not drink more than once a day. When she has her choice of green stuff or barley hay she chooses the latter. She was a heavy milker last year, giving four quarts a day, while this year she only gives a scant two quarts. The udder is large but the upper part is much firmer than ordinary and there are clots of blood in the milk. When milked she humps up her back as though it hurt her. Several times when passing urine she has passed a quantity of bloody matter. The manure is not always in hard balls but is soft and hangs together. What would you advise doing for her?—Subscriber, Oceanside.

Probably a part of the afterbirth was retained. That would cause the bloody discharge with the urine and also the congestion of the udder. When milking her you should be very careful not to pull on the teats; it will cause great pain. Use a syringe with a long nozzle and wash out the womb with a warm one per cent solution of lysol or zenoleum. Be sure the solution is just a little above the temperature of the body and use plenty of it. Also be sure it goes well back into the womb. Repeat this in two or three days. A good dose of salts will also help. Give two tablespoons of epsom salts, one of common salt and ten grains of powdered nux vomica. Dissolve it in a pint of warm water and give it as a drench. The fact of her having three kids would make her very weak at the time and she was not able to expel the afterbirth. It should have been removed at the time and the womb washed out.



Connecting the Grain Grower with his Market

Twelve-Bin (Twin-six) Loading Station with a Capacity of 73,068 Bushels

GROWING interest among California farmers in handling grain in bulk, the simpler, more economical way, has developed this twin-six loading station. It is constructed especially for use in sections of large grain acreage, where long hauls are necessary. The unit illustrated is planned for such a section in the Sacramento Valley. The Calco Grain Loading Station offers grain growers an economical, co-operative method of connecting grower and shipper, to their mutual advantage.

Armco Galvanized Iron Bins

Twelve Armco Galvanized Iron bins, each 22 feet 1 inch in diameter and 21 feet 5 inches in height, give this twin-six loading station a storage capacity of 73,068 bushels of bulk grain.

Handles 1000 Bushels per Hour

Grain is hauled by team or truck through the elevator house, where it is dumped into a receiving pit below grade. A conveyor system elevates the grain to the tower, where it is cleaned and weighed and then either conveyed for storage to one of the bins or spouted directly into waiting cars. Minneapolis buckets, 8 by 5, operating at a speed of 440 feet per minute, give this unit a handling capacity of 1000 bushels of bulk grain per hour, making it adequately fast to care for any possible congestion.

Erected on Concrete Base

All galvanized iron bins are erected on concrete bases, are weather, fire and vermin proof. The tower is constructed of fire-proof, rust-resisting Armco Corrugated Iron.

Cost per Bushel Capacity is Low

This 73,068-bushel capacity loading station may be erected at a cost of $0.234 per bushel storage capacity. Compared with a reinforced concrete structure—the only available type offering protection from fire, weather and vermin—this cost is exceptionally low. A concrete elevator for a similar capacity will cost nearly three times as much as this Loading Station.

Permanent Erection in 60 Days

With an ordinary working force of men, this complete structure may be erected within 60 days. This erection time includes the elevator building, concrete foundations, conveyor system, cleaning and weighing machinery and the 12 Calco Galvanized Iron Bins. From four to six months are necessary to erect a storage station of similar capacity in concrete.

Capacities to suit local conditions may be easily arranged by merely adding bins in units of two to the Calco Loading Station, or subtracting bins in units of two.

Blue prints with itemized costs for erection of the Calco Twelve-Bin (twin-six) Loading Station will be furnished engineers or co-operative grain growers' organizations, and our engineers will gladly assist in every way to adapt this unit to local conditions. Write for our circular giving costs and points of erection of this loading station. Mailed upon request.

California Corrugated Culvert Company

LOS ANGELES
419 Leroy Street

BERKELEY
408 Parker Street

CALCO GRAIN LOADING STATION

60 REGISTERED HOLSTEINS 60

AT PUBLIC AUCTION

Thursday, April 3, 1919

PACKWOOD FARM, VISALIA, CAL.

Owned by W. F. Mitchell



Fayne Spring Farm Pontiac De Kol

Daughter of Spring Farm King Pontiac 6th. Now on official test and has to her credit 26.29 pounds butter in seven days as a senior four year old. One of the most highly bred heifers ever sold in California.

FOURTEEN COWS AND HEIFERS WITH OFFICIAL RECORDS UP TO OVER 31 POUNDS BUTTER IN SEVEN DAYS, including the great 31 pound cow Fidessa Helena, and the beautiful four year old pictured above. There are some real cows and heifers in this sale, the kind you can very profitably buy for foundation stock.

NINETEEN GRANDDAUGHTERS OF SEGIS PONTIAC DE KOL BURKE, whose two year old daughters hold both California records for butter in one year, and whose daughters are making big records as they freshen, one of them now on test having to her credit over 26 pounds butter in seven days as a junior two year old.

THIRTY-NINE COWS AND HEIFERS BRED TO PRINCE HISKE WALKER are in this sale and buyers who are fortunate enough to get some of them are bound to realize handsomely on the investment, for this great young sire is without question one of the most promising bulls now in service in California.

PRINCE HISKE WALKER will be sold, for the sole reason that Mr. Mitchell is retaining only the young daughters of this great bull as his future breeding herd. Prince Hiske Walker is only just past four years old, and will undoubtedly have at least 60 living daughters before he is five. His get is uniformly of high excellence.

DON'T MISS THE OPPORTUNITIES OF THIS SALE. EVERY FEMALE OF MILKING AGE IN THE HERD WILL BE SOLD.

Catalog free on request.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.
Auctioneer—Col. Ben A. Rhoades, Los Angeles.

AUCTION

70 Choice Holstein Cows and Heifers 70

7 Registered Holstein Cows and Heifers 7

Registered Holstein Bull

On the C. L. Knestric Ranch, three miles south of

REEDLEY

Three miles west of Dinuba, seven miles east of Kingsburg on the highway between Kingsburg and Dinuba

Friday, April 4th, at 9 a. m., Sharp

It has taken the owner 15 years of constructive breeding to build this fine herd up to its present state of efficiency. Nothing but the best pure bred, registered Holstein sires have been used and any cow that did not show a profitable production was taken. The heifers were all raised from the best cows, and include 40 head from 6 to 24 months old. There are several high-class springers in the lot. Remember in buying from this herd you are securing two nicely marked, big, growthy, young Holstein cows and some extra good heifers.

One fine three year old registered Holstein cow, milking with first calf. Six registered Holstein heifers. This stock is royally bred and nice individuals.

One three year old registered Holstein bull from the Holdridge herd. Six brood sows with pigs at side.

TERMS: CASH. Arrangements for credit can be made by seeing owner prior to sale.

If you are in the market for first-class dairy cattle, do not miss this

Genuine Closing Out Sale

C. L. KNESTRIC, Owner

Col. Ben. A. Rhodes,
1501-3-5 South Main St., Los Angeles, Calif.
AUCTIONEERS

SHORTHORNS IN CALIFORNIA

Continued from Page 443

To one who is interested in the history of the breed a study of herd books reveals quite an array of Shorthorn breeders in California, but a list of such might not appeal to readers of the California Cultivator as much as some facts about present day conditions. But before turning from the historical phase of the question under consideration, I desire to comment briefly on a herd established near the date last mentioned, which proved a source of much strength and a fountainhead of good blood for the Shorthorn herds of the entire Pacific Coast, many herds in California profiting from it as well as those of the Northwest. I refer to the herd established near Portland, Oregon, by Ladd & Reed, but owned during its period of greatest usefulness by Charles E. Ladd. This herd was the distributor of many excellent Shorthorns and from it came blood that greatly improved many herds in California. In addition to this source of strength and improvement, numerous choice animals, both bulls and cows, have in recent years been purchased from the leading herds of the cornbelt states. Many of these were prize winners in the East and are reproducing their merit in their Western homes. The purchase of notable prize winners in most cases is commendable as a means of advertising, but the chief aim in such additions should be the improvement of the herd by the introduction of better animals for use as breeders. The exhibition of fine specimens is commendable and should be encouraged as a practical means of advertising and as stimulus to other breeders to produce better live stock, but the chief aim of every breeder should be to improve his own herd and the breed. It is a greater honor to produce a notable prize winner than to exhibit one.

Shorthorns were the first improved breed of beef cattle brought to America, in fact they have been the pioneers in the improvement of the scrub cattle of many countries. A fruitful field for it as improved blood, some generations ago, were the vast ranges and grassy plains where the degenerate descendants of the Spanish cattle roamed at will. Several generations of Shorthorn bulls made a wonderful improvement on these wild cattle, improving their forms, decreasing their horns, refining their appearance, thus furnishing an excellent foundation on which the Herefords afterward builded so successfully. This is an old story to the ranchmen of California, but its repetition here is justified as a means of giving proper credit to Shorthorns as great improvers. But not alone in the big ranches of California and elsewhere was this improving and refining so potent, but in its numerous valleys and in its small mountainside ranches. Almost everywhere Shorthorn blood is in evidence, in greater or less degree, and always has it been an improver. To a very large extent this improvement has gone out from the good herds of Shorthorns established in California many years ago. Some of these herds still exist, having descended from father to son, and in late years many new ones have been established on the solid foundation of individual merit and good breeding.

There are now 100 herds of registered Shorthorns in California and many hundred of grade herds where Shorthorn blood predominates. And an encouraging condition of trade is that the demand for Shorthorns is increasing rapidly. A prominent cattle broker in Southern California who is an ardent admirer of another breed admitted that his largest orders were for Shorthorns. But there is room for all good breeds to improve the beef form and refine the appearance of numerous herds of scrubs and to stock



Some Cover Crop to Work Under

An Avery disking in a four foot cover crop in citrus orchard of Fred Mang, Anaheim.

Second Spring Sale of SHORTHORNS

Under the Auspices of

California Shorthorn Breeders Association

Will Be Held at

The University Farm, Davis, California

on

Tuesday, April 8th, 1919

at 1:30 P.M. SHARP

25 Head of Choice Bulls 25 Head High Class Females

Auctioneer: Fred Reppert of Decatur, Indiana

For Catalog apply

California Shorthorn Breeders Association

320 Sharon Building, San Francisco, California

NORWALK TIRES



Some Rubber

Fleet-Footed Tread

These casings know no bounds of mileage but are known by their mileage.

Ask for price list.

Factory Distributors:

Lichtenberger-Ferguson Co.

Los Angeles San Francisco Fresno

FREEDOM-



and Elgin

Two popular shapes—radically different but both stylish and comfortable—like all



SLIDEWELL HAH COLLARS

Made with the Features that save your Tie, Time and Temper.

Ask for Slidewell

Hall, Hartwell & Co., Makers, Troy, N. Y.

SEED POTATOES

We specialize in selected SEED POTATOES; Certified White Rose, American Wonders, British Queens, Burbanks, Garnet Chilis, and other varieties. Also fancy, recleaned Alfalfa Seed. Write for prices.

Wm. A. Curtis Co.

San Francisco . . Cal.

Allied Horses Clipped

Horses of Allied armies were clipped regularly. Army veterinarians knew that clipped horses were much less liable to sickness—did better work and gave longer service. The machine adopted was the Stewart Ball Bearing No. 1. The Stewart lasts a lifetime and costs only $9.75. Send $2.00—pay balance on arrival. Or write for new 1919 catalog.

CHICAGO FLEXIBLE SHAFT COMPANY
Dept. A 161, 12th St. and Central Ave., Chicago, Ill.

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

the vast unoccupied acres in California with profitable cattle. For some years states in the corn belt with from 30 to 50 cattle to the square mile have strongly emphasized the scarcity of cattle, but the three Pacific Coast states have only three cattle to the square mile and less than 15 people. Surely there is room here for more of both, and in the filling up of these unocupied lands by men who are seeking new homes will come a constantly increasing demand for Shorthorns.

In all countries they have proven their merit as the farmer's cattle. In supplying his family with both beef and milk no breed can equal Shorthorns. In the future development of our country, California will play an influential part, and in no field of endeavor is there greater hope of marked progress than in the unfolding and improvement of her live stock industry. This industry is yet in its infancy, but its future growth and proper development offers encouragement for all good breeds. In the fulfillment of this reasonable expectation the Shorthorn will play an important part.

LIVE STOCK NEWS NOTES

More Herefords to California

Two progressive California breeders of Herefords, Chas. Rule of Jenner and W. J. Bemmerly of Woodland, were among the best buyers at the Hereford Roundup sale held at Kansas City March 3-6, each securing a number of well bred young bulls.

Among the Rule purchases were the following: Beau Robin by Delphino, calved February 25, 1917.

Repeater 198th, by Repeater 71st, calved October 19th, 1917.

Prince Fairfax, by Peerless Prince, calved September 8, 1917.

Rule also selected the heifer Matron Donald 2d, a daughter of Beau Donald 193rd.

Included in the Bemmerly selections were:

Saxon Lad, by Columbus Lad 6th, calved March 30th, 1917.

Lincoln Lad, by Beau Lincoln 7th, calved February 18th, 1917.

Hanley Picture, by Manly Picture, calved November 5, 1917.

Nifty Lad, by J. H. Cedar Lawn, calved February 23, 1917.

Sensation, by Belle's Picture, calved March 15, 1917.

Horace Gleed 40th, by Horace Gleed, calved April 25, 1917.

California can use a lot more bulls of the sort Bemmerly and Rule brought out.

Hereford Bull Sets World Record Price

A new world's record price for a bull of any beef breed was established when Ferguson Bros. of Canby, Minnesota, paid $50,000 to L. A. Pinnard of Wesington Springs, South Dakota, for the Hereford bull Richard Fairfax 449317.

Richard Fairfax was bred by Warren T. McCray, Kentland, Indiana, and was sired by the noted bull Perfection Fairfax. His dam was Real Lady by Beau Real and his second dam was by Dale, the grandsire of Perfection Fairfax, and the first Hereford bull to sell for $10,000.

The former record was held by the dead Ardmore and was established at the 1917 International when W. R. Pickering of Kansas City paid Walter L. Yost $31,000 for him.

Buys Crack Hereford Bull

H. H. Gable, Esparto, president of the Pacific Coast Hereford Breeders Association, has purchased, through R. M. Dunlap, the Hereford bull, Don Perfect 2nd.

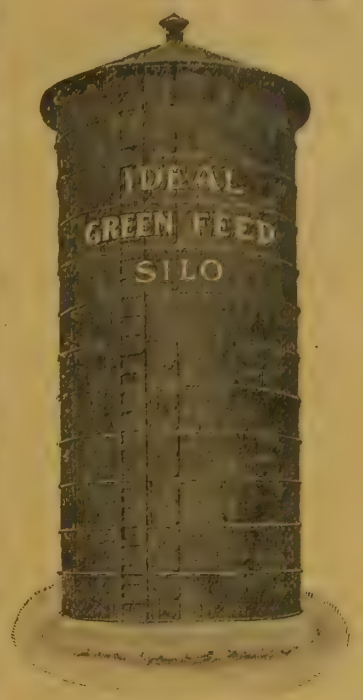
This bull has been one of the herd bulls in service in the C. C. Griffith herd, Hudson, Iowa, and Eastern advices state that he is not only a splendid individual but has proven a sire of rare quality, his get having topped a number of good Iowa sales.

California Hereford interests will be greatly strengthened by the addition of this bull and it is expected that he will be given wide opportunity in the Diamond G herd.

Inyo County White Faces

Hereford breeder at Bishop, Inyo County, reports sale of a bunch of pure breds to O. Harris of Missouri, and to S. R. Crow, Pleasanton; also sale of 20 bulls to the Tehachapi Cattle Company at Bakersfield.

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(2) Feed it out as silage this summer when green feed is gone.

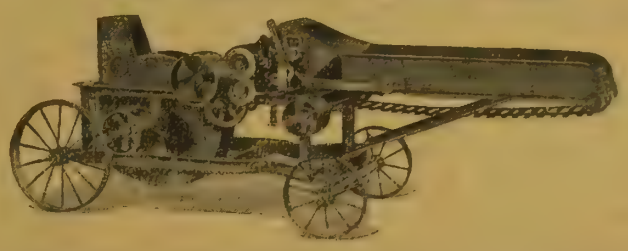
(3) Refill with corn this fall.

(4) Feed succulent corn silage all winter. That's the way to cut feed costs.

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E. R. Putz Ranch, Near Laton, California

Mr. Putz is retiring from the breeding and dairy business and has instructed us to conduct a complete dispersal sale of his well known herd of profitable producers.

While no official testing has been done in the herd, the blood lines are substantial, representing some of the most popular lines of the breed, and the cattle are practically all young, clean, and good producers. This herd contains

24 Greatgranddaughters of Pontiac Korndyke

3 Daughters of Arcady Pontiac Wayne Hengerveld

3 Daughters of Prince Beauty Pieterje Segis

Besides the desirable young cows and bred heifers in the herd, there is a very desirable lot of unbred heifers and heifer calves that will grow into money fast for someone. Dairymen will also find some choice young bulls in this sale, although there are only a few bulls from this herd have been in strong demand and few have stayed in the herd long enough to reach service age.

The Grade Cows and Heifers

are a well marked lot, young, clean, good producers, and all that are bred are in calf to a grandson of Pontiac Korndyke, the present herd sire. Here is an opportunity to buy some grade Holsteins of high quality.

Prince Lunde Korndyke 2nd

the herd sire will be sold. He is a grandson of Pontiac Korndyke and is a fine individual. See this bull and then look over his calves in the herd and you will find that he is getting some exceptionally promising heifers.

Every animal in the sale over six months of age, both purebreds and grades, is tuberculin tested.

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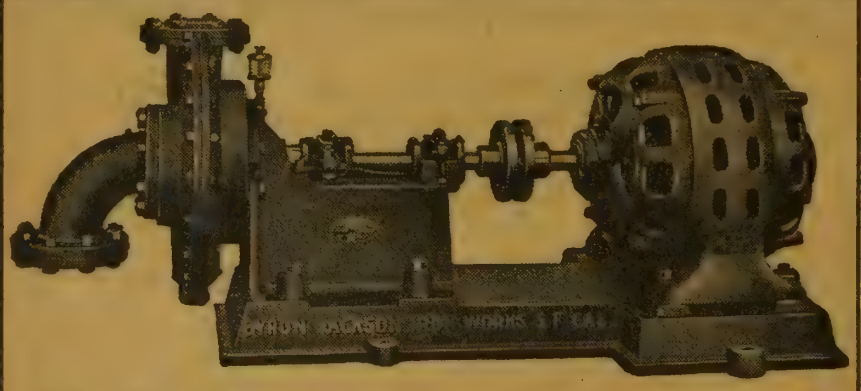
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Seven Rules for Feeding Chicks

By Jean A. Koethen

IT IS a good deal easier to give directions for feeding chicks than to obey them. The chick is a patient little creature, demands nothing, asks for nothing. If it is too flagrantly abused, it droops and dies; given the most grudging attention, it lives and grows, and by the time it has developed into a worthless runt it is too late to go back and correct errors of care and feeding. You cannot neglect a chick for a week and then make up for the neglect by extra care. The lost time is gone forever, and with it, perhaps, the chance of making a blue ribbon bird. One little back set, a cold, a chill or an empty crop for a few nights, and you have a cull in place of the beautiful standard fowl you might have had. On such small matters as getting home to feed the chicks at their regular time, or scalding the fountains weekly, does the building up of a fine flock depend.

Chick feeding is not an exact science. The kind of feed is important, but no more important than the way in which it is fed and the ability of the chick to digest what it receives. And so my first rule for chick feeding has to do with the chick itself rather than with its ration.

Keep the Chicks Warm

No chick can digest its food if it is chilly. The chicks must be warm, real cuddly, toasty warm, before they are fed, and afterward. Chill checks every digestive process. If chicks "paste up behind", don't lay it to their feed. That is the surest sign of indigestion caused by chill. Warmth is especially important the first four days. After this time the chick hardens rapidly and can soon bear a good deal of cold during the day, but it must be warm at night always. We are told that chicks must always be sent to bed with full crops, but if bed is a comfortless place where they must huddle to keep warm, that cropful of feed will cause diarrhoea rather than normal growth. Keep them warm if you have to sit up all night to do it.

Do Not Feed Too Soon

No chick cares to eat before it has been out of the shell 24 hours. The last day it was in the shell it took into its own intestines the yolk of the egg from which it hatched, and this is ample nourishment for 48 hours or longer. Some authorities would leave the chick without any nourishment save a little sand or grit for from 60 to 72 hours, but most experts feed by the end of the first 48 hours. By this time the chicks have begun to look for something to peck at, and they are pretty good judges of their own need. My own experience is that chicks will not eat until they have been out long enough to make feeding perfectly safe. The first feed is usually rolled oats or chick feed scattered on sand where the chicks can see it plainly. There is nothing better than the hard boiled egg chopped with stale bread which was so generally prescribed for the nursery feed a few years ago. The only objection to this is that it is some trouble and no more satisfactory in the long run than simpler feeds.

Feed Plenty

The first three or four days the chicks are learning to eat and cannot be expected to fill their crops. For the purpose of teaching them experts at the University Farm keep a grain mixture of equal parts fine cracked wheat, fine cracked corn and steel cut oats before the chicks in a wooden hopper all the time for the first two days. As soon as they have learned to eat the grain is scattered on the sand for another day so that they may learn to scratch. From this time on all the grain is scattered in a light litter of cut alfalfa or clover. At the Missouri experiment station the first feed is a fountain of sour milk or buttermilk. This is followed the afternoon of the second day in the brooder by a mixture of two-thirds rolled oats and one-third wheat bran, with a little charcoal, fed on a clean board four or five times a day. After the fourth day commercial chick feed is added to the mixture.

By the Cornell method, which has a very large following, the chicks are given a moist mash five times a day right from the start. The mash mixture consists of eight pounds rolled oats, eight pounds bread or cracker crumbs, two pounds sifted beef scrap and one pound bone meal. This is moistened with sour milk or buttermilk. The grain mixture, three pounds cracked wheat, two pounds cracked corn, one pound steel cut oats, is kept before them in a little tray. After the fifth day the mash mixture is changed to three pounds bran, three pounds corn meal, three pounds middlings and three pounds beef scrap, one pound bone meal, and is kept before them all the time.

The difference between the above rations is sufficient proof, if proof were needed, of the fact that there is no one best ration and no one best method of feeding. Some feeders leave the feed before the chicks constantly after they have learned to eat; others prefer to feed several times a day. It does not matter which method is followed, so long as one is sure every chick has all it will eat, but most of us feel that the weaker chicks have a better chance if the feed is always before them so that they may eat at any time. When a moist mash is fed in a trough or on a board the stronger chicks are always likely to crowd the weaker away. As to the time honored question, shall the mash be dry or moist, many feeders answer it by feeding it both ways, the dry mash always before the chicks in hoppers, the moist mash, mixed with buttermilk, once or twice a day in addition to the dry. Chicks like a moist mash. It appeals to their appetities as a dry mash does not, and they grow more rapidly if they have it. Growing chicks is largely a question of getting the greatest possible amount of food into them. You cannot overfeed a chick. You may feed him more than he can digest if his digestion is not in good working order, but given a normal digestion the chick will not eat more than he can digest. Here is where chicks have more intelligence than some folks. A chick's crop ought to be stuffed full when he goes to bed. If it is not, there is something wrong either with the chick or the ration.

Feed a Variety

Probably one reason why so many chicks fail to reach standard weight is that they are not fed a sufficient variety. A chick's ration, like that of the adult fowl, must consist of grit, grains, greens and grubs, or animal food, and no one of these can be omitted. Chicks that have sour milk daily need no meat if they have all the milk they will eat, but most feeders give meat in the form of beef scrap in addition to the milk. There are so many buttermilk preparations on the market nowadays that no one need go without some form of this most excellent chick food. It is important that a variety of grains be fed, both in the mash and in the scratch mixture, so that the chick may have everything it needs for a symmetrical development and that its appetite may be constantly stimulated.

Feed for Bone and Muscle

Ultimately we want our chicks fat, but before we begin to put fat on them we must have a frame to cover. This is one reason why rolled oats are part of nearly every nursery feed. Oats are one of the best of bone and muscle builders and they should be part of the ration from start almost to finish—rolled or steel cut oats first, then sprouted oats and later ground oats in the mash. If we were deprived of every other feed I fancy our chicks would do fairly well on a ration of oats alone, so nearly do they come to being the perfect feed.

But we need bones of firm quality as well as large ones, and so bone meal should be a part of the chick mash. Chicks that have bone meal in the mash are not likely to be troubled with leg weakness.

Another element needed for bone and muscle, as well as for feathers, is protein. Little chicks need even more protein than laying hens. Buttermilk, beef scrap, raw or cooked meat, are all sources of protein. All grains contain protein, but they do not

contain enough. Some special protein feed must be added.

Feed for Health

I have mentioned buttermilk as necessary both to a varied ration and to the building of frame and muscle, but for it is even more necessary to health. Buttermilk (and when I say buttermilk I mean any kind of sour milk) because of the lactic acid it contains, is particularly efficient in keeping down the bacteria which cause white diarrhoea. It is also the only known cure for coccidiosis. Tests at various experiment stations have shown that chicks which were given buttermilk from the start were much less liable to diarrhoea than chicks which had no buttermilk. Even butter milk will not save a chick that has been chilled, but a chick that is both warmed and buttermilk fed is as safe as any chick can be.

More important than buttermilk in the daily ration of the chick is green feed, for this is its natural ration. The chick in the days of the jungle fowl got no buttermilk, but it always got green feed. Chicks ought to have range. This is their normal condition. If range must be denied them more care must be exercised to make sure that they have all the greens they can eat. Lettuce is perhaps the best green for the new hatched chick, but the time soon comes when any green is welcome and useful. Cut alfalfa, chard, clover, and a little later on kale, lawn grass (cut fine), turnip leaves, chopped cabbage, anything goes with the little chick. Healthy development is not to be expected of chicks that are deprived of their proper allowance of green for the vitamines which are found in greens and fruit are necessary to the health of every living being. Just why this is so we do not know, but it is true. Our boys in France missed fruit more than any other of the accustomed foods of home, and the chick deprived of green misses it just as much.

Give Every Opportunity for Exercise

It is not necessary to enlarge on this point. Digestion depends on exercise, the amount of food consumed on ability to digest, growth on amount of food consumed. If the chick cannot have range give it something in its run to keep it interested and moving, but by all means give range if possible. Nothing quite takes its place.

THE BEST BREED

By Jean A. Koethen

Prolificacy is a matter of strain rather than breed. There are heavy laying strains in all breeds, and slacker strains in most of them.

In choosing a breed, the main point to consider is, what am I keeping hens for? If eggs and eggs alone are wanted, the White Leghorn is the egg breed par excellence. Commercial egg farms have found it the one breed that can be kept satisfactorily in large flocks, and the cheapest of all breeds to feed. For the back yard or farm flock the Ancona and Minorca will probably be found quite as productive, and the little Brown Leghorn recommends herself to anybody whose only aim is eggs.

Most farmers and backlotters, however, want both eggs and meat. For them, any one of the American breeds —Rhode Island Reds, Wyandottes and the different varieties of Rocks—will probably be more satisfactory, and the choice between these breeds is almost entirely one of strain. Some strains of Rocks are very fine producers. Some are too much given to broodiness. The same may be said of both Reds and Dottes. The main thing is, find a breeder who is breeding for eggs, not feathers, or for both eggs and feathers. Make him show you his egg records and then buy eggs, if you can afford them, from his best layers. If the pullets you get from such stock are not satisfactory, the only thing to do is to make them satisfactory by selecting the best layers and breeding from them. There is little use in hunting round for a more prolific breed. The men who build up bred-to-lay strains do it by breeding within their own flocks, mating their best layer to one of her sons, and their offspring to another son of a proven heavy layer.

If you prefer meat to eggs, try the Dark Cornish, one of the Orpingtons or the Light Brahma. They are all delicious for the table, and some strains are excellent layers, but all heavy breeds are inclined to put on fat to the detriment of egg production.

A good many people are asking about the Rhode Island Whites, and they are certainly making good as producers. Their table quality is about the same as that of the Reds.

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USED galv. tanks 6000, $125; 7000, $145; 1000, $29.
RANCH TOOLS—6 H. Lambert engine, $95; 10 ft. grain drill $95; mower, $45; Fresno beet drills, $35; P. O. power-lift tractor; 4-gang disc plow, $230; 4-gang disc plow, $120; double disc harrow with pony truck, $65; potato planter, $75; single disc harrow, spike harrows, Planet Jr. new potato digger, $20; galv. water trough, $7.50; 10 ton McDonald pitless wagon scales, $150; 2-row bean cultivator, $35; 4-in. irrigating pipe, $14.90; 6-in., 25c; 7-in., 32c; 10-in., 43c; sundries.
PUMPS No. 3 Double-Acting Ames pump, with double 24-in. stroke, $250; complete pumping plant, double acting deep well Dow pump, 12 H. Western engine pipe and rods for 135 ft. lift belting, all accessories on cars, $875 or less than half. Engine alone costs $700 now. Be quick for this snap; 1-in. centrifugal, 2-in. American, $35; 2½ B. & J., $45; 4-in. horizontal cent., $82.50; 6 hor., $125; 4 two stage, $150; 7 vert. Krogh, $150; single Pomona plunger pump $50, many others, 50 brass cylinders. Checks, Liberty Bonds accepted. DEMMIT CO., upstairs, 120 N. Main. Yards, 816 Yale, Los Angeles. Also buy first-class used material.

For Sale—Six-foot Double Clark Cutaway disc harrow, three disc plow. These tools are good as new; for half the price of new ones; not worn out, but replaced by larger implements. A. L. Stevens, San Dimas, California.

Retiring from Dairy Business—Will sell one eight unit Calf-Way milking machine, only been used six months. Address J. Devlin, Box 291, Napa, California.

For Sale—Pomona Pump, 28 Head, nearly new, with 25 hp Bean Distillate Engine. W. F. Phillips, Terra Bella, California.

For Sale—Two Bemis Transplanters, only used once, good as new. Apply to John A. Hill, Box 491, San Jacinto, California.

3-inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2.

TURKEYS

For Sale—Eggs from Mammoth Bronze turkeys "Gold Nugget" strain. CARRIE ANDREWS, 121 Sonora Street, REDLANDS, CALIFORNIA.

Giant Bronze Turkey Eggs. Can fill orders for latter April and May delivery. Other eggs sold. M. M. Reiman, Planada, California.

For Sale: Bourbon Red Turkeys.—Eggs for hatching $5.00 per setting of 13 eggs. Book your orders early. Albert E. Balmer, Martinez, California.

Orders Booked for Bronze, also Mammoth Bronze Turkey eggs. Robinson Turkey Ranch, San Dimas, California.

ENGINES

For Sale—1 Holt 75 H. P. Engine. Been used about 3 months; also 1 Holt 45 engine, the old type but in good shape. Also 46 acres of land. R. MANGOLD, Orange and Long Beach blvd., Compton. Phone Compton 23.

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale—Bean Tractor. Entirely rebuilt by Bean's service man, renewing worn parts and adding all new features of 1919 model. W. C. PAINE, 4934 Malta Street, Los Angeles. 39484.

For Sale at a Bargain—18-35 Yuba Ball Tread Tractor in first class mechanical shape; plows and double disk harrow included. Apply D. P. Corcoran, Gridley. Phone 33-F. 24.

For Sale—40 H. P. Fairbanks-Morse gas engine in first-class condition—used two seasons. P. O. Box 251, Santa Ana, California.

A Samson 10-25 practically as good as new. Foss Bros., Lakeside or C. E. Foss, Alpine. Both parties addressed S. D. Co., California.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 S. Los Angeles St., Los Angeles.

HORSES

For Sale—Pure bred young shire stallions and fillies in foal to the champion stallion Rothwell Forester. Also registered Shorthorn bulls, ready for service, and a few yearling jacks and jennets. Ranch 49 miles west of Spokane and 10 miles west of Davenport on Sunset Boulevard. G. M. Wilson, Rocklyn, Wash.

HOGS

O. I. C. BREEDER'S NOTICE
I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLITS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

HOGS

BERKSHIRES BERKSHIRES

ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

BERKSHIRE BOARS AT 2c
SPECIAL OFFER
To introduce my world and national grand championship blood to farmers and breeders, I will sell a limited number of boar pigs, 6 to 9 months old, at two cents above the market price. They are by Baron Duke 201st, national grand champion, Winona Lee Champion 6th, first prize junior yearling 1917 State Fair, and from 650 pound prize winning sows. We will sell nothing that we would not use ourselves. Sandercock Land Co., 906 K St., Sacramento, California. In charge Natomas Land Sales.

BERKSHIRES GUERNSEYS
GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
A. B. HUMPHREY,
Escalon, San Joaquin County, California.

"GROW THEM OUT"
BERNSTEIN'S PIG SALE
Sat., April 26th, '19, I will sell sixty-five registered Poland-Chinas to the highest bidder. A few bred sows and service boars. All the rest are PIGS from weanlings up to gilts ready to breed from fall litters. Come and BUY THEM YOUNG AND GROW THEM OUT. W. Bernstein, owner. Write for catalog to W. T. Dice, Sec., Box 374, Hanford, California.

We are sold out of Durocs all except two dandy boar pigs, six months old, sired by the great King Orion and out of King's Pride, a daughter of Kings Col., who won more prizes for get than any sire in the country. These pigs are big, long, high boys, cholera immuned, tuberculin tested and guaranteed right. Send for full information about them. Elliott-Brant Rancho, Owensmouth, California.

Billiken Chester Whites, are all sold except one yearling boar. Am booking orders for spring pigs to be shipped at weaning time. Can still accept a limited number of orders. My boars and sows are of the best blood and most approved type and the pigs I will have to offer will be equal to the best that can be obtained anywhere. C. B. Cunningham, Mills, California.

SWEETWATER DUROC JERSEYS
NOW is the time to buy a boar. We have a choice assortment of big stretchy fellows. Our herd has produced more champions and foundation animals of merit than any herd on the coast. Great Model and Grand Golden Model pigs make good. WINSOR RANCH, Bonita, San Diego Co. Address R. K. Walker.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

CASTLEVIEW
Giant Type Berkshires.
We are booking orders for spring pigs from Grand Champion sows and sired by Mayfield Rockwood, sire of Champion barrow at 1919 Western Berkshire Congress.
Castleview Ranch, Santa Rosa, Calif.

For Sale—Poland China — Quality type. Young stock of boars and gilts for sale at all times. At the head of our herd stands some of the best blood—Superba and I. B. A. Wonders, the World and State Champions. Poland China Ranch, C|o H. B. Peake, Mgr., 358 11th Street, San Bernardino, California.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

For Sale — Berkshire boar Pacific Star Masterpiece 2nd 241131—2½ years old. Nil Goethes Masterpiece 198190, dam Star Belle Betsey 226782. Splendid herd header. J. E. Moltzer, Van Nuys, California. South Sherman Way, corner Rita Street.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Registered Duroc Gilts—Ten Sept. and seven June gilts, two bred sows. Well grown, good breeding, reasonable price. J. J. Prendergast, R. 2, Box 87A, San Bernardino, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

Bargains in Poland China Sows. All immune. Good mothers and prolific. Registered stuff. Also boars. Write for details. N. C. Hansen, Coachella, California.

MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Duroc-Jerseys — We breed the champions. Peter, Lamson & Walker, Devore, San Bernardino County, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. Our chix are doing fine where others are not. Will hatch 1500 to order for May 7th at $180 per 1000. Hatching eggs by the thousand $75. A few settings from our high record hens at $5.00 per 15. Only about ten dozen of our second season hens yet to sell. Eleven of these hens and a 200 egg male will make you a good breeding pen, $25 f.o.b. ranch. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially Interesting Circular and Price List ready January 1. H. W. Archibald, Soquel, Santa Cruz Co., California.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs $2.50 per 15. Chicks March and following months 30c each. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose.

Super Quality White Leghorn Chicks, hatched right in Jubilee machines from best strains of foundation stock. Our customers come back each season, we can refer you to them. Write at once before we are all sold out. Newton Poultry Farm, Los Gatos, California.

Hatching Eggs—White Leghorns, Light Brown Leghorns, Dark Brown Leghorns, White Rocks, $2.50 per 15; $10.00 per 100. All bred to highest possible standard of beauty and utility. Mahajo Farm, P. O. Box 597, Sacramento, California.

S. C. R. I. Reds Exclusively. Pacific Coast Aristocrat strain. Baby chicks and hatching eggs from high class exhibition Hoganized stock. Order early. Rosedale Poultry Farm, Route A, Box 200D, Ceres, California.

Sly's Rhode Island Reds winners and layers. Hatching eggs from high-grade stock scientifically bred for exhibition and utility. Settings $5.00, $3.50 and $2.00. Send for catalogue. Albert Sly, 1644 Middleton Place, Los Angeles.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

Hatching Eggs — Oregon Agricultural College Barred Rocks, from 200-egg hens, $1.50 per 15, $2.50 per 30; $7 per 100. W. M. Tetherow, Central Point, Oregon.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California.

White Wyandottes fine cockerels for sale. J. C. Fishels & Son Strain, $5 and $7 each. Eggs $3.00 per 15. J. W. Nicholson, Wasco, California.

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo. Schmitt, Box 263, Corcoran, California.

Black Minorca and Buff Wyandotte eggs $1.50 per setting. Chicks 20c each. A. G. Moore, 432 Ulysses street, Los Angeles.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Choice White Wyandotte breeding cockerels, $5.00; eggs $3.00 and $5.00 per 15. Baby chix. R. W. Stawetski, Route B, San Jose, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Schellville, California.

Save the Baby Chicks—Write today for our valuable free booklet "Making Every Chick a Chicken." Box 593, Modesto, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

For Sale—Pit game cocks. Address F. B. Pritchard, Clarksburg, California.

POULTRY

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns, CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Setting Eggs from the Sunny Slope Poultry Ranch is sufficient to warrant quality of production. We will sell setting eggs only during 1919. If you want birds that will produce quality and quantity, place your orders with us. You will then ever be a satisfied customer. Sunny Slope Poultry Ranch, Longden Ave., Box 789, San Gabriel, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for twenty years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

For Sale—Eggs from White Muscovy Ducks, 25c; Mammoth Bronze Turkeys, 25c to $3 each; Mammoth Toulouse Geese, 50c to $1 each; setting White Wyandotte Eggs, $1.50 to $3. Guinea Fowl, $4 a pair. A few choice Toulouse Ganders, $15 each. All stock blue ribbon winners. Paradise Valley Poultry Ranch, National City, Cal.

Baby Chicks Every Week. Order early and get the date you want. White and Brown Leghorns, Rhode Island Reds, Barred Rocks, Anconas; also hatching eggs. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

Finest Hatchery in the World. Chicks, White Leghorns, Rhode Island Reds, 10s, 1000s, hatched right in our $60,000 brick and concrete hatchery from our Hoganized heavy layers. Stock, eggs. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

Book Your Orders with the Stevenson Hatchery, 19 Center Street, Watsonville, California, for Day Old Chicks Black Minorca, Barred Plymouth Rocks, White Leghorn or Anconas from first class utility stock.

Baby Chix R. I. Reds, Barred Rocks, Brown and White Leghorns from Hoganized stock, bred to lay. Reasonable prices and pleased customers our aim. Tobener Hatchery, Washington Avenue, San Jose.

Wanted—1000 Poultrymen to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Imschweiler, Box 70, Inglewood, California.

Bowen's Famous White Minorcas—Eggs from special matings: Yard No. 1, $3; Yard No. 2, $2.50; Utility, $2 per 15; $8 per hundred. T. H. Bowen, Box 276, Santa Ana, California.

White Wyandotte setting 15 eggs, $2.00. Mission 281. G. O. Tetley, 190 Edgewood Place, Riverside.

Rhode Island Red Eggs for hatching. MRS. RICHARD HOLDRIDGE, P. O. Box 282, Dixon, California.

MISCELLANEOUS

THE SILOS OF SILOS

The cheapest, best and most practical silo on the market. Write for booklet.
THE LEWIS COMPANY.
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San Jose, California.

For Sale or Trade—Half interest in well established motor machine work, repairing and welding business, including agency for well known lines. Present manager taking other half. Will sell or trade for ranch and some cash to get outdoors. Consider half worth $25,000. Address T. E. B., Care California Cultivator, Los Angeles.

You are Losing Money if you farm without a soil analysis. Write me today for free proof of this statement. I can show you. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, California. Phones: Office Pico 843, Residence West 702.

EARL A. HOLCOMB
SOIL LIFE.
Free Bureau of Testing and Advice on all Horticultural and Agricultural subjects. 1622 Washington Bldg. Phone 62907. Residence 16116. Los Angeles.

Made of Redwood. Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Ranchers—Be business-like. 250 XXX envelopes with route, town, state printed, $1.10; 500, $2.00 prepaid. You pay that for blanks. Get our prices. Poultry printing, specialty. Elgin Printing Co., Fresno, California.

For Sale—Virginia Peanuts from high yielding field, 40 lbs. or over, 15 cents lb.; less, 18 cents lb. J. H. Parker, Hemet, California.

For Sale Ten Thousand Nursery Stakes, ¾x¾ inches, 3 feet long. Address 508 West Grove Street, Visalia, California.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches. ARNOTT & COMPANY, INC. The Yellow Front. Established 1892 112-118 S. Los Angeles St. Los Angeles.

CATTLE

HOLSTEINS AT AUCTION

On Saturday, April 26th, Napa State Hospital, Napa, Cal., will sell from its noted herd of grade Holsteins 20 fresh and springing cows; 50 bred heifers, about 20 of them springers; 30 unbred heifers. The 117 milking females in the herd, including many 2-year-olds with first calf, averaged 11,503.6 lbs. milk last year. Some of these cows, and daughters of the best cows in the herd, bred to the great Napa State Hospital herd bulls, including a son of the world's record cow, Raphaella Johanna Aaggie 3d, will be sold. Registered sires used in the herd for the past 14 years; herd tuberculin tested for ten years. Eight choice registered Holstein bulls will also be sold, out of dams with official records up to over 29 lbs. butter in 7 days. Everything over 6 months of age tuberculin tested. Sales manager, C. L. Hughes, Sacramento; auctioneer, Col. Ben A. Rhoades, Los Angeles.

We have one or two Guernsey bull calves left old enough for service and several youngsters. All out of A. R. cows with big records and sired by the best blood in the country. You need a Guernsey bull to put color, flavor and butter fat in your milk. Herd free of tuberculosis by state test. Write for full information. Elliott-Brant Rancho, Owensmouth, California.

SHORTHORN CATTLE, SHROPSHIRE SHEEP. Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., California. W. P. Dwyer and W. S. Guilford, Owners.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Keep On Herd Jerseys are great premium winners, young bulls and heifers offered. Dr. H. W. Hand, Orland, Calif.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

Ayrshires—Pure bred bull calves ready for service. Redwood Ayrshire Farm, La Honda.

SEEDS AND PLANTS

Dwarf Milo Seed for Sale—This seed was grown in the San Jacinto Valley and is the best from 400 sacks that was raised on 10 acres of land which is an average of a little over two and one-half tons per acre. This seed is large plump grain and well matured. Price $6.00 per hundred, f. o. b. San Jacinto. W. L. Helwig.

Your Garden Will Not Be Complete unless you have a few hills of the world's finest muskmelon, "Casad's Special," a heavy yielder, vigorous grower, long season, grows where others won't. Send for seed package, 25c. Roland C. Casad, originator and grower, Covina, California.

Sudan Seed—First class in every respect. Plump and well matured. Free from Johnson grass. Price f. o. b. Napa, 12½ cents a lb. for 100 lbs. or more; 15 cents a lb. for less. Prices quoted on carload. T. H. Stice, M. D., Napa, California.

Positively Thornless Mammoth Blackberry, found native at Mountain Pass Ranch, Jamestown, prolific, ripens early. Berries mammoth size, practically seedless. Plants ½ doz. $1.50. G. S. Wills, Box 125, Jamestown, California.

For Sale—Sudan Seed, government tested for Johnson grass, 18c per pound or $15.00 per hundred. Free delivery until April 1st. G. A. Spencer, Jamacha, California.

Everbearing Strawberry Plants. Americus, $1.50 per 100, $3.00 per 250. Send for catalog. F. I. Moffet, Ellensburg, Washington.

Peruvian Alfalfa, Amber Cane, Milo Maize, Sudan Thousand-headed Kale, Artichokes, Seeds. Write for circular. Box 501, Fowler, California.

For Sale—Fancy re-cleaned amber Sorghum and Sudan grass. Also handpicked seed beans any quantity. Aurora Seed Mill, Stockton, California.

Onion Plants—1,000,000 California Red, 75c per 1000. Now is the time to plant. Monroe, The Tree Man, Orland, California.

Our New Hardy Hybrid Alfalfa beats the best, don't compare with others, but write for facts. J. L. LAWSON, San Jose, California.

Fenton's Hybridized Dahlia Seed. The World's Best. 35 seed, 50 cents. Fenton's Dahlia Farm, 771 Buena Vista Avenue, San Francisco, California.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees, Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

Rhubarb Plants — Wagner's Giant Crimson Rhubarb plants, extra clean, 50 cents per dozen, $3.0 0per haundred. Currier Bulb Co. Seabright, California.

For Sale—Florida Sour orange seed and California sweet seedling orange seed. Order early. Milo Hunt, Whittier. Phone 250

Giant Sudan or wonder plant seed. Greatest, best ensilage producer known. C. H. Benedict, Riverside.

For Sale—Yellow Sweet Potato Plants, $5 per 1000. W. L. Lutz, R. 3, Box 7, Santa Ana.

RABBITS

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

FARM LANDS FOR SALE

FATTEN YOUR SHEEP CLOSE TO MARKET

I own one of the finest 4000-acre sheep ranches in the United States, located in Michigan; well sheltered and grassed; well watered by trout stream and 20-acre spring lake; woven wire fenced; all good agricultural land. R. R. station and loading pens on ranch. Only 160 miles to Chicago. Ready for immediate occupancy. This ranch will feed 10,000 sheep. Have decided to make California my future home and will give someone a bargain and easy terms, or will consider exchange for Southern California.
W. J. REYNOLDS,
1004 Hollingsworth Bldg., Los Angeles, California.

ALBERTA THE WHEAT GRANARY OF THE WORLD AS CALIFORNIA IS THE FRUIT-BASKET.

We own and control several thousand acres in the choice farming districts of Alberta. Our improved lands are in farms of from 500 to 1600 acres and each farm has considerable acreage ready for spring crop. Our raw lands are in proved districts, surrounded by improved farms. Prices range from $15 up. Small cash payments, balance long time yearly and crop payment. The F. W. Anderson Mtge. & Investment Co., 501-5 Hutton Bldg., Spokane, Washington.

For Sale—560 acres land, Government Patent in San Luis Obispo County, 12 miles from Santa Maria. Good grazing and timber land. Four room house, big barn and outbuildings. Fruit trees, vines and berries. Stock and growing crops go with place, nearly all fenced and cross fenced, well watered, soft water at house. All farming tools go with ranch. For full particulars address: W. W. Palmer, Santa Maria, California.

VAN NUYS

For Sale—20 acres close to Van Nuys and car line. Aqueduct water. Part medium heavy, part lighter soil. Fine for alfalfa and corn, hogs or dairy. Near L. A. Creamery 1000-acre dairy ranch. $550.00 per acre. W. P. Whitsett, owner and developer, Van Nuys properties. Phone 23, Van Nuys, California.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

Ideal Dairy and Hog Ranch—160 acres, fenced and X fenced, 90 acres alfalfa, 50 acres barley. Cow barn and stanchions for 25 head cows. Cream house, electric separator, plenty water, $175 per acre. Can add cattle and hogs, if wanted. For terms address C. L. Barnett, Owner, Shafter, Kern County, California.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator, Box B. A. J.

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For Sale—320 Acres Alfalfa Land, including water, located in Kings Co. Price, $100 per acre. Will divide, terms. J. A. Elliott, owner, 130 E. 25th street, Los Angeles. Phone 63247.

For Sale—40 acres good land cheap irrigation tax. Price reasonable. Terms. R. A., Box 260-A, Escalon, California.

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A HOME LIGHT SHINING

From far along the country road I see a
star of light;
A faint, wee gleam from out the gloom
and mystery of night.
To me, it means a world of things—a
hearthstone and a kiss;
A rest-place that is mighty fine in work-
a-days like this.
I know that loving arms are wide—that
children wait for me,
That I will have them all around and
climbin' on my knee.
A gleam of light against the dark,
The home-torch of the heart.
And heaven must have lit th' spark
That plays so sweet a part.

One window, gleaming in the night, and
yet its yellow glare
Can speak a language of its own; of dear
ones waiting there.
I grow to look for it—and stop—a mo-
ment, then speed on,
What sudden heart-ache if it failed—I
looked, and it was gone.
No light-house on a rock-ribbed coast
could play a nobler part,
The dear home star that lights a path of
gladness to the heart.
A farm, half-hidden in the hills,
The acreage of thrift,
But it's the love in them that thrills
And makes the precious gift.

—W. Livingtone Larned, in Hoard's Dairman.

THE STATION MADONNA

AS THE TRAIN moved out of the brilliantly lighted station into the starlit darkness of the winter evening, Ellinor Davenport leaned back in her seat and closed her eyes.

"At last, I can think it out," she said with a sigh of relief.

She had the sensation of having hurried breathlessly; yet, as a matter of fact she had received the telegram with at least outward calmness, her preparations for leaving home had been made rapidly but methodically, and she had entered the station in ample time. The tumult had been within.

Was it only three hours ago that she had been reading her paper before the members of the Monday Club in Mrs. Barton Thornaby's white and gold parlor? How much she had put into that paper! It held the cream of her thinking, of her living, for the last five years. "The Obligation of Personality" was the subject, for she had been assigned to the division of ethics in the club's work. Last year she had been in the household art division and many had spoken admiringly of the careful and exact knowledge displayed in her paper on ceramics and she had been gratified by their praise, but this was different. She had put her best into this paper and its reception had moved her deeply. She seemed even now to see the earnest faces turned toward hers, and one passage still seemed echoing in her ears: "As women we have been too ready to let others assign to us our part in life, too ready to take up the burdens that others are thoughtlessly willing to place upon our shoulders. Our lives are in our hands to shape and mold, and to our own souls we must answer if we allow ourselves to be cheated of our heritage and our days and years filled with irrelevant things."

"Let me congratulate you, Mrs. Davenport," Mrs. Barton Thornaby had said to her as she was leaving, "not only upon your admirable paper, but upon the growth which it attests. If we are not careful, you will outstrip us all in the spiritual race."

Mrs. Thornaby was both a social and an intellectual queen and praise from her was sweet. And then she had been driven home and the maid had met her at the door with the telegram.

"The boy left it not ten minutes ago, ma'am."

She had opened it unhesitatingly. No doubt it was from her husband to say that he would be unable to reach home that evening, but instead she read,

"Mabel is dying. Can you come? Tom."

Tom was her only brother and Mabel was his wife. She had never been strong and for the last year had been an invalid, but it was a shock to learn that she was dying. Closely following upon the shock, she had been conscious of a feeling of irritation, and even before she had laid the slip of yellow paper down she had said to herself,

"Tom will ask me to take Marjory."

All the while that she was preparing for her journey, she was conducting an inner argument with Tom. She had felt it a relief that her husband was out of the city, for she knew instinctively that he would side with Tom. And now that she was on her way, the necessity for action gone, the tumult within seemed to increase though she was conscious all the while of its unseemliness. But why should she, she asked herself, why should she take Marjory, a two year old baby who would interrupt all her pursuits, interfere with all her plans, turn her life upside down? Tom had no right to ask it. Why had Tom married Mabel? She had never approved of the marriage, never been really reconciled to it. It had been but the confirmation of her foresight when Mabel had proved sickly and inefficient, a hindrance to Tom financially, socially, every way. And now it was in keeping with all the rest that Mabel was going to die and shift her responsibilities onto others. Well, at all events, she would not be the victim. She would be true to herself, cost what it might, for she knew that it would not be easy for her to resist Tom.

She looked out into the fast deepening darkness. Now they were nearing a town and numbers of little houses went scurrying past, the lamps that were lighted within giving her glimpses of the occupants. At the open door of a comfortable looking farm house, a little girl and boy stood waving energetically at the passing train. It made her think of herself and Tom when she was curly haired little Nell Hunt, years ago—Ah, how long ago it seemed—and Tom her constant playfellow and companion. They had lived in just such a white farm house, and after the new railroad had been built through the south pasture, how often they had stood on the porch and waved at the trains. As she grew older, how she had dreamed and romanced about the people who rode on the trains. Now she was one of those people and little Nell Hunt had faded into the past! Well, one could not be a child always. She was glad that she had had such a happy childhood, but she was not dissatisfied with her present life. She had had some sore trials and the glamor, of course, was gone, but she had a good husband, a pretty home, a comfortable income, and a congenial social life, so what more could she ask? If her baby had lived—but the sharpness of that sorrow was past and she had grown used to her empty house—ah, how empty it had seemed at first. It was with the idea of forgetting this great sorrow that she had plunged into study and unceasing activity in her clubs, and now this new order had come to mean her life and happiness, so she thought.

"No," she told the porter, she did not care for dinner, but she was tired and he might make up her berth at once. But when her preparations for the night were completed and she had lain down, she found she could not sleep. Thinking of her childhood had brought thoughts of her mother. What a dear mother she had been! Picture after picture came up from the past. How many little school day pleasures had been planned and made possible through her mother's self-sacrificing love. Then she remembered her mother's face on the day that she was married, and next she seemed to feel the pressure of her mother's arms the day her baby died.

"O, Mother," she whispered with a sob, "it's ten years but I miss you yet!"

Poor Tom, he would not have his mother to comfort him in his sorrow. Whatever faults she had found in Mabel, Tom had never seemed to find any and he was such a warm hearted, affectionate fellow, it was going to be hard on him. And how unkind, how unsisterly she would seem to him when she refused to take Marjory.

At last she fell into a troubled sleep, and in her dreams, Tom and Mabel and Marjory, her mother, and even her own little baby seemed to come and look at her reproachfully.

"But don't you see," she tried eagerly to explain, "it is not that I am selfish, but I must be true to myself; I have my own life to live; I can not

The Cultivator Patterns



8740—Ladies' Kimona Blouse. Cut in sizes 36, 40 and 44 inches bust measure. The blouse is to be slipped on over the head and is open at the sides as far as the waistline.

8489—Children's Empire Dress. Cut in sizes 4, 6, 8 and 10 years. The dress has a straight, one-piece skirt gathered to the Empire waistline.

8238—Ladies' Bungalow Apron. Cut in sizes 36, 38, 40, 42 and 44 inches bust measure. The apron fastens down the center back and has the Dutch neck outline.

8543—Ladies' Waist. Cut in sizes 34, 36, 38, 40, 42 and 44 inches bust measure. The back extends over the shoulders and the fronts are gathered to the edges to give the effect of a shallow yoke.

8492—Girls' One Piece Dress. Cut in sizes 8, 10, 12 and 14 years. The inset vest is rolled to form reveres to which the big sailor collar is attached. The dress closes at center back.

8765—Misses' or Small Women's Dress. Cut in sizes 16, 18 and 20 years. The two-gored skirt is gathered all around to the slightly raised waistline, and a roll collar finishes the neck of the waist.

8729—Ladies' Two Gored Skirt. Cut in sizes 24, 26, 28, 30 and 32 inches waist measure. The two gored skirt is gathered at the sides and back to the slightly raised waistline.

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Los Angeles.

urn aside just to gratify Tom." Still those reproachful looks were bent upon her, and it was a relief when she awoke. She drew aside the curtain and looked out into the gray of early dawn. The train was standing still; they were probably taking water for the town was a mere handful of houses and there were no passengers coming or going. Ellinor's window was directly opposite the little station house. The waiting room was closed and empty, but at the other end of the building a door stood partly open and she could see that the room contained a bed and other articles of household furniture. No doubt the station master had his home there. Presently a tall, dark haired woman came and stood in the doorway. She held a baby in her arms who looked with grave eyed wonder at the train. The mother had thrown a long, dark red scarf over her head and the ends were wrapped about the child. Her face and figure had at once the roundness of youth and the firmness of maturity and over her face there brooded the mystic beauty of motherhood.

Ellinor drew in her breath.

"Ah," she said softly, "how lovely! The Madonna!"

As the train moved on, she began to weep, but she knew that her struggle was over. The old ideal with which she had all through the night been wrestling, had in the gray of the morning embodied itself before her eyes, and her resistance vanished.

It was the day before Christmas, a sparkling winter day, that Ellinor made the return journey and the train stopped for a moment at the little station early in the afternoon.

"See, Marjory," said Ellinor, holding the child to the window, "a dear little baby lives in that house."

And once more the mother came and stood in the doorway, with her baby in her arms, and, for a momen,t as the wheels began to turn slowly, the two women looked into each other's eyes and smiled.

USE MORE BEANS

While looking over your recipes and other information this week I came across an economical recipe for soup and some other articles of diet. Now in my humble opinion the writer lost sight of the nutritive values in her over zealousness for economy. Her soup, which should be liquid nourishment, has very little of such value in its composition, the few bread crumbs and the piece of bacon rind making the only thing representing food value.

Now as beans are cheaper than water at present I would say to add a few beans instead of so much water. She has all the seasoning and tastiness necessary. Now I would like to send a recipe for cooking Tepary beans.

How to Cook Tepary Beans

Place beans on the stove in boiling water instead of cold water and for each three teacups of raw beans use a level teaspoon of baking soda. Do not salt until done or add bacon until commencing to soften as salt has a tendency to harden all beans. If directions are followed they will cook in one and a quarter to one and a half hours. If slight sweetish taste is objected to, when they first commence to bubble pour off water and add more. When cooking, cook enough for two meals and next day place the beans in a flat pan and put in a small thin slice of fat bacon (economy squares) for each member of the family and place the pan in the oven and bake for 20 minutes or a half hour and you have a delicious, tasty, economical, highly nutritious meal. According to the University of California the Tepary is slightly more nutritious and more easily digested by children on account of the thinness of the skin.

Tepary Soup

Take left-over Teparys and mash them through a colander, put in two or three tomatoes, a little cabbage (left over or raw) and an onion all cut fine, boil until tender, add seasoning to taste and a quarter teaspoon of chili powder to each quart of soup. Add milk or not as desired and you have a healthful, filling soup that will tempt anybody just to sniff the odor from the cooking.

To Use Surplus Grapes

There are several tons go to waste every year here after the pickers are through, so last fall I tried canning some for pies. I found by crushing them to start the juice and cooking in their own juice they needed no sugar as they are almost too sweet. Cooking a half hour they are much superior to raisins for pies and greatly relished by our family for sauce on the table. These were Muscat grapes but I suppose any other fully ripe grapes would do.—Mrs. V. N., Wineville.

HOUSEHOLD QUERIES

How Can I Use Cull Lemons?

Will some one kindly tell me what can be done with lemons? We sell all our best, and I find over a barrel of fine lemons with no use. Can any one suggest anything? My family won't eat another lemon pie or drink any more lemonade. Also will some one please tell me how to make pie crust? Don't say a half cup full but tell me in tablespoonfuls and if heaping or flat.—A Very Young Wife.

If you are tired of lemon pie and lemonade why not use your lemons to save soap? There is no luxury equal to a hot bath with one, two or more lemons, cut in halves, squeezed and left floating in the tub. The juice softens the water, making soap unnecessary. The oil in the rinds also is a skin softener. The soaked lemon halves turned wrong side out are the finest kind of bath scrubs. After such a bath you have the "velvet skin," "the skin you love to touch" described in costly advertisements of costly toilet preparations. Of course you use lemon juice to give your hair a lemon wrinse. I have a friend who uses lemons only for washing dishes—no soap. She scrapes her dishes clean and uses plenty of hot water. It's good for her hands as well as the dishes.

Have any Cultivator readers other suggestions?

Easy Pie Crust

Here is a recipe for crust for one pie. It is easy to remember, in fact it is called the "One, Two, Three Pie." One cup flour (one cup equals 16 level tablespoons or one-half pint), two level tablespoons shortening, three level tablespoons water, pinch salt (salt varies so much in saltiness that the cook must taste and try), pinch baking powder if raised crust is desired (pinch here means less than one-fourth teaspoon).

Sift flour, salt and baking powder into chopping bowl. Flour blade of chopping knif and chop in shortening (lard, butter, suet or commercial compound) into the flour, being careful to keep flour between blade of knife and shortening as much as possible. When the mixture looks like meal, each little particle of fat being coated with flour, add gradually the cold water, mixing with case knife to make a stiff paste that will stick together without adhering to sides of bowl or knife. Roll into ball with the knife, turn on board lightly dusted with flour, roll about in flour with the knife, then pat with rolling pin into rectangular shape and roll out to thickness required. Dust board with flour when necessary but use as little as possible.

How to Cook Windsor Beans

I am trying to raise Broad Windsor beans for the first time and would like to know what they are good for. The seeds are so different from any other beans that I ever saw that I am puzzled to know how to cook them.—A Reader, Ojai.

These beans are cooked either as green beans or dry. For cooking green, pick pods when they are not more than six inches long. To avoid their turning an ugly color in boiling they should be sliced thin into a bowl of cold water, and whenever the knife used shows any stain it should be wiped clean. Throw off the water in which the pods have been sliced, put into fresh cold water and let stand for about ten minutes. Again put on fresh water with a pinch of soda added and put on to boil. They should not boil for more than three to five minutes. Also they may be cooked shelled like green Limas.

They are also good cooked as dry beans, though the skin is rather tough. Put beans in cold water with about half a teaspoon of soda to enough beans for four people. As soon as they begin to boil, remove from the soda water in strainer, dipping immediately into cold water. The skins then can be easily rubbed off. Put back into the soda water and boil until cooked.

Let Your Children Learn on a Good Piano

A poor piano has no musical quality of tone. This lack of tone quality is a serious menace to the "ear." Also in a poor piano the action is hard and irregular and the fingers and hands are improperly trained. Therefore if you intend to have your children learn to play, provide them with a good Piano. Consider quality and not cheapness—a good reliable dealer has good Pianos at moderate (not cheap) prices.

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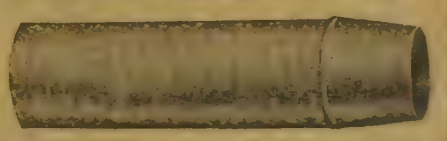
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Los Angeles Market

Los Angeles, March 26, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price, 58 lb.; prices to retail merchants in 1-lb. squares, 61-62.

Dairy exchange prices last week on extras:

Mar.	19	20	21	22	24	25
'19 ...	58	58	58	58	58	58

CHEESE

Brokers' prices:
California fresh, lb. 30

EGGS

Fresh extras, Produce Exchange closing price, 44 doz. ;price to retail merchants, 47@49 doz.; case count, Produce Exchange closing price, 42 doz.; price to retail merchants, 45@47 doz.; pullets, Produce Exchange closing price, 40 doz., price to retail merchants, 43@45.

Dairy exchange prices last week on extras:

Mar.	19	20	21	22	24	25
'19 ...	42	42	42	42	42	44

POULTRY

Prices to producers: Hens, 32-33; broilers, 42@50; fryers, 42; roasters, 34; old roosters, 18 capons, 43 ducks, 34; ducklings, 34@35; geese, 28; turkeys, 34@39; squabs, 55.

Belgian hares 17.

LIVE STOCK

By F. P. Allen, Bureau of Markets, Los Angeles

The local market for cows of all grades is in much healthier condition than the steer market. The cow market is firm while the steer market is only steady. Some cattle feeders in this locality who have steers ready for market claim that Los Angeles slaughterers will not bid on their steers, giving various and sundry excuses for their action. It does seem to be difficult to market steers in this city, and local cattle feeders do not care to suffer the punishment that local dealers will mete out to them if they ship their stock to other markets: hence the situation is not the best. Hogs continue very scarce. The market is very strong even for the hogs that now comprise the receipts which are below the normal standard of quality.

Lambs that are not heavy are steady. Spring lambs are firm.

Light ewes are firm under moderate receipts. Heavy ewes are weak.

The following prices for classes and grades of live stock represent those being paid by local killers f. o. b. Los Angeles County point prices are usually $1.00 to $1.50 less than these figures dependent upon the distance from this city.

Good steers .....13.50@14.50
Medium steers .....11.00@12.00
Common steers .....9.50@10.50
Good cows .....11.00@12.00
Medium cows .....9.00@10.50
Common cows .....6.00@7.50
Hogs No. 1, 175-225 lb. .....17.50@18.00
Hogs No. 2, 250-400 lb. .....16.50@17.00
Feeder hogs .....14.00@14.50

Above prices are for grain fed hogs in carload lots, f. o. b. Los Angeles.

Lambs No. 1, 55-70 lb. .....16.50@17.00
Lambs No. 2, 65-80 lb. .....15.00@15.50
Wethers No. 1, ...11.00@12.50
Ewes No. 1 .....9.00@10.50

POTATOES AND ONIONS

These are the actual prices obtained March 24 by Los Angeles wholesalers in in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.
on walk.

Demand and movement good. Prices slightly higher. Stockton Burbanks, quality and condition generally good; sacked per 100 pounds, extra fancy 2.75@3.00; Idaho Russets, quality and condition fair, 2.10@2.15; rurals, 1.90@2.00; Oregon, seed stock, White Rose and Red Rose, sacked per 100 pounds, 2.85@3.00; homegrowns, White Rose, best mostly 2.75@3.00.

Carlots: Seven cars Idaho, six cars California arrived; 16 cars on track unbroke, one car diverted. Demand and movement good, prices slightly higher. Closing prices Saturday, carlot sales to jobbers: Stockton Burbanks extra fancy 2.50; Idaho Russets, 2.00@2.05.

Sweets, lug box best 1.35@1.40; sacked 3.50@3.75 per cwt.

Onions: Demand and movement moderate. Little change in prices. Stockton, sacked per 100 lb.; Browns, best from cold storage, 4.25@4.50; White Globes, 10.00@11.00; Homegrown green onions 15 bunch.

VEGETABLES

These are the actual prices obtained March 24 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz. .....1.00@1.25

Asparagus: Imperial Valley, green, No. 1, 25@30 lb.; Northern Green, 17@20 lb.

Cabbage: Sales to retailers, best cabbage, 2.25@2.50 crate.

Carlots: Prices advancing. Quality generally good, condition fair. Carloads f. o. b. usual terms: Early Winningstadt, California crates, best 60.00@65.00, few 70.00.

Carrots, doz. 45

Cauliflower: Best in cabbage crates, 2.75; poorer, 2.00.

Celery: Homegrowns, best, 8.00@8.50; poorer, 5.00 per crate.

Lettuce: Sales to retailers, best lettuce in cabbage crates 1.75, poorer 1.25@1.50.

Carlots: Demand good, little change in prices. Wide range in prices according to size and quality. Carloads f. o. b. cash track: Iceberg, California crates, Imperial Valley, large 3.25@3.75, medium 2.75@3.25, small low as 2.25, Los Angeles district—mostly 2.25@2.75.

Imperial Valley Iceberg stock ranged 2.75@3.75 per crate at shipping points and was irregular at a general range of 4.00@5.25 in Middle Western jobbing markets.

Parsley, doz. .....20@25

Peas .....6@
Peppers, Chili, lb., best 2
Bell, lb., best .....
Radishes 1
Rhubarb: Local Crimson and Strawberry, 2.10@2.25 bx.; Northern Strawberry, fy., 3.50 bx.
Spinach, doz. .....
Squash—Hubbard, best, lb. .....2½@
Tomatoes, Mexico, condition generally good; best, 2.75@3.00 lug bx.
Turnips, doz. .....

FRUITS

These are the actual prices obtained March 24 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels restaurants, cafeterias, etc. Terms Cash on the walk.

Apples: Yellow Newtowns, fy. medium size 3.00@3.50; loose 7 lb. Oak Glen Rome Beauties and Pearmains, 3.00@3.75; Winesaps, 3.75@4.00; Yucaipa, Delicious, fy. large size, 3.00@3.50.

Pears: Winter Nellis, lb., 6@7.

Lemons: Fy. packed, 4.00@4.25; local pack, 3.50@4.00; loose, some tree ripe 1.75@2.00.

Oranges: Navels, medium and large size, fy., 4.25@4.75; local packed, 3.00@4.00; Tangerines, 6@7 lb.

Grapefruit: Local fy., 2.50@3.00 bx. Imperial Valley, 3.00@3.25; Tulare County, 2.75@3.00.

HONEY

Demand improving account of the increasing export demand. Little change in prices, remaining supplies very light. Carloads f. o. b. usual terms, California extracted light amber sage, 17½@18 lb. light amber alfalfa, 15½ lb.; Idaho extracted white alfalfa, no sales reported asking 18 lb.

BEANS

Demand slow, little change in prices, market somewhat unsettled account of growers forming a pool to stabilize prices. Warehouse cash to growers, choice recleaned sacked per 100 pounds: Limas 6.50@6.75; Henderson Bush 5.25@5.50; Small Whites strictly undamaged 5.50@5.75; Yarge Whites strictly undamaged 5.75@6.00; Blackeyes 3.00@3.25; Tepary, no sales reported. Trade is practically at a standstill in eastern producing sections, a better tone prevails in Southern California, where sacked recleaned Limas advanced to 6.75 to growers. This same stock was stronger in terminal markets at 7.50@8.35. Sacked Michigan and New York pea beans were about steady in Eastern jobbing markets at 7.00@7.75. Shipments were below the recent average.

GRAIN AND FEEDS

For government prices on wheat see San Francisco market.

Carlot prices on local grain exchange. Corn, sacked Yellow, 2.91¼, White 2.77
Wheat .....43.00@43.
Milo .....2.66¼@2.
Barley .....2.35@2.38
Midlings .....43.00@52.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; hauling and commission must be added to obtain retail prices:

Tame Oat .....19@
Barley .....18@
Alfalfa .....16.00@20.

The Alfalfa Growers of California, Inc. 525 Central Bldg., Los Angeles, furnish the following quotations on alfalfa hay. Below are its selling prices to carlot purchasers f. o. b. cars Los Angeles:

No. 1 dairy.....24.00@25.
Standard dairy .....21.00@22.
Standard Alfalfa .....18.00@19.

San Francisco Market

San Francisco, March 25, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale dairy produce exchange. These are the prices paid by retail grocers to wholesalers. The price paid by wholesalers to producers is eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in square add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in carton 1½ to 2½; 1-pound squares, in carton 2c to 3c.

Dairy Exchange quotations, lb.:
Extra 59
Prime Firsts .....Nomin.

Prices extras past week and year ago.

Mar.	18	19	20	21	22	24
'19 ...	60½	61½	61½	61½	61½	59
'18 ...	47½	45½	45½	46	46	

Rcts. wk. ending March 24, 440,300 lbs

CHEESE

Dairy exch. quotations:
Cal. Flats .....
Ore. Triplets 38
Jack, full cream .....25@

EGGS

The prices paid by wholesalers to pr

TEAGUE QUALITY
CITRUS TREES
Orange, Lemon, Pomelo and Lime, bud selected (pedigreed) trees, subject to immediate delivery. Correspondence invited and prices cheerfully quoted.

Founded in 1889

R. M. Teague Citrus Nurseries
SAN DIMAS, CALIFORNIA

lucers are eight per cent less.
Dairy Exchange quotations, dozen including cases:
Extras 44½
Extra Pullets 42½
Prices extras past week and year ago:

Mar.	18	19	20	21	22	24
19 ...	43	43	42½	43	44	44½
18 ...	40½	38½	40½	39½	39½	.'

Rcts. wk. ending March 24, 17,585 cases.

POULTRY

We quote to producers, lb.:
Hens, 37@40; broilers, 50@55; fryers, 55@62; old roosters, 23@25; young roosters, 35@50; turkeys, dressed, 42@44.
Ducks, 38@40; geese, 38@40.
Belgian hares, live, 18@20.
Jack Rabbits, 3.00@3.50.
Squabs, 60@65.

LIVE STOCK

Cattle—Grass fed, on foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. live, 12¾@13; 1200 to 1400 lbs., 13@13¼; second quality, 11½@12; thin steers, 9@10.
Cows and Heifers—No. 1, 9@10; second quality, 8@9; common to thin, 6@7.
Calves—Light weight, per lb., 11½@12; medium, 10¼@11; heavy, 8@10.
Sheep—Lb., gross weight: Wethers, 12@12½; ewes, 9@10; lambs, 15@15½; yearlings, 12½@13.
Hogs—Hard grain fed, weighing 100 to 150 lbs., 17½; 150 to 250 lbs., 18; 250 to 300 lbs., 17½; 300 to 400 lbs., 17.

POTATOES

Per ctl. on wharf: Deltas, 1.50@2.15; Oregon Burbanks, 2.00@2.10; Gems, 2.00@2.15; British Queens, 1.75@1.90; sweet, 3.00 lbs., 4.25@4.75.

ONIONS

Storage, cwt. .....3.75@4.00
Garlic, lb. .....40@75

FRESH FRUITS

Wholesale selling price:
Apples: Demand and movement good, little change in prices. Quality and condition generally good. Street sales: California Yellow Newtowns, fy., 3.25@3.50. Oregon, Yellow Newtons, extra fy. medium to large 3.50. Washington, Winesaps, extra fy. medium to large 3.00@3.50.
Bananas .....6½@7½
Loquats, lb. .....10@18
Pears—Winter Nellis .....3.00@4.00
Common .....1.50@2.00
Strawberries .....1.75@2.50

CITRUS

Box: Lemons, 3.00@4.25; Lemonettes, 3.00@3.00; grapefruit, 2.50@4.00; Mandarins, half orange bx., 3.50@4.00; tangerines, half orange bx., 3.50@4.00; Navel, 4.00@5.25; Mex. limes, case, 8.00@9.00.

GRAIN

Barley: Feed, 2.05@2.15 cental; shipping, 2.12½@2.20.
Oats: Red feed, 2.02½@2.17½ cental; seed, do, 2.50@2.75; recleaned, 3.00@3.10.
Corn: California yellow, 2.15@2.25 cental; Egyptian, 2.70@3.00 for dry and 2.30@2.60 for rain damaged. Milo maize, 2.60@2.75 for dry and 2.30@2.50 for rain damaged.
Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Cental
No. 1	2.20	$3.62 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58½
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.
Mill Feed (per ton): Bran, 42.00; shorts, 42.00; middlings, 42.00; rolled barley, 48.00@50.00; alfalfa, 32.00@34; scratch feed, 2.75 per cental.

HAY

Fancy Wheat hay (light 5 wire bales).....23.00@24.00
No. 1 Wheat or Wheat and Oat Hay .....19.00@21.00
No. 2 Wheat or Wheat and Oat Hay .....15.00@18.00
Choice Tame Oat Hay .....20.00@22.50
Other Tame Oat Hay .....15.00@18.00
Wild Oat Hay .....15.00@17.00
Barley Hay .....15.00@17.00
Alfalfa .....15.00@18.00
Stock Hay (in order) .....13.00@16.00
No. 1 Barley Straw, bale .....50@80
Damaged hay (all kinds), according to condition.

Citrus Fruit Market

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 11,663 cars, lemons 2974, total 14,637. To same date last season; oranges 5486, lemons 1513, total 6999. Central California this season; oranges 2983, lemons 354, total 3337. Last season to same date ;oranges 1900, lemons 113, total 2015. Northern California; oranges 244, lemons 2. Last year same date; 202.

PARTIAL LIST OF CALIFORNIA FRUIT AND VEGETABLE SHIPMENTS

From post card reports to the Los Angeles branch of the bureau of markets, report is made of the following shipment of cars of products from California for the week ending March 24; Apples, 14; artichokes, 7; cabbage, 72; cauliflower, 3; celery, 4; dried apples, 2; dried apricots, 6; dry beans, 68; dried figs, 2; dried peaches, 5; dried pears, 1; dry peas, 1; dried prunes, 30; lettuce, 171; mixed fruit, 1; mixed vegetables, 73; mixed fruit and vegetables, 17; mixed dried fruit, 3; peas, 1; potatoes, 61; raisins, 74; rhubarb, 17; spinach, 5; Mexican tomatoes, 27.

MOHAWK TIRES *and* CONCRETE ROADS

You will find Mohawks excellent tires on concrete roads—better capable of withstanding their frictional and abrasive action. In slippery weather Mohawk treads give your car a good behavior and yourself a secure feeling, essential to your enjoyment and safety.

You are not going to drive on concrete roads all of the time, of course. In fact, we have built Mohawk Tires on the assumption that their users are not fair weather, good road drivers.

Therefore, when you turn off on a bad road, you'll find Mohawks still capable of standing the grind.

Out of the thousands of owners who have bought Mohawk Tires our dealers' records show that 85% have become so attached to Mohawks for these reasons, that they use no other tire. Such owner confidence is worth remembering.

And even with these facts we do not claim for Mohawk Tires anything that any other tire maker, possessed of the same knowledge and skill, might not claim if he used our methods.

For example, we buy only the highest quality, purest and toughest materials the markets offer. We off-set this extra cost of producing Mohawks by operating our plant without financial encumberance of any kind—no watered, inflated stock or bonds. A reasonable return is enough, allowing us to continually maintain our quality.

When you need a new tire you can buy one that actually represents more value for your money if you buy a hand-made extra ply Mohawk.

Good Dealers Everywhere Handle Them

MOHAWK RUBBER COMPANY
AKRON, OHIO
Branches at:
New York Boston Chicago Atlanta Kansas City San Francisco



A GOOD ROAD
—Saves wear and tear on tires.
—saves depreciation on automobiles, wagons, farm machinery.
—saves oil and fuel
—saves time and money, for a good road allows you to get to your destination on time, no matter what the weather or what the season of the year. Perishable produce never spoils in those localities where there are good roads to the nearest town or railroad station. Mohawk tires give an unusual mileage on any road—but the better the road, the longer they serve, naturally.
Are you doing all you can to boost good roads?

MOHAWK "Quality" TIRES

Are You Paying Taxes On Your Stump Land?
Clear It and Make Money.



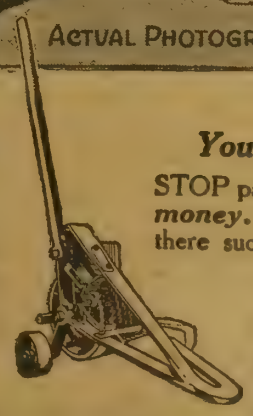
Increase your acreage and you will increase your bank account

Clear your stump land cheaply no expense for teams or powder

ONE man with a "K" can outpull 16 horses. Works by leverage—same principle as a jack. 100 lbs. pull on the lever gives a 48 ton pull on the stump. Made of the finest steel—guaranteed against breakage. Works equally well on hillsides and marshes where horses cannot operate. Endorsed by U. S. Government experts.

Write today for special offer and free booklet on Land Clearing

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Your opportunity is here to-day

STOP paying taxes on your stump land turn it into *money.* Never in the history of the World was there such a demand for the product of the soil.

HAND POWER
K Stump Puller

Man or woman single handed can pull from 50 to 150 stumps a day. Weight without cable 171 pounds. NO STUMP TOO BIG.



'Chain' *'Usco'*

Make Your Car Help

America is asking for a Victory Harvest this year.

Every country's short of everything. You never had such an eager market. Every additional bushel you can make your fields produce means just that much more in the bank for you.

Make your car help. Think of the time, energy and good, hard cash it will save for you! Think of the speed it will put into those trips to town.

Its dependable service means a lot to you.

And there's no such thing unless you give it good tires to travel on.

There's a United States Sales and Service Depot dealer in the nearest town. He will gladly point out the United States Tires that will meet your requirements to perfection.

For the line of United States Tires includes tires to meet any possible need.

There are five different types for passenger cars as well as both pneumatic and solid tires for trucks.

They're all good tires—the best our seventy-six years in the rubber business have taught us to make.

Once you discover what they mean to your car—their wonderful dependability, their real goodness—you'll stick to United States Tires just as tens of thousands of other farmers are doing right now.

Try it and see. Ask our Sales and Service Depot to help you.

United States Tires are Good Tires

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. VII | April 5, 1919 | No. 14



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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

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Saturday, April 5, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

California again bobs up with its greatest ever. That Guaranty Sale, with the guaranties that the buyers knew meant just what they said, surely acquitted itself in true California style. It was one great sale, and one of the great animals, which commanded $5000 at this sale, is illustrated on the cover page of this issue. His name is King Abbekerk Johanna Segis, and he is declared to be worthy of the legend: "Highest record bull on the Pacific Coast." He was consigned by the Bridgfords of this state and purchased by the Mitchells, also of this state. The transfer will be from the Sacramento to the San Joaquin Valley. He boasts a long line of great ancestors and his dam is in the "over-41-pound-class." Later we will give the photograph of the cow which commanded $4000 at this same sale.

GOVERNOR WITHYCOMBE

In the death of James Withycombe, governor of Oregon, the farmers of that state lost their best friend. He was himself a farmer and spent his life advancing the interests of the farming class.

IN SMALLER PARCELS

One of the greater lemon producing properties of California has been the Leffingwell Ranch at Whittier. Established more than a score of years ago, it has made a continuously increasing shipment of lemons and walnuts. A spur from the railway has been built in and great packing houses and store rooms have been built. There are several hundred acres in the place and almost every one of them producing to the limit. This property is now to be broken up into smaller parcels, and while many will learn with regret that such a magnificent place is to be broken into small parcels, the fact is that it will afford sites for a great number of California homes.

COOPERATIVE LAUNDRIES

The "Show Me" state is showing rural residents in other states. In one neighborhood a home maker found it impossible to continue doing her own laundry work and organized her neighbors. They made a bargain with a large laundry to do flat and rough dry work at a low price provided patrons would do their own delivery. Twelve families united in the plan and more reasonable prices were secured by all.

Still better, may not our community organizations have their own laundries and possibly have the advantage of still lower prices and laundry work free from the use of destroying chemicals.

PURE FEEDS

Users of purchased feeds in large quantity are generally experienced and buy only the better grades of standard feeding stuffs at close prices, or secure such materials as screenings, etc., at low prices, fully understanding their composition and relative value. The small buyer, often feeling the pinch of poverty, too frequently is looking for something that sells for less than is demanded for standard goods, and so is the more easily caught by the low-grade, trashy articles often bearing catchy, high-sounding names. Low-grade feeding stuffs, no matter what their names, are almost sure to bring hardship to the animals that are fed on them, and to the owners of such animals as well. Such feeds are really more like roughage than concentrates and roughage can be produced on most farms far more economically than it can be purchased in bags from the feed dealers. Wherever one is in doubt as to what to buy, he should consult the feed control officials of his state or purchase only the pure unmixed grains, straight milling or factory by-products, or proprietary feeds of high grade that have won a good reputation.

The above is from "Feeds and Feeding" by Henry and Morrison and in these few words presents an exceptionally strong argument for the passage of the pure feed bill known as Senate Bill 93 with the Cummings Assembly amendment. Every senator and assemblyman who desires the welfare of the state will vote for this measure. Let Cultivator subscribers call their attention to the necessity for its passage.

SAVE AN INDUSTRY

The output of the California dairy industry is decreasing. The 1917 output of butter was 68,373,021 pounds, that of 1918 was practically 8,000,000 pounds less, or, to be exact, 60,358,595 pounds. These figures are from the report of the state dairy bureau for 1917-18. The report also contains the statement that near Conejo in Fresno County one of the inspectors of the state bureau reported 12 places where dairies have been entirely discontinued. On these places from ten to 30 cows have been milked. Asked for the reason for their discontinuing the dairy business the usual reply was in effect; "High priced wages and feeds." Still worse, some feeders have found such indifferent results from feed for which long prices have been paid that they are absolutely discouraged. Hence the pure feed bill which has been introduced into the state legislature.

With orchardists leading in the campaign for dependable fertilizers the state some years ago was given a fertilizer law which assures the purchaser that he is securing what he is paying for, or at least that he is informed as to what he is securing. Feeds for humans likewise have been protected by state and nation, but concentrates, or the higher priced animal feeds, have no protection whatever, other than that secured by shrewd buyers of large quantities who may make analysis. Fortunately that class of buyers is still able to care for itself, but a great number of less fortunate feeders, compelled by circumstances to buy the very cheapest, are sometimes permitted to purchase feeds of practically no nutritive value.

We have known of one case of an interstate shipment labeled "Mixed Wheat Middlings from Pure Wheat Bran and Ground Corn." The department of agriculture examined this shipment and found that the wheat middlings consisted only of bran and that the ground corn was only ground corn cobs. Another shipment examined by Woll and Olsen, both at that time connected with the Wisconsin agricultural experiment station, was a car of so-called wheat bran, and regarding this "bran" the statement was made. "Each pound of the whole carload contained an average of 28,000 pigeon grass seed, 16,000 wild buck wheat seed, 5000 pig weed seed and many seeds of other kinds."

While we may be permitted to assume that California has no feed dealers who would countenance such transactions, yet for some reason there are some who are opposing the passage of a pure feed bill in the state legislature. It had been supposed that this bill would become a law with scarcely any opposition. It provides that where "fillers" are used in the making of stock feeds they shall be particularly specified in a statement attached to the container. It is known that millers have used corn cobs, corn bran, oat, barley and rice hulls, alfalfa meal, and similar materials as fillers. While corn cobs and grain hulls and similar material contain practically no nutrition, millers who have advocated their continued use in concentrates claim that they fill the place of roughage and aid in digestion. But here the dairymen or live stock man insists that roughage is his cheapest feed and it is sometimes a problem for him to dispose of all the roughage he has and he does not wish to pay for more roughage at the price of high priced concentrates and pay high freight rates on it in addition.

Reputable millers and live stock people are uniting in securing the passage of the bill, but the opposition is becoming emphatic in demanding its defeat or that its usefulness be destroyed by amendments which practically nullify it.

It is time for the friends of dairy production in this state to urge upon every assemblyman and senator in the state that he look to the state's welfare and pass the Higdon Senate bill or with the Cummings amendment as recommended in the senate bill.

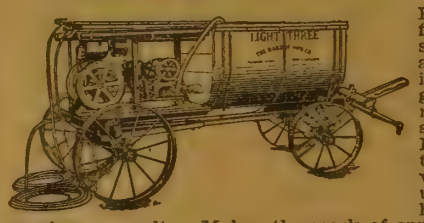
WIRE FROM SACRAMENTO

Suggest making strong story this week's issue supporting Senate Bill 93 in form it came from assembly committee on live stock and dairies, because strong lobby making eleventh hour attack. One lobbyist boasts he has votes to kill bill unless live stock and poultry interests yield to form in which it passed senate with teeth extracted. Obnoxious part to interests is stating specific name of each ingredient used and percentage of such ingredients as corn cobs, corn bran, oat, barley and rice hulls, ground light rice, alfalfa meal or similar materials regarded by feeders as "fillers". In case of poultry feeds percentage of grit or mineral matter is obnoxious to mixers but favored by feeders. Assemblyman Cummings put these features back into bill and refuses to yield. Senator Higdon says he wants Cummings' amendments as it gives live stock and poultry interests kind of bill they want.

Request readers bombard legislators to stand for bill as it came from assembly committee and vote down amendments destroying efficiency of measure. Quick action.—Frank B. Anderson.

18 Years Back of Hardie Sprayers

High Pressure, Light Weight, Large Capacity, Powerful Engine, Perfect Agitation, Simple Construction.



HARDIE POWER SPRAYERS are the final word in sprayers. They represent not only years of experience, but also an accurate knowledge of spraying needs and the conditions that govern spraying. Where spraying is most difficult you will find HARDIE sprayers in the majority.
HARDIE SPRAYERS are noted for their simplicity. No complicated devices to cause trouble when every minute counts. You can put any of the help to work with a HARDIE and get maximum results. Makes the work of spraying easier than ever before.

When you see a HARDIE SPRAYER you will readily understand its superiority. See how compact it is—the few working parts and how everyone of them is quickly accessible. There are 21 HARDIE features that make it the leading power sprayer. The HARDIE CATALOG tells all about them. A COPY is yours for the asking. Send today. You can see a HARDIE at your dealer's.

Hardie Orchard Gun $12.00

The latest HARDIE device made to improve spraying conditions, shoots a cloud of penetrating spray, covers the trees with a fog. Easy to handle. Takes a tiresome load off the arms and does the work in much less time. Fits any high pressure sprayer and increases its efficiency.

Order a Hardie ORCHARD GUN from your dealer or direct from us. Money back if not satisfactory.

The Hardie Manufacturing Company
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A Tale of Two Tractors

By James De Camp

BURKE sells the ——— Tractor. Six months ago he placed machines with Smith and Jones, owners of adjoining ranches about 60 miles down the valley.

Last week Burke dictated a courteous letter to each of his patrons asking for a candid criticism of his product. He said in part: "I am not fishing for testimonials. My purpose in making this inquiry is to find how the ——— Tractor is standing up under the demands made upon it by conditions here in the valley."

Smith replied: "Your machine meets with my unqualified approval. I report with pleasure that it has displaced three teams and I have been able to get along without hiring anyone in the place of Pete, who was drafted and is now in France. The tractor has been worked almost daily since its purchase and for three weeks during the busy season we ran straight through until midnight."

Here is Jones' answer: "I have been waiting for some time and am glad of this opportunity to tell you that your tractor is a bunch of junk. It has been out of fix for nearly three weeks steady now and never gave satisfactory work. It lacks power and does not plow or cultivate deep. I am going back to horses. If anyone is looking for one of your contraptions second hand and has the patience to fool along with this one send them down."

Next morning Jim Simpson dropped into Burke's salesroom. Simpson circulates about selling celluloid collars, lanterns, lightning rods, thread and a whole alphabet of knick-knacks. His cruising radius is about 150 miles, with Willowdale as its center. He knows every man, woman, child, mule and tractor in the district. Burke spread the two letters before him.

Simpson tilted back his derby and grinned.

"There's the answer right before you," he said. "Look at the two letters. Smith's is typewritten on his own letterhead. The paper is not high-grade nor the typewriter new, but the whole thing is neat and businesslike. Jones has used a pencil, misspelled a half dozen words and scribbled on a fly-leaf torn from some catalogue.

"The tractor isn't made that could get along with Jones. I happened down his way about two weeks after he bought the thing. He was ripping up the south meadow with the throttle wide open and the plows slipping along behind rigged up so that they did little more than scratch the ground.

"I flagged him and inquired how long it was since he had decided to put Barney Oldfield out of biz in the speed line. He commenced right away kicking about the tractor.

"'What you burning in it?' I asked, holding my nose. 'It smells like a limburger factory.'

"'Well,' he says, 'the agent told me it was best to use gas. He said I could get along with distillate on a pinch, but I've found that by jimmying around with the carburetor I can use a mixture of distillate and tops. Just makes it kinda' hard to get started, that's all. Most of the boys around here are working their heads off to pay for their high-grade fuel, but I've got the drop on the whole bunch.'

"'Yes,' I told him, 'but you'll probably have to buy a new tractor before the others even run up a repair bill. The fellow that made this sputter-wagon knew just what it needed in its little tummy to make it feel right and step lively. You've only had it a couple of weeks now and it sounds like a bunch of Bolsheviki wrecking a boiler factory.'

"He swallowed that and then stepped around to the off-side and raised the hood. 'Say, Simpson,' he says, 'do you know what these peculiar little brass cups in here is for?'

"I felt like telling him that they were for straining soup, but I explained the function of the priming cups and ended up by asking him why he didn't sit down on the stoop some quiet Sunday afternoon and read his instruction book through.

"'Well,' he says, 'there was some kind of a book in the tool box, but I figgered this theory stuff is all bunk. I let the kids have the book to play with. It's probably burnt up by now. But I sure will try them priming cups. Some days I have had to let her stand until noon before I could get her started.'

"I drove on to Smith's place to spend the night. When I got there Smith was out in the barn fussing over his tractor with an oil can. Mister Rockefeller doesn't keep his limousine in any better shape than Smith does that outfit of his. He told me that he had disked ten acres during the day and would not go back to horses and hay if presented gratis with the 12 best teams in the state. Smith burns distillate, but he had a special carburetor installed and starts on gas from a little priming tank he rigged up himself. He said that he had never had a bit of trouble and always read the instruction book or called in a mechanic when anything came up that he did not understand.

"Smith said that his prospects for a bumper crop were the best in ten years and that the tractor had enabled him to cultivate a neat plot of land that had been set aside for pasturage heretofore. He also showed me how he rigged up a belt connection to run his ensilage cutter, separator, woodsaw and other pieces of farm machinery.

"That night we had a right smart storm and it still looked nasty when I drove back past Jones' place in the morning. There stood his tractor in the middle of the field, just where he had left it when he quit work the night before. He was fussing around trying to get the thing started. I stepped on the throttle and looked the other way—"

"Wait a minute, here's the postman," Burke interrupted.

Burke ripped open the top letter. A grin rippled over his face and developed into a healthy, tooth-paste-advertisement smile.

"What's the matter?" asked Simpson. "Rich uncle die, or somethin'."

"No," Burke answered. "This is from Smith. He is ordering two more tractors and tells me that he has been forced to foreclose on our friend Jones and take over his place. Jones is going back to Los Angeles to work by the day."



Model D, Bates Steel Mule Tractor

A three and one-half foot cover crop being turned under with an eight foot disc harrow on ranch of W. H. Sievers, Placentia.

Guaranty Sale Establishes World Record

ALL Pacific Coast sale records were smashed when 61 head of Holstein bulls and females, many youngsters included, were sent through the Annual Guaranty Sale ring at Sacramento, Thursday, April 27, for a total of $63,775, an average of $1045. Not only was this sale a Coast record, but never before had a one-day sale of Holsteins averaged as much. Thus a world's record was hung up. Furthermore, only four sales of Holsteins have ever surpassed this mark.

The success of the sale was due primarily to the extreme quality of cattle contributed by the leading herds of Washington and California, but much credit must be given to the careful and efficient management accorded the event by C. L. Hughes, sales manager of the California Breeders' Sales and Pedigree Co., and to Auctioneers Ben A. Rhoades and H. C. Cranke. Even more important than the above factors was the evident and willing determination of the buyers in attendance to own the cream of Western Holsteins.

The offering represented 14 of the top herds of Washington and California and it was absorbed by 27 buyers representing California, Washington and Nevada.

A feature of the sale was the number of new breeders participating and the unusual discrimination they displayed in making their selection.

Much interest had been aroused by the offering and there was much speculation as to the general average and the tops. For the most part the prices ruled about as was expected but in many cases, as usually happens, there were plenty of bargains.

The top of the sale was reached when W. F. Mitchell of Visalia made the bid of $5000 for the year old bull

Continued on Page 488



History Makers

Three daughters of Prince Gelsche Walker, consigned by A. W. Morris & Sons and purchased by E. D. Barry, Jr., Daggett, for $4000. Reading from left to right: Dictime Clyde Walker, Princess Lutt Walker Burke and Princess Contenta Walker.



A Great Trio

A mother, daughter and granddaughter consigned by Albert E. Smith of Washington and purchased by Toyon Farms Association, Los Altos, for $6100. From left to right: Ava Model Hengerveld 2d, 30.53 lbs. butter; her daughter, Ava Hartog Pieterje, and the $2600 granddaughter, Korndyke Model Hartog 3d.

Agricultural News Notes of the Pacific Coast

Northern California

Rice planting has begun.

Butte County's spinach harvest is under way.

Hayward is harvesting its first commercial crop of spinach.

Marysville, Yuba County, is planning for a tractor convention.

Next week will be a great live stock week at the University Farm, Davis.

Susanville, Lassen County, reports ice on Eagle Lake 18 inches thick.

Paradise, Butte County, is making a special campaign against pear blight.

It is said that fur dealers are now paying as high as $18 each for coyote skins.

Shasta County farm bureau holds its annual picnic near Bald Ferry, May 3.

The Sperry Flour Company is to establish a feeding experimental farm at Escalon.

Glenn County is planning for several experimental plantings of long staple cotton.

Railroads announce that they are ready to handle wheat and other grains in bulk.

Livermore, Alameda County, is preparing ground for experimental plantings of tobacco.

Glenn County farm bureau will hold a fat stock auction early in April, probably April 7 and 8.

The Avery Company proposes to hold a series of tractor schools conducted by their own service men.

J. D. Knight of Vallejo asks readers of the Cultivator to assist in locating his 16 year old son Wade Knight.

H. C. Dunlap of the Prune and Apricot Growers Association addressed the Sutter County prune growers at Yuba City.

The board of supervisors of Eldorado County have appointed John A. Winkelman county horticultural commissioner.

R. M. O'Neill has been chosen to manage the California tractor demonstration at Arden Acres near Sacramento May 6-11.

Placerville, Eldorado County, has done considerable grafting of currant grapes on wine grape roots. The experiment is being watched with interest.

The Mendocino County Pear Growers Association last season was so successful that prune growers of the same section are now willing to cooperate in marketing their crops.

Rice growers of the Sacramento Valley are preparing for a fight against the duck and other game monopolists. They are appealing to the legislature to permit them to protect their growing crops from depredations of wild ducks and mud hens.

It is estimated that California rice production this year will be close to 6,000,000 bags. Last year's production from 147,000 acres was 3,500,000 bags, an increase of a million over the preceding year. Glenn, Colusa, Butte and Yolo have the largest acreages.

The Plumas-Tahoe Cattlemen's Protective Association with headquarters at Bangor, Butte County, has decided that it would not be advisable at the present time to put into effect a cooperative scheme of handling stock on the Tahoe forests, this owing largely to poor pasture and absence of trails to water.

Central California

Richgrove, Stanislaus County, is planning a new citrus packing house.

Immense crops of grain are reported from almost every section of the state.

The irrigation schedule for the Terra Bella irrigation district begins April 15.

Stanislaus and Merced farm bureaus have resolved to join the state marketing body.

Dos Palos, Merced County, farm bureau has been giving poultry culling demonstrations.

Turlock and Modesto irrigation districts are discussing plans for a $3,000,000 dam project.

Grain fields on the west side of the San Joaquin Valley show a growth far better than the average season.

Stanislaus County's fat stock auction resulted in one car selling at $15.85 with overweights at $14.85.

Fresno is planning for a great celebration of Raisin Day. One feature of the event will be a parade of returned soldiers.

San Joaquin Valley's sugar beet acreage is showing up remarkably well. Practically all the valley's crop is seeded in the fall.

Cattlemen are discussing the points in the new branding law. Every brand must now be registered with the Cattle Protection Board.

Hughson, Stanislaus County, is preparing to build a sorghum syrup factory. The operating company is to be capitalized for $10,000.

Butter fat prices to dairymen of Kings County average 60½ cents during the first half of March as against 66 cents for February.

Farm bureau auction sales announced by Kern County farm bureau are to be held at Wasco, April 5; McFarland, 12; Bakersfield, 19.

Orchard City grange held a regular meeting recently at San Jose and listened to address as to agricultural and other conditions in France.

Fearing that the state fish and game commission will not establish a hatchery in Tulare County the people are planning to finance a fish hatchery of their own.

Kern County farm center meetings: Kern Delta, April 2; McFarland, 4; Weed Patch, 7; Wasco, 9; Rio Bravo, 10; Edison-Fairfax, 11; Delano, 14; Pond, 16; Rosedale, 18; Shafter, 23; Arvin, 25.

The Mt. Whitney Power and Electric Company has appealed for increase in rates of five per cent. The San Joaquin Power Consumers Association is making appeal that this request be not granted.

Stanislaus County farm center meetings: Jennings, April 2; Mt. View, 4; Hughson, 7; Mitchell, 8; Thalheim, 9; Modesto directors meeting, 9; Tegner, 10; Denair, 14; Hickman-Waterford, 16; Fairview, 18; Wood Colony, 21; Claus, 23; Ceres, 24; Patterson, 25; Orange Blossom, 28.

Many wine grape growers in the San Joaquin Valley will dry their black wine grapes for sale to people who prefer to make their own wine. The dried grapes are shipped East, then soaked in water and used by the foreign population, Italian, French, Spanish, Greek and other wine users, for manufacture of wine in their own homes.

Southern California

Cotton planting has begun in the Palo Verde Valley.

Brawley is shipping out some three carloads of peas per day.

The San Fernando Valley has started a tree planting campaign.

The farm bureau conference is in Southern California this week.

A machine to peel citrus fruits has been invented by Orange County men.

Coachella Valley, Riverside County, will plant 100 acres of dates this season.

A Festival of Wild Flowers will be held in Santa Barbara some time in June.

A tractor school will be held in Anaheim April 11 and 12 by the Avery Company.

A new cannery is to be built at Redlands by the Redlands Fruit Products Company.

Brawley, Imperial County, ginned and baled its last cotton last week. Its total was 49,100 bales.

Abundance of irrigation water for southern San Diego County is impounded in dams and reservoirs.

Fruit growers and business men of Victorville are discussing the possibility of establishing a packing house.

Imperial Valley is the latest to discuss the matter of grain elevators. Sack handling is proving too expensive.

Orange County citrus growers are asking for an annual citrus institute to be conducted by the Riverside Experiment Station.

The Walnut Growers Association is asking the legislature to appropriate $10,000 to be used in the fight against the walnut worm.

The big new cannery at Wineville will be ready for operation by the middle of June. It will process both fruit and vegetables.

The raising of early Kentucky Wonder beans for the Los Angeles and San Francisco markets is becoming a feature of Laguna Beach industry.

A fight is on between gun clubs and farmers of Orange County over use of artesian wells to flood duck marshes for the benefit of sportsmen.

Riverside farm bureau proposes to purchase pure bred Guernseys, Holsteins and Jerseys in Eastern breeding sections and introduce to that county.

Banning reports a seasonal rainfall of 12.88 inches and heavy snowfall in the mountains assuring plentiful irrigation water. Apricot bloom was uninjured by the recent rains.

Ventura County farm bureau meetings for April: Oxnard, 8; Fillmore, 10; Wheeler Canyon, 14; Mound, 15; Moorpark, 16; Saticoy, 21; Santa Paula, 22; Simi, 24; Bardsdale, 28.

The state assembly has established a permanent boundary line between Ventura and Los Angeles Counties, to follow township lines. By the change Ventura County gains some 510 square miles.

The recently formed pool of Lima beans is now reported to contain 75 per cent of all beans in Southern California. It has been found, as a result of the activities in connection with forming the organization, that there are 100,000 bags less of Limas in this section than had been supposed.

The Coast and General

Several productive wells have been sunk by farmers near Chandler, Arizona.

Cabbage growers of Las Cruces, New Mexico, are planning for a big crop of cabbage.

Cotton growers of the Yuma Valley are endeavoring to secure one cent fare for agricultural laborers.

Stockmen of the Blue Mountains, Washington, are driving cattle to lower levels because of deep snow.

Texas onions growers are insisting on higher prices, and advance has been made in general quotations.

Western Venezuela's greatest industry is the growing of coffee. Two states produce over a half million bags.

Farmers of Casa Grande Valley, Arizona, are manifesting considerable interest in planting Thompson Seedless grapes.

Eagle claims to be the center of Alaska's agricultural district. The principal products are oats, barley, rye and peas.

A delegation of water users from the Imperial Valley recently visited the Salt River Valley and went over the entire project.

The export embargo on olive oil from Spain has been lifted, and the ministry of supplies will permit the export of 90,000 tons during 1919.

Missouri peach growers estimate from general condition of buds and the weather conditions of this season that at least 90 per cent of a crop will be secured.

Montana has built a large state owned terminal elevator at Great Falls. The building of this elevator was endorsed by a referendum vote of the people of the state.

Damage reaching to 75 per cent to tomato growers on east coast of Florida has been caused by terrific storms. The loss to Coast growers is claimed to be between five and six million dollars.

E. Draper, a prominent poultryman of Glendale, Arizona, was elected president and W. F. Fetterly secretary of the Maricopa County Poultrymen's Association at the annual meeting held the second Saturday of March.

The Whatcom County, Washington, Cooperative Egg Producers Association is returning to its members from one to five cents above local markets on each dozen of eggs. Some members have as high as 5000 laying hens.

The first carload of a government order for "fruit bricks" has gone forward and will be followed by others as fast as they can be turned out. These will go to France for the use of the American army now in that country. These go from Wenatchee.

Hay producers and hay dealers of the Salt River Valley are to hold a "hay congress" in Phoenix in the near future. The purpose of the gathering will be to arrive at a better understanding of the needs of the market and a closer cooperation in grading.

Denmark is a great dairy nation likewise a producer of large quantities of margarine. This industry was, however, almost ruined during the war because of oils and fats not being securable. The production in 1918 was only 1250 tons compared with 58,80 tons in 1916.

Santa Clara Valley Nurseries

By A. Layman

SCARCELY a country in the world but gets California nursery trees. This fact gave easy circulation to the story which newspapers had a few months ago that all Europe was to be restocked with trees shipped by California nursery men. While that story was of interest and showed the desire to be helpful on the part of some Californians tree producers all realized that it was a bit shy on facts.

The state is today the largest producing nursery section of the country; this as to citrus and deciduous trees, vines, ornamental shrubs, and we believe the time is coming when this state will save the country the importation of a great many cargos of "Dutch" bulbs.

Amongst the older nursery sections of the state is the Santa Clara Valley in which the first nursery was established in 1857. At the time of the organization of the first State Nurserymen's Association in San Francisco in 1858 there were nine signers to the constitution; four of these were from the Santa Clara Valley, one from Sacramento, one from San Lorenzo, one from San Francisco, one from Marysville, and one from Fruitvale. Hence Santa Clara's adaptability to the growing of fine nursery stock has been recognized for many years.

The original nurserymen's association served but few years of usefulness and for many years there was no association whatever. At the state fruit growers' convention held at San Jose in 1911 there was call made for a gathering of nurserymen in the rooms of the chamber of commerce, and the present California Association of Nurserymen was founded. And the Santa Clara Valley furnished at its initiation the greatest number of members of that association.



A Corner in a Gilroy Nursery

The large leaved plant is Paulonia imperialis. M. J. Crow is standing in front of this plant.

Being the prune center of the world, naturally San Jose nurserymen have given more attention to that fruit than perhaps any other section. Of plums and prunes there are two score which have been approved and grown largely in California and dozens of others grown experimentally or for curiosity. The prune d'Agen, or French prune, together with improved seedlings or sports which have come from it, is the sweet plum which has meant millions to California and to the Santa Clara Valley in particular. The alleged German "prune" and Hungarian "prune" are not prunes in the commercial sense, both of these fruits being usually sold fresh, and they are grown in limited quantity.

But the prune is not the only fruit tree produced in the Santa Clara Valley. The entire range of deciduous and even citrus trees are grown, and extensively. This is especially the case with apricots, cherries, apples and peaches.

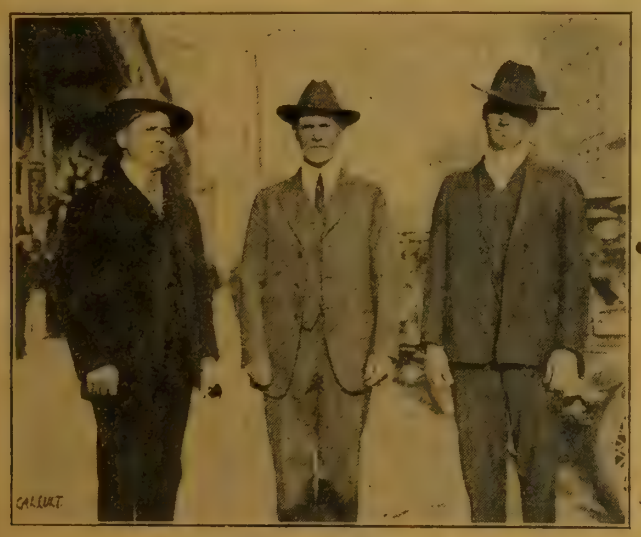
To give even a list of the nurserymen of this rich valley would require considerable space for they are scattered in every section of the valley. But amongst the larger ones are the Leonard Coates Nursery at Morganhill; Max J. Crow Nursery, Gilroy; Ruehl-Wheeler Nursery, San Jose; Elmer Bros., San Jose; Chas. A. Ward, San Jose. Mr. Ward's central nursery is in Humboldt County, but in his San Jose sales yard are many thousands of choicest bulbs and rare shrubs.

This is prune blossom time in the Santa Clara Valley. The mountain tops are snow clad, the hills are a glory of color from the gold of the California poppy, the pink of the peach, and everywhere the green from growing grain or the native grasses, but more than all over miles of foothill and valley the snow white of prune blossoms. One seeing it today can hardly help exclaiming: "This is truly the garden spot of California—excuse me, of the world. Why shouldn't it be a wonderful producer or nursery of bulbs, plants and trees?"



Almon Wheeler

For many years Mr. Wheeler has been head of the Ruehl-Wheeler Nursery Company.



Father and Sons

Elmer Bros. Nursery is one of the larger nurseries of Santa Clara Valley.



Pistachio

On the hills of Leonard Coates Nursery Company pistachio trees are being given a thorough trial. These trees were seedlings but are now being budded over to the best known commercial varieties. Note where the bud has grown out from the old stock just below the hand of R. H. Coates, junior member of the Leonard Coates Nursery Company.

Faulty Irrigation

By H. Culbertson

SOME weeks ago the writer was interested in an article in the Cultivator along the above lines though applied in a different way. The writer of the article said that when he began irrigating 30 years ago he could trace a mouse across the field after plowing and harrowing, but that after that length of irrigation and the same preparation it would be difficult to trace a yoke of oxen across the field. It is not the intention of the writer at this time to criticize the conclusions expressed in that article, but the illustrations fit nicely in the description of some faulty irrigation.

The rainfall this winter having been rather short for the best plowing it has been excellent in revealing faulty irrigation.

Early in the winter the writer plowed two fields for grain. Neither of them had ever been irrigated. Both fields were slightly rolling. The water had overflowed some of the lower parts of both pieces during the floods in this section three or four years ago. A comparison of the different parts of these fields indicated that on the parts that had not been overflowed the surface was so fine that a mouse could be traced across it. The parts that had been overflowed were so cloddy that it would have been difficult to trace a yoke of oxen. Had the ground been in first class condition for plowing the difference would not have been so apparent. It reveals the fact, however, that the overflowed soil is more compact and evaporation is more rapid than on the other part. One of these pieces had not been plowed since the floods, the other only once. Both had had volunteer crops of hay.

Two other pieces have been plowed this month (March) that have been irrigated almost every year for 30 years. Parts of both pieces were in tomatoes the past year and could not be cultivated after the last two irrigations on account of the vines covering the ground. The slope on the first piece at the upper end of the furrows was good. The ground could be well irrigated without wetting the surface. Near the other end there was about 100 feet where the slope was not sufficient. The water rose almost to the top of the furrow before it would pass on. The result was a com-

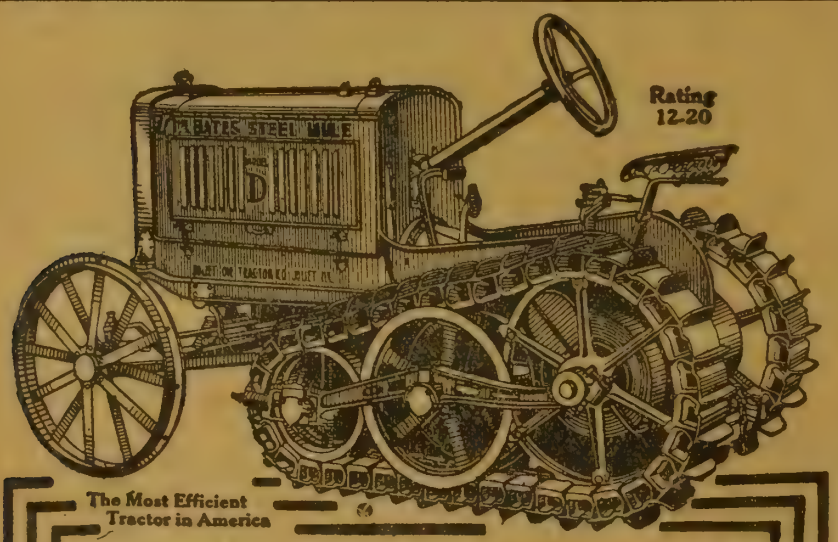
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With the Return of
Peace and Prosperity
Plant
Teague Quality
Citrus Trees

With the present demand for food stuffs, the return of peace and normal economic conditions there will be a growing demand for all orchard crops and a corresponding larger demand for nursery trees. Already this return is finding expression in an increased demand for Teague Quality Citrus trees, which leads us to advise intending planters to book their orders early, as the available supply of really good, bud-selected (pedigreed) trees is rather limited. For this reason we invite correspondence. Prices cheerfully furnished.



The R. M. Teague
Citrus Nurseries
San Dimas, California
FOUNDED IN 1889



PROVED CRAWLER
DURABILITY

Correct mechanical principles and the knowledge of the proper materials and methods of using them make the crawler shoes of the Bates Steel Mule of great durability. Such is the result of six years of experience with thousands of tractors in the field.

Just as important are the heavy duty valve-in-head kerosene motor, the hardened cut steel transmission gears, the Timken roller bearings and the dustproof working parts.

You will be interested in seeing why the Model "D" STEEL MULE is the most efficient tractor on the market today.

THE ONLY CRAWLER TRACTOR ADAPTED TO BEET CULTIVATION WITHOUT MAKING CHANGES

Excellent Proposition offered to Live Agents

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The Future of Figs

By Mart V. Donaldson

THE 1919 Smyrna fig crop of California has been bid in by fig buyers at 20 cents per pound.

These buyers, representing Eastern capital, men who have a faculty for peering into future cultural and marketing conditions, are also taking the White Adriatics at 15 cents per pound and paying 11 cents per pound for the Black Missions. This, as against eight, five and three cents as stated pre-war quotations.

State's Figs Sold

On March 20, 1919; at the annual fig auction, held at the University of California Experimental Farm, four miles to the north of Fresno (Kearney Park), the prospective 1919 fig crop (Asiatics) was bid in by George C. Roeding for $30,000—in estimate, 15 cents per pound. Last year, the promised, and later realized, 100 ton Kearney Park fig crop, with ten tons of culls, was disposed of at $33,000. These crop transfers had to do with the sale on the trees of the annual product of 2400 fig trees.

These transfers also mean that the sums realized were quite all "velvet", in that, with the exception of five acres given to experimental growths, the 2400 fig trees producing this $33,000 and $30,000 crop are border trees about the vineyards and other lands of Kearney Park.

And these figures carry marketing and production suggestions that are interesting men of capital—East and West.

The years have demonstrated that California, Central California, must assume responsibility for the commercial fig production of the United States.

Marketing Comparisons

In 1885 the California production of prunes, the pride of the great Santa Clara Valley, was reported at 7,000,000 pounds. In 1917, the prune yield credited to California growers aggregated 218,000,000 pounds. With prune orchard expansion there followed the more persistent product introduction, the prune becoming an item of common diet. In 1885, California boasted an output of 9,000,000 pounds of raisins. For 1919, the California Associated Raisin Company officials report a production and a market appropriation of 400,000,000 pounds of Sun Maid and sun made raisins, the greater portion of this output but the assured reward of Fresno industry, in cooperation with Fresno sunshine.

Production Revelations

Today, 15,000,000 pounds of dried figs represent California's annual commercial pack. In 1885 the Seropian Bros., a then Fresno firm, packed a few Adriatic figs and peddled them to grocers of Pacific Coast towns. Of the present annual California production of 15,000,000 pounds of dried figs, quite 12,500,000 pounds of them are credited to Fresno County.

Of this aggregate California output of dried figs but 3,000,000 pounds are of the famed Smyrna variety, a limited bearing acreage alone being the determining factor. The balance of the marketing on the part of the California fig packers and growers includes 10,800,000 pounds of Adriatic and 1,200,000 pounds of the Black Mission figs. Under normal trade conditions, 20,000,000 pounds of dried figs are annually imported from South European and Asiatic centers. Of this annual importation 15,000,000 pounds are of the Smyrna variety, the fig that has become the boast of the Fresno growers.

In a review of these figures there is in the United States in assured estimate an annual dried fig consumption of 35,000,000 pounds, figures that point an excess of the present California (practically the United States) production of 20,000,000 pounds.

Possibilities Unmeasured

The United States boasts of a population of 100,000,000 people. One pound of figs for each person in the United States, on any day during any given year, would require an annual production of California figs of 100,000,000 pounds. And we use the term "California production" advisedly, for it is only here in California, and for the most part in the San Joaquin Valley, that the dried fig of commerce finds a home to its liking.

This realization is the result of a century-old worldwide search on the part of growers. So that fig growing enthusiasts, and their number is rapidly multiplying among men of business acumen, may plant, and plant, and then plant, and continue to plant—for 50 years.

For there can be no suggestion of an excess of production, in view of the assured demand—a demand that must annually increase, with the larger home marketing that shall be, in Fig Association market regulation, fully safeguarded.

In this belief J. C. Forkner, president of the California Fig Growers Association, is planning an extension to his great fig gardens, in the ultimate to comprise an area of 12,000 acres.

KEROSENE FOR APPLE TREE BORERS

By H. C. Coe

Have just read Mr. Calkins' valuable contribution in your last issue on the use of kerosene in the orchard and will give my experience in that line.

My father was the pioneer settler and apple raiser in the justly celebrated Hood River Valley in Oregon—a business that in later years has grown almost beyond belief, the apple growers association reporting a business of $2,102,900 for 1918. Upon my father's death in 1866 the care of the farm and orchard fell upon my shoulders. At that time farming and fruit raising was a pleasure not enjoyed nowadays. There was absolutely nothing in the line of insect pests, no woolly bugs, no scale, no codling moths, no, not even a nasty corn worm. How well I remember the great luscious ears of sweet corn that would grace the breakfast table. It was the veritable golden age of the Oregon farmer and orchardist.

But those times could not last forever. On one of my trips through the orchard—we had about 20 acres of all kinds—I noticed that in the forks of some of the trees in the early spring the bark was rough with many wood borers' holes in it, and upon closer examination found many other trees worm eaten. The horticultural authorities called the trouble "apple tree borers", and the remedy, an attack in the rear with a sharpened wire. Armed with this deadly weapon I began the assault, only to meet defeat. The grubs only went through the bark to the newly forming wood and not into the body of the tree, and they were there by the hundreds, from the newly hatched worm to the full grown grub, about one-half inch long, and I was at my wits' end.

Now about this time kerosene was coming into general use for lighting purposes, also highly recommended as a mothers' remedy for sore throat, diphtheria and kindred troubles. Why not a remedy for tree troubles? "But," said a neighbor orchardist, "kerosene is powerful stuff; it will kill your trees." "Well, just as well kill them with doctoring as to let them die of disease." "Yes," was the rejoinder "burn your barn to get rid of the rats." But the kerosene went on just the same, poured it on out of a gallon can, no spraying, soaked all suspicious parts thoroughly, and to the surprise of everybody, myself included the trees did not die nor show any injury whatever, but the bugs were dead, every one. The trees improved rapidly and in a year or so showed no signs of worm depredations, nor was I ever seriously troubled with them again.



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THE Goodyear Cord Tire is tangible evidence of our belief in the triumph of manufactured goodness.

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Help the Tractor Help You

By Rush Hamilton

WHEN purchasing a tractor the buyer will invariably investigate several makes and several types before making his selection; he will carefully compare costs, quality of work, time saved, service promised, past performances, and almost everything else that can be investigated, because he is making a business investment and considers his time and effort well spent.

With the decision made and the new tractor on the farm, the tendency in many cases is to now put it all up to the tractor. Results have been promised, results have been paid for, and results are expected—but unless the same care, thought and judgment is carried on to the operation and maintenance of the tractor, results will not be obtained.

We can all remember what the tractor promised to do for us: cheaper work, better work and at a great saving of time, but what did we promise to do for the tractor? Right now is a good time to get out that little book that came in the tool box and read over some of the promises you have made. Have you drained the crankcase oil? Have you cleaned the clarifier? Have you oiled and greased where necessary?

There are, however, many little points, mostly taught by Old Man Experience himself, which will aid you in getting capacity work out of your tractor.

First, be sure of your hitch. The wrong hitch may increase your draw bar pull as much as 100 per cent.

Then do not overload. A load so heavy as to cause slippage or occasional stopping is fatal to real results. More work will be done by sundown if your tractor has been running along all day at an average speed and a normal load, and you will have the added satisfaction of knowing that you can expect the same amount of work to be done the next day. One breakdown during your busy season would eat up a lot of time gained by "war time" methods.

Keep your plow points sharp—it won't cost much in either time nor money, not nearly so much as tractor "feed."

When plowing in orchard or vineyard divide the side draft equally between plow and tractor. Enough side draft should be allowed to throw the soil up to the tree or to take away the soil as close as possible without injury to the tree. The tractor should be far enough away to clear the limbs. When these positions have been determined it will not be necessary for the operator to watch his plows continuously.

The plow should be level to avoid high and low furrows and adjusted so the first bottoms will cut the proper width each time around.

A little oil on the plow lift helps, and the lifting spring should be at the proper tension. A tremendous amount of time can be lost on the turns if these points are overlooked.

Stiff hitches should be used—often it is a big advantage to be able to back up—even the Germans found that to be true.

And so it goes, on down the line. Save ten minutes here, five minutes there, and 15 minutes some place else. The day is done and so is your work.

But—the tractor alone did not do it, and probably no tractor ever will. It's the combination of man and tractor that got the results.

FAULTY IRRIGATION

Continued from Page 475

plete saturation of the surface. In this where the surface was not made wet it plowed and harrowed in such fine condition that the mouse could be traced over the surface. The low part at the other end where it was made so wet was hard and lumpy, making it difficult to trace the oxen across.

On this same piece were two strips of corn planted the whole length (planted to draw the worms away from the tomatoes). The corn was cultivated after each irrigation. This part showed good cultural conditions all the way through.

The other one of the two pieces referred to all had a good slope for irrigation. It was in tomatoes and could not be cultivated after the last two irrigations. While it was well irrigated none of the surface was made wet. It worked remarkably fine in the recent plowing and harrowing. About one-half of this tract was a tomato seed bed and was saturated to the surface the last two irrigations and without cultivation. This plowed up very lumpy, and the bottom of the furrow wore the plow points like a grindstone. All of this piece had a good stand of burr clover eight to twelve inches high. The only difference that can be given is the difference in the surface irrigation. There was at the lower end of the rows on the other part a little rise so the water could not flow away and wet all the surace, the water even standing on the surface for a few feet. This was very hard also.

These are simply facts stated as they were found. The conditions were more apparent on account of the slightly dry soil. This opens a big subject in irrigation management of soils that needs more attention. We are well aware that many do not consider they have a good wetting of the soil until the surface is wet or as some say will bog a saddle blanket. Yet there is much evidence that such treatment of clay soils lacks much of being followed by the best results. Along this line we have much to learn to our advantage before we can call ourselves experts in handling soils.

LESS TROUBLE WITH TRACTORS

It takes about two and a half gallons of fuel an acre to run a tractor for plowing in the Dakotas, acording to reports from several hundred farmers. These reports, summarized in Farmers' Bulletin 1035, cover two, three, four and five plow tractors of various makes.

Slight differences in fuel consumption are found between machines of different makes, and there is usually a slightly lower consumption where gasoline is used than where kerosene is used. These differences, however, are so small that the average of two and a half gallons may be taken as coming very close to the actual acre consumption for any type or size of machine.

The more recent reports received in this regard indicate that farmers are having much less trouble than formerly in handling kerosene burning tractors. Nearly two-thirds of the tractors on the Dakota farms reporting burn kerosene, and the results are apparently satisfactory, particularly in view of the fact that the present price of kerosene is but half that of gasoline. However, the advantage of gasoline in ease of operation and in the additional assurance it gives that the engine will keep running steadily makes many men prefer the more expensive fuel.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Damaged Flour for Poultry Feed

It is my custom to have before my hens at all times a dry mash in a self feeder and same consists of a formula quantity of bran, middlings, beef scrap, egg layer and salt.

Since I am now unable to obtain middlings, I desire to use some white wheat flour that has been disturbed by mice but not stained. They have run over it and the good housewife is "set" against using it and I wish your expert would advise what quantity of same I can use with the above and not constipate the hens and pullets. I am of the opinion that the flour will be more costive than the middlings, hence the necessity of using a lesser quantity in proportion to the bulk of mash mixture and I will thank you for your advice in the matter.—Subscriber, Reno, Nevada.

I do not know the nutritive ration of the flour you wish to use but it is probably not far from that of low grade or feed flour, which is given in Professor Jaffa's tables as 1:8. As the nutritive ration of wheat bran is 1:3.4, and that of the average beef scrap about 1:0.5, a mixture of four parts bran (by measure), two parts flour, and one part beef scrap will give you a mash the nutritive ratio of which is 1:5. If you find this constipating, make the proportion of bran a little greater. It would be better if you could add corn meal or ground barley to your mash. A formula used by the Maine station consists of 100 pounds bran, 50 pounds corn meal, 50 pounds low grade flour and 100 pounds meat scrap.—J. A. K.

Defoliating Citrus Stock

In shipping citrus stock is defoliation required as a protection from scale or is it done simply because it is best to insure growth?—J. F. C., San Diego, County.

Defoliation is not required in this state excepting in one county and that is Tulare. However, many prefer that it is done so that trees dipped in insecticide may be reasonably free from any infestation. Where trees are not to be shipped, and where it is positive they are free from all insects, we would prefer trees on which foliage is allowed to remain.

Napier Grass

What is the right time to plant Napier or Elephant grass? Should it be planted in rows or hills and how far apart? Can it be fed to horses as well as to cows?—Subscriber, Soledad.

Experience with Napier in this state is as yet too limited to give definite instructions as to growing from seed. In fact we have seen growers of Napier grass who claim that it could only be grown from cuttings. However, we see no reason why it should not be grown from seed and presume the present is as good a time as any in the year, though in cold soil it would perhaps be better to hold until warmer and longer days before planting.

Skim Milk for Baby Chicks

Kindly inform me through your columns whether you consider milk (skimmed but not "separator") as a good food for baby chicks. If so, when and how is the best method to feed it?—Subscriber, San Diego.

Skim milk is one of the very best feeds for baby chicks. It is often given in fountains instead of water before the chicks have had any other food. Because of the lactic acid which develops in the process of souring, it is considered rather more wholesome, besides being more easily fed, if it is allowed to sour before feeding. The practice, quite general on farms, of setting a pan of milk on the ground and letting the chickens help themselves has several objections. A good deal is wasted, for one thing, and for another, this method of feeding is believed by some to encourage the growth of intestinal worms. In any case the milk soon becomes filthy and unfit for use. The best methods of feeding are either to let it thicken and then use to moisten the mash two or three times a day or to make into cottage cheese and feed alone or with rolled oats or a regular dry mash mixture. If I had an unlimited supply of sour milk I should keep a mash moistened with it before my chicks most of the time after the first three weeks, omitting the dry mash. Chicks that have all the sour milk mash they will eat make a very rapid growth.—J. A. K.

Soft Shelled Eggs

Will you please tell me what makes chickens lay soft shelled eggs? I feed them milo maize, rolled barley, dry egg mash, and oyster shells they have before them all the time. I occasionally feed them green feed once or twice a day.—Subscriber, Carpinteria.

Soft shells are due to lack of lime, as a rule, but sometimes overfat hens lay soft shelled eggs even when they have plenty of lime. If your hens are not overfat and are laying soft shelled eggs in spite of having oyster shell before them, try giving them coarse grit or bits of granite rock to pick at. Hens that are on decomposed granite soil do not often lay soft shelled eggs. If they are on adobe or a soft loam they need more lime to make up for what the soil lacks. There is a difference in breeds in this respect. Hens of the heavy breeds as a rule will lay harder shelled eggs with less lime than some of the lighter breeds.—J. A. K.

Cropbound Turkey

Can you tell me what was the trouble with a seven months old turkey tom? At first seemed to have diarrhoea, then indigestion. He died in about ten days. Weighed 26 pounds. I opened the crop and all around the entrance was just hard like the inside of a gizzard, a place as large as the palm of one's hand. The food could not pass from the crop. He ran on green alfalfa and was fed corn.

The cropbound condition of the turkey tom would explain his death. It was probably the result of inflammation due to too generous a diet in his infancy. Had you examined the liver, I suspect you would have found on it the yellow spots that indicate blackhead.—J. A. K.

Sorghum—Milo

What is the food value of grain sorghum? Is it to be compared with milo maize?—Subscriber, Bakersfield.

The value of grain sorghums is practically the same as that of Indian corn, and in the sorghums are included, milo, kafir, feterita, the duras, and many other grains. Henry's "Feeds and Feeding" says that though less palatable than corn their nutritive value ranges from fully equal to this grain to 15 per cent less. The table of digestible nutrients shows milo to contain 8.7 protein, 66.2 carbohydrates, 2.2 fats, a nutritive rato of 1:8.2. By nutritive ratio is meant the ratio that exists in any given feeding stuff between the digestible crude protein and the combined digestible carbohydrates and fats. In feeding corn, the sorghum grains or barley it is to be remembered that they are comparatively low in protein, especially when compared to wheat, the ratio of which is 7.7. Hence in feeding these grains more meat or other feed rich in protein must be supplied. We hardly know what the inquirer means by the value of grain sorghum as compared with milo. If she means the ordinary sweet sorghum, we find no analysis but presume it is materially the same as the other grain sorghums.

Composition of Beans

Kindly let me know the percentage of nitrogen, phosphoric acid and potash contained in Blackeye beans. If ground and used as fertilizer how much would be available as plant food?—Subscriber, Fullerton.



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Nor is it traceable to our distribution for we are equally well represented in the big cities where the sales are constantly growing.

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Again, operating cost is low. There is plenty of gasoline to be had, but when one can do better than 20 miles to the gallon in comfort, why be content with 7 to 10 miles? GRANT SIX owners average 900 miles to the gallon of oil. At present prices that means a big advantage. And GRANT SIX owners average 7,000 miles to the set of tires. And the GRANT SIX is built to stand hard service. These same facts are certain to lead you to choose the GRANT SIX.

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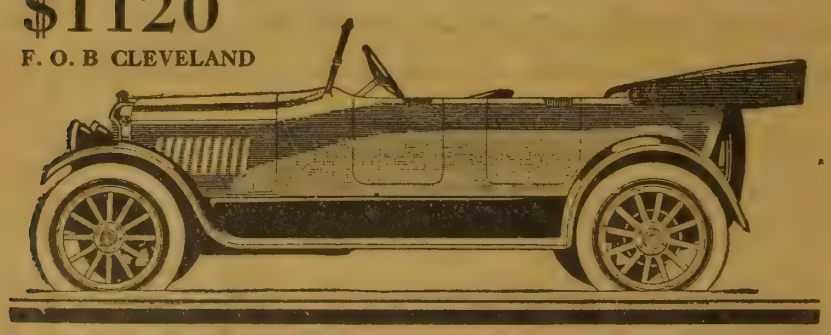
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Bean seed, which is presumably average of various kinds of beans, has shown under analysis that 25 bushel crop will yield 60 pounds nitrogen, 18 pounds phosphoric acid and 19.5 pounds potash. The above is according to one table in "Fertilizers and Crops" by Van Slyke. Another table in the same book gives in pounds per hundred or percentage, nitrogen, 4; phosphoric acid, 1.20; potash, 1.30.

Caustic for Dehorning

Will you please tell me how to properly apply caustic potash to prevent the growth of horns on young calves? —Subscriber, El Centro.

The latest edition of "Diseases of Cattle" issued by the department of agriculture gives the following instruction: "A calf should be treated not later than one week after it is born, preferably when it is from three to five days old. The agent to be used may be either caustic soda or potash in the form of sticks about the thickness of an ordinary lead pencil. These caustics must be handled with care, as they dissolve the cuticle and may make the hands or fingers sore. The preparation of the calf first consists in clipping the hair from the parts, washing clean with soap and warm water, and thoroughly drying with a cloth or towel. The stick of caustic should be wrapped in a piece of paper to protect the hands and fingers, leaving one end of the stick uncovered. Moisten the uncovered end slightly and rub it on the horn buttons or little points which may be left on the calf's head—first on one, then on the other—two or three times, allowing the caustic to dry after each application. Be careful to apply the caustic to the horn button only, for if it is brought in contact with the surrounding skin it will cause pain. Too much moisture on the stick of caustic will allow the application to spread to the surrounding skin. After treatment keep the calf protected from rain, as water on the head after application of the caustic will cause it to run down over the face."

Ants and Bees

Can you tell me how to keep ants out of bee hives? The hives stand on legs about one and one-half feet from the ground in cans filled with water and kerosene. Rags soaked in kerosene and tied around the legs of the hives seem to have little effect. Have moved the hives but the ants are still on the job.—Subscriber, Santa Barbara.

Certainly these ants enjoyed their kerosene bath. Would suggest clearing away absolutely every weed and all the grass which may be near the hives, then make careful inspection of every foot of ground within a hundred yards of hives, and by using gasoline, carbon bisulphide or even boiling water, destroy every ant colony. If this is done we do not think there will be any further trouble. One beekeeper has recommended the finding of the trail followed by the ants in coming to the hive and using the ordinary ant poisons offered at nearly every store. Of course these poisons should be covered so that the bees will not readily find them.

Bugs

Please tell me the name of these bugs and how to get rid of them? They crawl on the outside of the house and enter through the windows. I notice holes are eaten in the curtains, carpets and clothing. I can find six or eight at one time on the side of the house on a warm day, and after burning can find almost as many the second time.—Subscriber, Orosi.

Think our subscriber is mistaken as to the injury to clothing, curtains and rugs by this insect. We have been unable to get the specific name of the insect but it was sent to Harry S. Smith, superintendent of the state insectary at Sacramento, and he writes:

"There are numerous species of this kind of insect and only a specialist can distinguish them. They belong to the same order as the Harlequin cabbage bug, the squash bug, etc., and feed only on living plants. I rather imagine that crickets are responsible for the holes in the curtains, carpet and clothing, at least we have a great deal of difficulty of that kind here. Until we can ascertain just what in-

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ject is doing the damage it would be difficult to suggest a remedy. If it is the carpet beetle or clothes moth, ironing the clothes and other goods with a hot iron will destroy them. Crickets are difficult to control in the house and I know of no good remedy other than to hand pick them."

In addition we may add that it may be well to look for Buffalo bugs which may be a serious pest.

When to Cut Rye for Hay

In a late number of the Cultivator I saw an inquiry about rye hay for cows wherein inquirer was advised to cut it when in the dough. Now I have had considerable experience with rye as hay and have learned that it should be cut just before blooming to be of much value as cow feed. I have cut it in the dough and had the pleasure(?) of using it for bedding as no stock will eat it. One year ago this last winter I fed a large quantity of it cut before blooming to my herd of cows and although they had full rations of corn silage they ate it greedily. It is an established fact, I believe, that all plants lose their protein content very rapidly after the blooming stage, and as protein is the desirable content for the production of milk we should so handle our crops as to retain all of it possible.

Another reason for cutting it at the right stage of growth is to secure palatability. No feed, however valuable in nutritive content, will give satisfaction unless it is relished by the animals to which it is fed. Your correspondent may not secure quite so many pounds of cured hay cut before blooming but will secure more pounds of butter or gallons of milk from the same acreage.—A. P. Martin, Petaluma.

Kidney Beans

Will you tell in your paper whether kidney beans will do well in this part of the state and if there is any market for them here, also where to get best seed?—Subscriber, Monrovia.

This question was referred to H. L. Musser, and he answers:

"We presume your writer means the Red Kidney which is sold at nearly all grocery stores. This was probably the most profitable bean in the commercial world prior to the introduction of the pink beans, but because it is of excellent flavor and keeping qualities it still finds a ready sale among the grocery trade although it is a larger bean than is generally desired for cooking purposes. It grows to perfection in Southern California and quite a large acreage was grown at Norwalk last year. Some years ago there was a large acreage grown at Sierra Madre with satisfactory results. This bean is also a good variety to plant in the late fall for string beans; it will withstand light frosts and is much hardier than the ordinary string bean. As there are many varieties of kidney beans it is possible that your correspondent means something else, but we have described the one commonly known as the Red Kidney."

Flame for Gophers

What is liquid flame? I see it is recommended for killing squirrels and gophers. How is it produced and applied?—Subscriber, Los Angeles.

This liquid flame is more in the nature of a blast torch which has been tested out by a deputy of the state horticultural commission. It is an apparatus equipped with a steel pressure tank and two lines of hose feeding the burners. With slugs and surface pests its application is easy and results absolute. The application of carbon bisulphide on waste balls and exploding in the burrows of gophers and squirrels is also sometimes practiced.

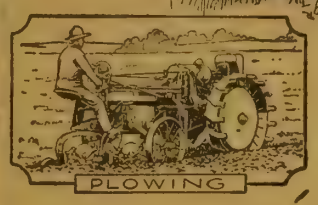
MONKEY HABITS

"An untrained boy and a monkey are very much alike in their habits," says Dan Beard in his "How to Make" articles in Boys' Life for March. "Give a monkey some object in which he is interested and as long as his interest lasts he will hold the object in his hands; the moment his interest wanes he will loosen his grasp and allow the object to fall just where he happens to be at the moment. An untrained boy will do exactly the same thing, and so will an untrained man, for that matter."

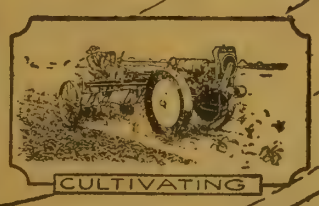
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Considering the amount of work it will do, and the saving in expense, the Moline 10-ft. binder is the lowest priced binder ever made, and it will last twice as long as any other. But of greater importance is the fact that you can now harvest your grain when it is ready in half the time you ever did before—this may save you the price of the entire outfit any rainy season.

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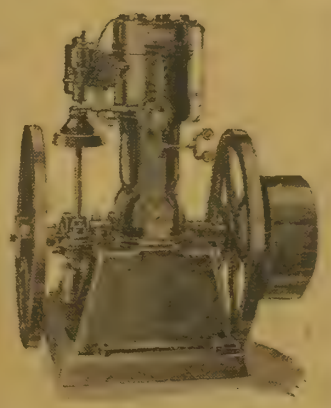
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This Month in the Ornamental Garder

Northern California

By A. R. Gould

DURING the month our gardens will continue the bulb display and many other spring flowers will be out as well as the best of the flowering trees and shrubs. In planning a garden one should include some of these and select them according to their period of flowering. Flowering peaches, apples, cherries, magnolias, the Judas tree, lilacs, spireas, weigelas, all contribute their share through the coming weeks.

The roses should have been put in shape toward the end of the month and all new plantings completed. All climbing roses should be tied in and dead wood removed. Farm yard manure or an artificial fertilizer should be dug in at the roots. Apply sulphur at the first sign of mildew and spray with Blackleaf 40 for aphis which are usually very troublesome at this time.

The Wild Garden

No spot in the garden can be made to look more charming than the wild or informal garden. Foxgloves, or digitalis, grouped around among the trees give a natural touch with their tall spikes of spotted pink and white flowers, and after flowering, if left undisturbed, they very quickly reseed themselves, and all the attention they need is a little thinning out as the seedlings become of suitable size. Ferns may also be planted at the base of the trees in a mound of leaf soil. In various open spaces seeds of Nemophlia insignis, "Baby Blue Eyes", Clarkia elegans, Collinsia, and Blazing Star, all native wild flowers, may be sown. Lupins also add color to the scene and may be secured in various colors. One new type, Lupinus Paynei, discovered and introduced by a well known Los Angeles seedsman, is quite an acquisition and grows four to eight feet high. Seeds of these should be soaked in water before being sown where the plants are to remain.

Salvias

There are quite a number of these. The red flowering type most commonly known is Salvia splendens. A beautiful deep blue is Salvia patens, and another very useful herbaceous perennial type is S. uliginossa, which has flowers of pale blue very valuable for cut flowers. Secure plants now from your nurseryman for planting in the beds or borders for the summer and fall display.

Phacelia Campanularia

This beautiful native blue flower is worthy of a place in every garden, having quantities of intense blue flowers. Seed should be sown on a well prepared border and the seedlings thinned out when several inches high.

Low Growing Plants

Silene pendula, a hardy annual, and portulaca in yellow, white and scarlet are fine subjects for carpeting flower beds. Seed should be sown at once broadcast.

Asters and Schizanthus

These should be sown this month to secure flowering plants for the summer display. Sow in boxes of fine soil and transplant.

Plants for Window Boxes

For large sized window boxes plant a few dwarf evergreen shrubs such as box or Aucuba japonica, and in between marigolds, French dwarf, myosotis and coreopsis may be placed. For trailing effects use ivy geranium, lobelia gracilis, asparagus sprengeri and lotus peliorhyncus. These boxes should be at least 14 inches deep and well drained, the soil of good garden loam mixed with manure.

Cyclamen and Begonias

Secure tubers of these and start them into growth in a warm but shaded frame. They will eventually prove valuable for planting in a shady place and flower throughout the summer. Begonias of the tuberous type may be secured in various colors, single and double.

Dahlias

These popular flowers which provide us with summer and fall bloom may be planted this month. The soil should first be deeply trenched with well rotted manure and the tubers planted with at least two or three shoots or eyes. Seeds may also be sown at once under glass and the resulting seedlings will flower this season.

Southern California

WAR gardening has resulted in one good feature in some city churches, which it appeals to us might give results in rural churches, farm bureaus, farm clubs or other organizations. As carried out in some city churches this has resulted in plant, bulb and seed exchange day. One member who is long on choice geraniums, Shasta daisy plants, iris, or other desirable additions to the home garden proceeds to the church or gathering place and exchanges her wares for dahlias, amaryllis or other desired plants or bulbs.

The nitrate of soda or other fertilizer put on the lawn at the beginning of last month has resulted in a wonderful growth of green. It is surprising how quickly nitrate of soda shows in new lawn growth. Presumably its application was preceded by a good raking and possibly rolling—although that is not so necessary in California as in the East—and now the problem is to keep the lawn bright and green and well clipped. Weekly or at least bi-weekly clippings are necessary if a good looking lawn is to be maintained. The lawn looks better where the catcher is used and the clippings fed to the poultry, but I believe more permanent growth may be secured by allowing the clippings to fall on the plants. Of course, if fed to the poultry and the poultry manure returned to the lawn, so much the better. If the rains fail to come with reasonable regularity be sure to keep the sprinkler going on the lawn, and those who did not fertilize, as suggested last month, should either make application of commercial fertilizer or apply well rotted manure which may be well washed into the soil and after remaining on the lawn for a few days raked off and carted to the compost heap.

Watch for aphis; they will be on almost every plant that grows. Liberal use of tobacco dust acts as a repellent and will destroy many of the pests. It

kept down entirely during this month and weeds around the place destroyed so as not to afford breeding place for them the infestation is so reduced that control is comparatively easy.

In bulbs, divide the cannas, calladiums, cyclamen, and if dahlias were not taken up and put into the basement as they should have been in the fall, they may be divided. They are already sending out little stalks. Be careful in dividing that the stems are not broken off, for these tubers, unlike the potato, have no eyes excepting at the stem end.

Continue sowing annuals and perennials. This is a good month for sowing the seed of columbines, foxgloves, daisies, gaillardias, coreopsis and snapdragons. Hollyhocks may be planted also, and, while a little late, larkspurs may also be planted. Goldenrod, golden-glow, or rudbeckia, and Shasta daisies may be divided.

This Month in the Vegetable Garden

Northern California

By A. R. Gould

APRIL should be the progressive month this year after the somewhat cold weather we have experienced during the past few months. We have now reached that stage in the season when growth will be rapid; our seeds will germinate more quickly and we shall also be kept busy destroying weeds. The rainfall is now above the average in most districts and prospects for the season are extremely bright. See that the tools are in good shape, the spade and hoe kept sharp, as dull tools do poor work.

Potatoes

You may continue to plant this month, and if the tubers have been sprouted, as we advised last month, before planting earlier crops will result. For complete planting directions see our notes in the issue for March 1. When the plants show several inches growth above the ground they should be "earthed up," which term implies that the soil must be drawn up toward the plant in the row to act as a support and protection to the young growth. At the first appearance of aphis, green or black fly, spray with Blackleaf 40, at the strength advised by the manufacturer.

Peas, Garden and Field

Continue to sow Little Marvel and Stratagem, for maintaining a supply. Hoe or cultivate between the lines of those sown earlier and conserve all the moisture possible. Cow peas may also be sown for cover crops in the orchard and for green manuring. These may be drilled in after the ground has been put into shape and at the end of the season will be more than valuable as they will have increased the supply of nitrogen in the soil and will also provide green manure when plowed under. Very few as yet have realized the value of these methods of enriching the soil in their orchards and it is absolutely essential for best results. Sow 60 pounds of cow peas to the acre.

Parsnips

Sow seeds of the variety Hollow Crown in rows 18 to 24 inches apart. The soil should have been well prepared and deeply trenched with manure.

Tomatoes

Complete the planting of this crop towards the end of this month. The young seedlings should now be making good progress in the frames. When planting out avoid the heat of the day; evening or early morning is the most suitable time and the plants should be watered until they become established. Those who failed to sow early enough may secure plants from the nurserymen.

Squash and Pumpkins

It will be safe to sow these now in mounds about four feet apart. Three or four seeds to the mound should be sown and watered in. The best varieties of squash are Early White Bush Scallop, Boston Marrow and Hubbard, a good winter variety. The Vegetable Marrow is also popular, and besides being a good vegetable makes an excellent preserve. Among the pumpkins, California Field, Morse's Marrow and New England Pie.

Melons and Cucumbers

Culture of these is practically the same as for squash. They require fairly rich soil and a warm, protected position as well as a moderate water supply. The best muskmelons are Gold Line Rocky Ford, Extra Early Citron and Fordhook, the last named being of small size but of delicious flavor. Watermelons; Florida Favorite, Harris Earliest for districts where the season is short, and Klondyke. Golden Beauty is the best casaba as a winter keeper. Cucumbers; Long Green for general use and Early short green for pickling. Lemon is a small round type now very popular.

Lettuce

Make successional sowings of White Paris Cos, Los Angeles and May King. Sow very thinly in rows and do not waste good seed on poor ground.

Beans, Dwarf and Pole

During this month both types may be sown, but in the colder sections make the first sowing during the last week in the month. For dwarf varieties we advise Golden Wax, Davis White Wax, an excellent shelled bean, Canadian Wonder, Stringless Green Pod and Refugee, a most prolific bean and very hardy. It will take one pound of seed to sow 100 feet in rows which should be about 24 inches apart. The same cultural directions apply to pole beans, but these of course need support. There are both green and wax podded varieties. First and foremost is Kentucky Wonder, a green podded type, and another very good type



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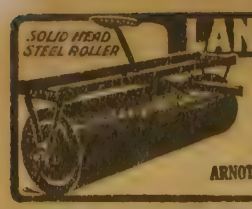
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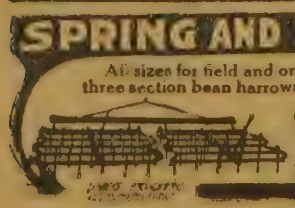
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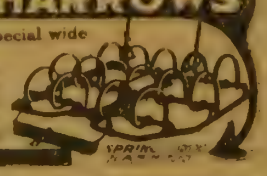
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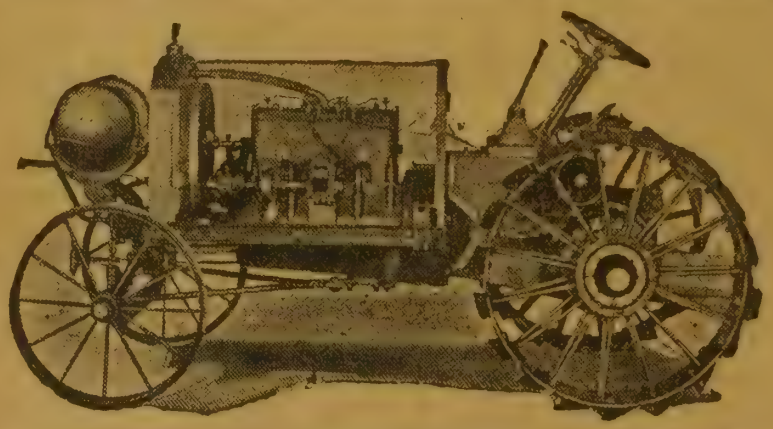
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green pod stringless is Burger's Green Pod Stringless. Scarlet Runner is a good standard variety having large green pods. Lima beans rarely do well in Northern California. One more important bean of the dwarf type is the Small White Tepary, a useful bean for dry territory. It yields heavily and is now well known in the market as a dry shell bean and should be grown in every home garden.

Soya Beans

This bean, largely grown in the orient and of recent years in many parts of the tropics, has been grown recently in California. It is rich in nitrogen and can be grown as green fodder or for the silo. The beans yield an excellent flour which is now on the market and has been used as a wheat substitute. Furthermore an oil has been extracted from the bean. They may be used in soups, etc., and are adapted to home garden requirements. Sow as directed for dwarf bean culture and make the first sowing about the middle of the month.

Celery

Complete the sowing of this crop for fall and winter use and also preparation of the trenches for planting out.

Beets

Sow Improved Blood Turnip beet or Long Smooth Dark Blood in soil which has been richly manured.

VEGETABLE PLANTING CALENDAR FOR APRIL IN SOUTHERN CALIFORNIA

By D. F. Reichard

THE rains of the past month have put the ground in excellent condition for gardening and now the warm days coming will heat the soil and cause all vegetation to grow in leaps and bounds. It will be necessary to keep the moisture where young plants can easily get it. This is attained by keeping the surface well mulched with the cultivator, or if your soil is one that is porous and dries out quickly irrigation will have to be resorted to if timely rains do not occur. Always be sure to work up your ground well as soon after each irrigation or rain as it can be handled without making it clod. Above all things keep the weeds down as they drink more water and take up more good plant food than one would realize.

Planting for April extends over almost the whole list of vegetables, the exceptions being peas and potatoes. On account of the lack of humidity and warm weather peas do not do well in Southern California generally when planted after the first of April. Potatoes planted after the middle of April fail to develop properly.

It is safe in all sections to plant all the more tender varieties such as beans, corn, cucumbers, melons, squash, and the plants of peppers, tomatoes, egg plant and sweet potatoes.

CAN YOU BEAT IT!

Lawyers seem to get most out of the law. As Rodger Dolan says: "I'd rather be the lawyer of an estate than one of the heirs."

The other day a butcher of Mount Vernon, Ohio, walked into a law office and put this question to an attorney: "If a dog comes into my shop and steals a hunk of meat can I make the owner of the dog pay for it?"

"Why, yes, certainly," said the lawyer.

"Well, then," said the butcher, "give me five dollars, for it was your dog."

The lawyer promptly complied.

A few days later the butcher got a bill of five dollars for legal advice rendered in the dog case, and which he promptly and good naturedly paid.

The butcher was out the price of the meat.

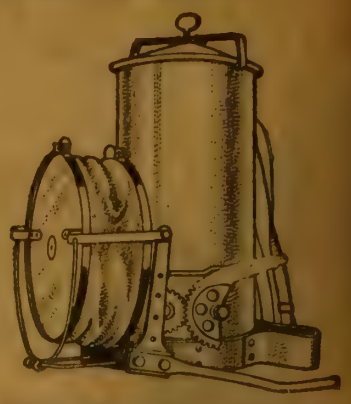
The lawyer was out nothing.

CHANGED HIS COLOR

"Don't you know I tol' yo' not to go swimmin' wid no white trash chillun, eh?" sternly asked Sambo Johnsing.

"But he wa'n'a white before he went in," replied Sambo's small son.—Boy's Life.

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WATCH FOR POTATO WART

Wart, one of the most dangerous diseases of potatoes which has made its appearance in the United States, exists only in a limited section of Pennsylvania, according to the latest information obtained by the United States department of agriculture. The infested territory embraces 27 comparatively small mining towns. But experts of the department have given warning that the infestation may have reached other sections in the same way that it reached the Pennsylvania mining towns, and vigilance is urged to discover and report it, if it does exist elsewhere, as well as to guard against a possible spread of infestation.

The wart disease is thought to have been brought to Pennsylvania in 1912 in potatoes imported from Europe. The potato crop in the United States was short that year, and European potatoes are known to have gone to Pennsylvania and other places over the country where there was demand for a cheap supply. The discovery of the disease in Pennsylvania was made only last year and there is a possibility that it may be present but not yet recognized in other places.

Wart disease is caused by a parasitic fungus and manifests itself by warty outgrowths on the underground portions of the plant. The warts vary in size, and sometimes the entire tuber is converted into a spongy, warty mass. Many of the warted potatoes rot in the ground, but if the warts are small and the season favorable, the diseased tissues may dry down and the tubers keep through the winter.

Damage resulting from wart varies, but it is always severe and in some cases no edible potatoes at all can be grown. This was true in many of the Pennsylvania gardens last year. The fungus is carried over from year to year not only in the potato but in the soil. If the same ground is planted to potatoes year after year, the infestation becomes so severe that the growing of potatoes is rendered impossible. Where long-time rotation is practiced, comparatively little damage is done.

Once the fungus is established in the soil, there is no means of eradicating it except by preventing the growth of potatoes on the infested ground, and it is known to be able to retain its vitality through a period of at least eight years.

"Immune" Varieties Abroad

Potatoes can be successfully grown on badly infested soil only by the use of resistant varieties. While nothing has been done in this country toward the development of such varieties, some of the European countries which have been ravaged by the disease were forced to undertake it several years ago. A considerable measure of success has been attained, the English and Scotch authorities going so far as to refer to some of their varieties as immune. The English government last year contracted for the growing of 1,000 acres of "immune" potatoes in Scotland, the seed from which will be available this spring.

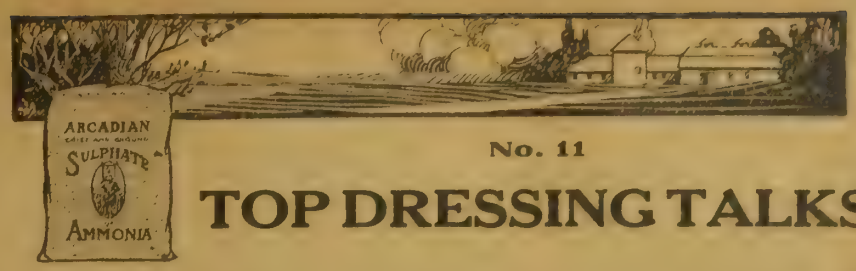
STATE FORESTER

A great fund of information as to California forest resources is given in the seventh biennial report of the state forester of California. The first remark in the book is rather surprising in this that it states that California makes no appropriation for controlling the many fires which annually destroy grain, range and timber. The federal government maintains a system of forest patrol and various counties make small appropriations and volunteer departments aid in fire control in many communities, but the state should aid in this work to protect its own interests. Ordinarily the season is very short, from May 15 to October 15.

The officers are G. M. Homans, state forester; M. B. Pratt, deputy; Messrs. Schooler and Hunter, assistants, and W. J. Moody, secretary. This report is a book of something over 100 pages and is worth preserving in any library.

A "Better Fruit Drive" is soon to be started by the Florida college of agriculture, aided by progressive growers over the state.

Citrus fruit growers of the Murray Valley, South Australia, have formed a cooperative marketing association.



No. 11

TOP DRESSING TALKS

ARCADIAN Sulphate of Ammonia supplies quick-acting nitrogen. Does it afford any other element of plant food? Yes, it contains sulphur, which is highly beneficial on certain soils. Experiment stations have shown that sulphur plays a more important part in plant growth than was previously conceded. Work conducted by Prof. C. B. Lipman and W. F. Gericke is summed up in the following:

> "The superiority of Sulphate of Ammonia over other readily available nitrogenous fertilizers, for barley on the Oakley blow sand as demonstrated in early experiments, is confirmed in a new series of tests."

The cause of such superiority of Sulphate of Ammonia was sought for, and believed to be the sulphur content.

Arcadian Sulphate of Ammonia

ARCADIAN Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past. Especially kiln-dried and ground to make it fine and dry. Ammonia 25¼ per cent. Made in U. S. A.

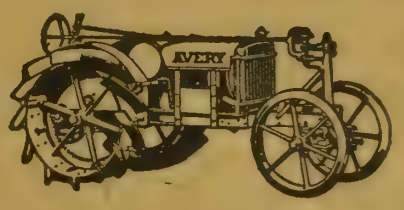
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If You Own and Are Farming---

From 5 to 40 acres of ORCHARD, and do not already own one of the small AVERY Tractors you certainly owe it to yourself to investigate this wonderful little Orchard Tractor for yourself and find out how economically Avery owners are doing their work.

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What you could formerly do with FOUR HORSES,—Only weighs as much as two horses—Less than half as high as one horse, and costs less than half to operate and maintain in repair, than it does to feed one horse the same length of time.

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EVERYTHING there is to be done on your ranch.—Plow, double disc, harrow, cultivate, make your irrigation furrows, and then haul your fruit to the packing house.

It Is Equipped With---

A 4-cyl. motor, extra heavy crank shaft, and connecting rods, enclosed governor, K. W. High Tension Magneto, three speed selective type transmission, equipped with Hyatt roller bearings, DUST PROOF. VERY LOW—45 in. Turns very short,—out of one row right into the next. COME IN AND LET US DEMONSTRATE TO YOU.

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Costs Only $1.00 Yearly

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Kills Sheep Ticks, Lice and Mites; Helps Heal Cuts, Scratches, and Common Skin Diseases.

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Show Herd won highest honors in 1917.
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The Day of the Pure Bred Bull

By R. P. Royce

NOT long ago a cattleman who was visiting this state for the first time remarked that while he found that the top herds of pure bred cattle compared very favorably with the better herds in other sections of the country he was impressed with the rather inferior quality of our range cattle and stated that for the most part they did not show that they had had the advantage of good bulls.

The same observation has been made by others, and there is a deal of fact in it. There is wide room for improvement in our cattle, and this improvement must come if many outfits continue in the business. There are too many cattle operators "asleep at the switch." Too many are running their outfits as they did 25 or 30 years ago and have failed to keep step with the march of time. Too many still insist that "$150 is enough for any bull." Most of these men pride themselves that they are "practical cowmen." We wonder if they are as practical as they imagine themselves to be.

It is rather poor form to remark that times have changed—the fact is too obvious — but nevertheless they have. The good old days of vast herds of Spanish cattle grazing on California hills have gone. In those days beef could be produced very cheaply, labor wasn't a factor, the investment in cattle and land proportionately low and the question of better bulls wasn't a very vital one in the old cowman's scheme of operating. It's different now. Every item that enters into cattle production has increased to a point where it requires careful figuring to really show a profit. Most outfits have progressed — to a degree. There is still much to be accomplished in range control. They have instituted better methods of counting, grading, marketing and disease control. The majority have come to appreciate the value of a full calf crop and have accordingly put out more bulls with their cow herds. The big thing that most have overlooked is the certain possibility of improving their stuff by the use of good bulls. The bull factor in their operations has been—if not discounted — neglected. To many a bull is a bull; to others a bull is a bull—if he is red—and the price is right!—say $100 to $150.

Here, then, exists a strange situation. The most potent factor in improving a herd of cattle, and thereby increasing the profit, is a bull. Bulls are the basic units of herd improvement. It makes no difference how well bred the cow herd might be, the quality and value of the calf crop depends on bulls to a greater extent than any other factor. One does not have to go far afield to prove that statement.

The very fact that most of these "practical" cowmen, when in the market for bulls, insist on a "high grade" is an acknowledgment on their part that breeding does count. A "high grade" bull is better than a plainer bred bull because of the fact that pure bred bulls are back of him. Following out this fact then—why not cut corners, so to speak, and put into your herd the kind of bulls that were responsible for the kind you buy? If your cow herd is better today than it was 10 or 15 years ago—what made it? Scrub bulls? It's better because you used bulls of stronger breeding than your original cows. There is no other explanation.

There is no sound argument against the pure bred bull. The most common argument heard relates to the cost, many cowmen claiming that they can not afford to pay over $100 to $150 for a bull (many will put in cheaper stuff), the chief consideration with them is to buy a bull as cheap as possible—figuring that the cheaper they buy the shrewder they are and consequently the more money they make. As a matter of fact, the cheaper they buy the more money they lose—when it comes to bulls!

There isn't a cowman in California but will admit that on the average the cattle stock of this state registers an improvement over the cattle of 30 years ago. What made them better? Well bred bulls! That fact can not be controverted. It must be admitted, and, if it is admitted, there is little ground left on which to stand when arguing against pure bred bulls.

Far be it from the writer to urge that range men buy $1000 bulls to turn on the range, but he does urge that they discard the old idea that a bull is a bull and adopt a policy of each year adding a better class of bulls, basing their selections on the real beef qualities of the bull rather than on how cheap they can buy. Get entirely away from the $100 to $150 idea. Seek out better bulls and be willing to pay a reasonable price. No one can very accurately set the value of a well bred bull. What is a few dollars—$25, $50 or even $100 or $200—difference in price, when it is certain that the better bull will add pounds to every steer sold, will increase the quality of the steer and reduce the age at which he is marketed?

Another thing—some cattlemen, alleged "practical," have an inborn prejudice against a bull "with papers"—the mere fact that he is registered and has "the papers" to them smacks of "fanciness." And because of their very "practical" natures they disdain to use a "fancy" bred bull. As a matter of fact a well bred bull, backed up by a good ancestry, is the most practical adjunct to a cow outfit. A practical thing is a profitable thing. A pure bred bull that will make one money ought certainly to be practical and not "fancy".

Many cowmen insist that our coast markets are such that the use of pure bred bulls is not encouraged. They claim, and it is undoubtedly true, that there is not a wide enough spread on our markets between the riff-raff and trash that finds its way to the killer and the stuff showing more quality and finish. They maintain that as long as buyers will take stuff of canner quality at a price almost equal to what is offered for cattle of quality that cowmen will continue to pay slight attention to the sort of bulls used.

These men may be right; perhaps they have reached the conclusion after practical observation, but the writer finds it difficult to agree for these reasons:

Granting that a thin-fleshed, light-dressing, thick-hided "hat-rack" will sell for nearly as much per pound as a better bred steer, this fact should be kept in mind—the better bred steer will reach the market at a younger age and go over the scales at a heavier weight. It would therefore appear that the man who raises the better sorts can market more pounds of beef at an earlier age than his less progressive neighbor and therefore has an advantage, even if he has to take about the same price.

But cattlemen in California can be certain that they will have a better market. The intolerable situation that exists now is not going to persist. Through the work of the California Cattlemen's Association the producers are being formed into an organization that will be strong enough to force a change in our present cumbersome marketing system — and that is one thing that they propose to do. In every live stock producing section of the country the question of better markets is a live and vital problem. Apparently, too, the United States government is about to take some action that will touch every market.

Cattlemen of California should adopt a more forward looking policy. The man who makes the greatest success is the man who looks far into the future and anticipates the correct trend of the times and orders his operations accordingly—he is the man who usually "arrives" about the same time new conditions develop.

Now is the time for a great many outfits to anticipate the time when our markets will be better and when increased cost of production will make necessary the adoption of every cost reducing factor.

Better bulls will be powerful factors in reducing the cost of production.

MAGNANIMOUS

One day little Flora was taken to have an aching tooth removed. That night, while she was saying her prayers, her mother was surprised to hear her say: "And forgive us our debts as we forgive our dentists."

Healthy Teats and Udder

HELP THE MILK FLOW

Have you ever noticed how the milk flow falls off if a cow is troubled with a diseased or irritated condition of the teats or udder?

You can save your cows all such annoyance and keep the milk production up to normal by keeping on hand constantly a package of *Bag Balm*, the great healing ointment. Its penetrating and healing properties are so prompt and positive that you need have no udder troubles in any of your cows.

Caked Bag is quickly relieved and eliminated by applying *Bag Balm*. Be sure to have a package on hand when cows freshen. Very valuable in treating Bunches, too.

Sold in liberal 60c packages by feed dealers and druggists.

Send for free booklet, "Dairy Wrinkles"

Dairy Association Co.,
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BAG BALM
MADE BY THE KOW-KURE PEOPLE



Flush Cows After Calving

Protect your herd against Contagious Abortion and Barrenness.

Barrenness or Sterility, like Abortion; Retention of After-birth and Premature Birth, is nearly always caused by infection of the reproductive organs by the germs of Contagious Abortion. Unless this infection is promptly overcome by the use of a powerful but safe antiseptic, it may permanently affect the reproductive organs so that the cow will continually fail to stick.

Every time a cow drops a calf—whether alive or dead—by premature birth or aborting, whether the after-birth is retained or not, her reproductive organs should be flushed out, because that is where the infection is developing.

B-K, the powerful non-poisonous antiseptic, is scientifically correct for this work. Used as a douche for the uterus, it quickly brings the after-birth, dissolves the slimy albuminous matter, kills the germs, stops discharges and controls the infection. B-K does not cause straining, but is soothing and heals the tissues.

Send for "evidence" and free Bulletin No. 52 "Contagious Abortion." If your dealer does not have B-K send us his name

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Herd Sire, Dairy King of Arizona
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California Breeders

have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

CALIFORNIA BREEDERS SALES & PEDIGREE CO.,
C. L. HUGHES, Sales Mgr. Sacramento, Cal.

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

COMBINING POUNDS WITH QUALITY

By Frank D. Tomson

WHEN the feeder goes to market he finds that the premium prices are offered for the quality which his consignment may or may not carry. He observes a very considerable range between the values offered for the steers, or whatever the shipments represent, that have the something that is called quality, and those that lack this desirable possession. If he follows this up he will find that it is the presence of good breeding that has created this quality. He will find that the larger the percentage of good breeding the more evident the quality. The pure bred sire has played his part, and if there are several generations of pure bred sires of the pure bred standard the quality will be all the more pronounced.

Then there is the matter of weight that increases the cash return. This harks back to the pure bred sire also, and when this weight is combined with quality there is a double advantage to the seller as he receives more per pound and more pounds. It is frequently the case that all of the profit is wrapped up in these added pounds and the quality. Many a shipper has journeyed homeward minus a single dollar of profit, in fact often sustaining an actual loss, just for the lack of this quality and the extra pounds. It is an old story—and a true one.

There are times when a feeder can put in a load or more of inferior bred cattle and make a profit, but that is because he bought them low—too low for the producer's welfare. It is the producer who is chiefly concerned about the presence of quality and adequate weight. He is the one who profits when these are present and loses when they are lacking, and he is the one who can provide both. It is up to the producer to see that his standard corresponds with the requirements of the market. It costs money now to grow an animal to maturity. It costs money to finish an animal for the market whether as baby beef or at any older age. There must be a response on the part of the animal that will offset these increased costs. This responsiveness is only assured by an approach to the standard of the pure bred which comes through the continued use of pure bred sires. There is nothing theoretical about this. The lesson is taught every day on every important market. There is only one way to safeguard the producer and that is in the adoption of higher standards, and the nearer that standard approaches the pure bred type the more certain the profit of the grower.

Count the cost of things, Mr. Cattleman, that have a part in the maintenance of your herd and the finishing of your beeves. Whether it is feed, labor, land, or any other item—it is higher.

Not long ago a load of well bred Shorthorn steers sold on the open market at Chicago for $20.50 per hundred weight because they were well bred and adhered to the well bred type. Because of this they finished well. If these were marketed by their producer there is no denying that he had a considerable profit. Previous to that a load of two of Montana range bred steers went onto the Chicago market at $18, a record range price. They were by pure bred Shorthorn bulls and had both the weight and the quality desired. They both count. They are the sources of profit. It takes them both to make adequate returns. It calls for the pure bred bull that will supply both.

BEEF CATTLE FOR VALLEY FARMS

By W. S. Guilford

THE good valley and foothill pastures of the Sacramento Valley have produced excellent grass beef ever since the settlement of California. A number of wealthy outfits own pastures in the hills which they use in winter and in the lower lands subject to overflow in winter but which afford excellent summer feed. Some of these concerns own beef cattle herds that are of exceptional excellence, the Henry Compton herd for instance. This herd has been bred for nearly 40 years under one management. The animals are all reds and as uniform as peas. The foundation stock was red Shorthorns, and some Devons have been used during the past few years.

These big pastures in the hills, with the stubble feed and valley pastures to supplement them, will always produce large quantities of high class beef.

Just how much will the production of beef be increased on the smaller farms in the valley?

There are many grain farmers who are planting alfalfa on a part of their lands and who could easily grow corn for silage. These men do not take kindly to dairying but they could easily grow one or more carloads of baby beef every year. They have stubble and volunteer feed for the cows and calves during a part of the year and this would need to be supplemented a part of the time with silage and alfalfa, but the whole situation could be handled with comparatively small labor cost.

Then dairy Shorthorns for the small irrigated farms are growing in favor. Good red or roan cows that will milk pretty well and produce a calf that will make good beef appeal to many who grow some alfalfa, a few sheep and hogs and have some orchard trees coming on.

For this same situation Hon. E. H. Grubb believes the Lincoln Red cow, a big dual purpose animal that has been popular in England for years, will some day be used. He hopes to see some of these imported next year.

Another big factor in the beef cattle situation in the Sacramento Valley will be the comparatively large number of herds of registered cattle maintained to supply bulls for the range herds.

The men who grow beef on the ranges and big pastures of Northern California are big progressive people; they know the value of good blood and are willing to pay for it.

A lot of good herds are being established in the Sacramento Valley, and more will follow.

And all of them will be needed to supply the demand that now exists for high class bulls.

SHORTHORN SALE

For the Shorthorn sale to be held at Davis on the afternoon of April 8, at which Auctioneer Reppert will preside, there are in all 48 entries, 24 cows and heifers and 24 bulls.

The well known Pacheco Cattle Company has entered five bulls bred by them and all sired by the splendid bull True Dale, by Double Dale, by Avon Dale.

The University of California will sell a bull and heifer, both sired by Sultan Mayflower, he by Sultan Stamp, by Whitehall Sultan. The name of the bull calf is California Model and his dam the wonderful cow which produced the great steer, California Favorite.

A granddaughter of Villager has been entered by the Jack London Estate of Glen Ellen, which is also putting in their herd bull, Roselawn Choice. A great opportunity is afforded anyone desiring a herd header in the offer of this fine animal. There are also two heifers by Roselawn



Why does Swift & Company sell poultry, eggs, and butter?

For the same reason, Mr. Farmer, that your R. F. D. postman now brings your packages as well as your letters.

He used to bring only letters; but since he makes his rounds every day and has the necessary rig or "flivver," Uncle Sam decided to use more fully his time and equipment by handling parcels.

Years ago Swift & Company built up a nation-wide distributing organization, including thousands of refrigerator cars and hundreds of branch houses with refrigerator equipment, for the marketing of meats. And none of this equipment was being used to maximum capacity.

What more natural than that Swift & Company should take on other perishable products, such as poultry, butter, and eggs?

Also—those products are sold by the same salesmen that sell our meats; they are hauled in the same delivery wagons; the same clerks make out the bills; and they go to the same class of retail dealers.

Also—these retailers are equipped to handle perishable products and want to be able to buy poultry, butter, and eggs, of us. And consumers like to buy them from the same retailer that sells meat.

As a result, our vast organization is more economically utilized—and at the same time we render a valuable service to you, Mr. Farmer.

We make the cash market for your poultry, butter, and eggs more steady.

We broaden the outlet for your goods, because our organization reaches every important consuming center in the country.

Swift & Company, U. S. A.

Established 1868

A nation-wide organization owned by more than 25,000 stockholders



Guaranteed break-proof

Don't waste your time tinkering with a plug that goes out of business with a broken porcelain.

Splitdorf plugs are guaranteed not to break—The Green Jacket can be broken and we'll replace any that may be smashed—but Splitdorf Plugs continue to fire regardless of Jacket condition.

Why? Just look at the illustration. Thin sheets of India ruby mica are wound lengthwise around a core-shaped electrode. This forms the insulation of Splitdorf Plugs and you can't break it.

Although Splitdorf Plugs cost the manufacturer more than any other plug they'll cost YOU no more than the ordinary plug. All Splitdorf Standard Plugs, except Specials, $1.00 (In Canada $1.25.)

There is a type of Splitdorf Plug best suited to every engine. Our booklet will tell you the exactly right type for YOUR engine. Write for it TODAY.

At all jobbers and dealers

SPLITDORF ELECTRICAL CO., Newark, N. J.

AERO, DIXIE and SUMTER Magnetos, Impulse Starters and Plugoscillators



SPLITDORF SPARK PLUGS

TRADE SPLITDORF MARK

Second Spring Sale of SHORTHORNS

Under the Auspices of

California Shorthorn Breeders Association

Will Be Held at

The University Farm, Davis, California

on

Tuesday, April 8th, 1919

at 1:30 P.M. SHARP

25 Head of Choice Bulls 25 Head High Class Females

Auctioneer: Fred Reppert of Decatur, Indiana

For Catalog apply

California Shorthorn Breeders Association

320 Sharon Building, San Francisco, California



Raise Your Hogs and Cattle at a Profit

Assist Nature by Feeding

Economy Stock Powder

A general conditioner, a worm expeller and a disease preventive.

Send for FREE SAMPLE and our BOOK on LIVE STOCK.

Save Your Hogs

ECONOMY HOG & CATTLE POWDER CO.
Hearst Bldg. San Francisco, Cal.

Horse Sickness

When unclipped horses get overheated on warm spring days their long, sweaty coats of hair clog the pores and prevent them from throwing off perspiration. This often causes colds, pneumonia, asthma and similar troubles. They dry off quickly, keep well and do better work when clipped with a Stewart No. 1 Machine—$9.75. Send $2—pay balance on arrival. Write for catalog.

CHICAGO FLEXIBLE SHAFT COMPANY
Dept. A 101, 12th St. and Central Ave., Chicago, Ill.

Segis Pontiac De Kol Dutch

Whose three nearest dams are 1000 pound cows that average over 30 pounds in 7 days, heads my herd. Bull calves for sale. E. E Freeman, Rt .B, Modesto

HOLMES STOCK FARM

Registered Holsteins of best breeding. Young bulls for sale.

R. L. Holmes Modesto, Cal.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle it, send 20 cents in stamps and mention your dealer's name and get sample by mail postage paid. Write for prices in larger quantities delivered free by parcel post.

Mfg. by Z. A. MACABEE, Los Gatos, Cal.

Choice 81st and a choicely bred Crookshank animal by Selection.

Oxford is a bull calf sired by Royal Silver, 387283, out of Maud 2nd, consigned by T. T. Miller, who now maintains his herd at Hollister.

E. H. and H. L. Murphy of Perkins are putting in the sale Holden Boy 497945. This bull was calved September 1915 and is sired by Allaraine out of Golden Girl.

In succeeding issues a description will be given of the other entries.

The ever growing interest among cattlemen of the state, both in quality of cattle and breeding, warrants their attention at this sale.

At the present prices for beef the old time prejudice against paying a reasonable price for a worthy animal has disappeared and it is acknowledged among cattlemen that the better the parent the more profitable the offspring.

GUARANTY SALE

Continued from Page 473

King Abbekerk Johanna Segis, consigned by Bridgford Co., Knightsen. This bull was sired by King Segis Alcartra Abbekerk and out of the highest record cow (41.03 pounds butter) on the Pacific Coast, Adirondac Wietske Dairy Maid. All day the crowd had anxiously awaited his appearance in the ring and the moment he was led in, one might have heard a pin drop on the tan bark. What would he bring? Finally, after the crowd composed themselves, he was started at $1500. Gradually he was sent to $2000. $2500, $3000, $3500, and finally Mitchell outlasted his competing bidders and at $5000 became the owner of the highest record bull on the Pacific Coast.

Other sensational prices happened with such regularity that they became rather commonplace. For some time the heifer Korndyke Model Hartog 3d, consigned by Albert E. Smith of Sumas, Washington, and purchased by Toyon Farm Association, Los Altos, for $2600, stood as the top female, but when King Hengerveld Honriette, a 30 pound senior four year old granddaughter of old Hengerveld De Kol, out of Honriette Wayne, consigned by A. W. Morris & Sons of Woodland, came in the most spirited bidding of the day occurred and was not stopped until she became the property of E. D. Barry, Jr., of Daggett at $4000—$900 more than the top cow in the 1917 sale.

Barry made his initial purchases at the 1917 Guaranty Sale when he secured two daughters of Prince Gelsche Walker at $1400 each and one daughter of King Mead of Riverside. In this sale he secured three daughters and a grandson of Prince Gelsche Walker. Incidentally, he was the runner up on the second highest priced female.

Toyon Farm Association made a rare selection when they secured Nos. 1, 2 and 3—Ava Model Hengerveld 2d, a 30 pound cow, her daughter, Ava Hartog Pieterje, and her granddaughter, Korndyke Model Hertog 3d. The family cost $6100. They also selected Princess Jonge Buckeye, 24.9 pounds butter, at $1000, and beautiful heifer Ruby Pierterje of Forrest Hill 2d, bred to the $106.000 bull, Carnation King Sylvia, at $2250.

The Carnation Stock Farms, Seattle, secured the great 37.5 pound Bridgford cow, Boweda, at $2400; the 32.4 pound Sarah Topsy De Kol, from the same herd at $1400, and Stratford Segis Blanche De Kol, 30.54 pound daughter of Sir Segis Hengerveld De Kol, consigned by A. J. Stalder, Riverside.

J. E. Peck, Calexico, was one of the best buyers at the sale, selecting five head at a total of $4800. Included in the Peck buys was the 27.8 pound Jessie Hengerveld Johanna from the Smith herd and bred to Carnation King Sylvia, and Miss Pontiac Nudine of Springvale, a 31 pound cow from the McAlister herd.

The top 10 head averaged $2040, seven bringing over $2000. Six bulls averaged $1600 and the 55 head of females averaged $992.

The complete list of sales follows:

Albert C. Smith, Sumas, Washington.

1. Ava Model Hengerveld 2d, Oct., 1911, 30.53 pounds. Toyon Farms Association, Los Altos; $2050.
2. Ava Hartog Pieterje, Jan., 1917, Toyon Farms; $1450.
3. Korndyke Model Hartog 3d, Jan., 1917, Toyon Farms; $2600.
4. De Kol Butter Boy Belle 2d, Oct., 1911, 28.09 pounds; H. J. Long, Mason, Nevada; $975.

4½. Calf, 1919, Toyon Farms, $325.

5. Princess Jonge Buckeye, July, 1913; 24.90 pounds; Toyon Farms; $1000.
6. Tobe Manor De Kol, Nov., 1912; 23.16 pounds; E. M. Marrow, Modesto; $925.
7. Jessie Hengerveld Johanna, Jan., 1912, 27.82 pounds; J. E. Peck, Calexico; $1500.

Hollywood Farm, Hollywood, Washington

8. Hollywood Ormsby Segis, June, 1915, 20.09 pounds; George Kounias, Modesto; $550.
10. Hollywood Lilith Pontiac, May, 1916, 2.17 pounds; W. J. Higdon, Tulare; $750.
11. Heifer, March, 1918; J. E. Peck; $600.
13. Pauline Fayne Hollywood Bessie, April, 1918; J. E. Peck, $825.
14. Hollywood Bessie Canary, Jan., 1918; Burr Farm, Los Angeles; $550.
16. Hollywood Homestead Lilith, April, 1918; W. J. Higdon; $725.

Carnation Stock Farms, Seattle Washington

17. Ruby Pieterje of Forest Hill 2d, Feb., 1915, 27.77 pounds; Toyon Farms; $2250.
18. Carnation Skylark Segis, Dec., 1916, H. J. Long; $1000.
19. Gerben Colantha Parthenea, June, 1915, 20.88 pounds; J. D. Patterson; Patterson; $1375.
20. Carnation Segis De Kol, Dec., 1917; J. M. Campbell, Escalon; $825.
21. Segis Johanna Walker, April, 1918; R. F. Bradley, San Bernardino; $425.
22. Carnation Rag Apple De Kol, Mar., 1917; Burr Farm; $675.
23. Carnation Segis Colantha, April, 1917; T. J. Gist, Tulare; $1125.

McAlister & Son, Chino

24. Miss Pontiac Nudine of Springvale, April, 1911, 31.00 pounds; J. E. Peck; $1200.
25. Georgie Pontiac 2d, March, 1915, 23.65 pounds; H. H. Sisson, Willits; $300.
26. It Korndyke May, April, 1918; W. F. Mitchell, Visalia; $700.
27. It Tola, May, 1918; Gottshall & Magruder, Ripon; $950.
28. It Idyl Segis, June, 1918; Gottshall & Magruder; $1450.
29. It Meta Kuperus, Oct., 1918; W. F. Mitchell; $475.
30. It Segis Clorinda, Feb., 1918; Burr Farm; $825.
31. It Changeling Wildwood, Feb., 1918, Gottshall & Magruder; $450.
32. Miss Johanna Woodcroft Pietje, May, 1916; R. F. Bradley; $550.
33. It Cornucopia Wayne, Sept., 1918; E. J. Weldon, Sacramento; $400.
34. It Blonde Pietje, bull calf, Fred W. Kiesel, Sacramento; $425.

Bridgford Co., Knightsen

35. Boweda, Oct., 1910, 37.52 pounds, Carnation Stock Farms, Seattle, Washington; $2400.
36. Sarah Topy De Kol, Aug., 1912, 32.40 pounds; Carnation Stock Farms, $1400.
37. Jessie Fobes Burke, Jan., 1911, 31.66 pounds; H. E. Cornwell, Modesto; $1175.
38. Belle Faskie Hengerveld De Kol 2d, July, 1913, 23.85 pounds; E. M. Marrow, Modesto; $600.
40. Upland Zeffie Wayne, April, 1912, 25.76 pounds; E. M. Marrow; $750.
41. King Abbekerk Johanna Segis, bull, Jan., 1918; W. F. Mitchell; $5000.

A. W. Morris & Sons, Woodland

42. Sir Aggie Walker, bull, May, 1918, E. D. Barry, jr., Daggett; $2400.
43. Dictime Clyde Walker, July, 1917, E. D. Barry, jr.; $1500.
44. Princess Luit Walker Burke, Nov., 1916; E. D. Barry, jr.; $1500.
45. Princess Contenta Walker, Jan., 1917.; E. D. Barry, jr.; $1000.
46. King Hengerveld Honriette, April, 1914, 30 pounds; E. D. Barry, jr.; $4000.

R. F. Guerin, Visalia

47. S. V. K. P. Waxana of Sunnyside, March, 1917; R. D. Bradley; $375.
48. Jeania Veeman of Sunnyside, Feb., 1917; Alex Whaley, Tulare; $1000.

Alex Whaley, Tulare

49. Eldorado Winifred 2d, March, 1918; W. F. Mitchell; $800.
50. Mary De Kol Pontiac Segis, Sept., 1915, 18.18 pounds; H. F. Bradley; $450.
51. Rag Apple Alcartra, March, 1916, 18.14 pounds; E. M. Marrow; $625.

Walter F. Mitchell, Visalia

52. Black Patti, Jan., 1911, 26.0 pounds; E. M. Marrow; $550.

W. J. Higdon, Tulare

53. Miss Nudine Fobes Clothilde, Jan., 1917; J. E. Peck; $675.

Fred W. Kiesel, Sacramento

54. Natoma Alcartra, March, 1917, H. M. Cross, Modesto; $60.
55. Dame Walker Prilly, April, 1917, R. F. Bradley; $400.

Gottshall & Magruder, Ripon

56. Sir Skylark Ormsby Hengerveld Pet 2d, Oct., 1913, 30.32 pounds; W. J. Higdon; $1700.
58. Kariray Pontiac Ormsby, Dec., 1918; R. L. Holmes, Modesto; $300.

Toyon Farms Association, Los Altos

59. Ononis Vale Kingmaster, Jan., 1916, 18 pounds; C. A. Miller, Ripon; $800.
60. Toyon Wayne Valdesa, bull, Feb., 1918; C. C. Lister, Gilroy; $675.

A. J. Stalder, Riverside

61. Stratford Segis Blanche De Kol, Jan., 1913, 30.54 pounds; Carnation Stock Farms; $1000.
62. Stratford Segis Blanche De Kol 2d, Sept., 1915, 14.71 pounds; Burr Farm, $525.
63. Blanche Segis Walker, Oct., 1917, R. Stevens, Stockton; $475.
64. Aileen De Kol Beets, July, 1917, 25.51 pounds; H. H. Sisson, Willits; $450.
65. Rosamaine Starlight, June, 1917, W. L. Choisser, Riverdale; $350.

ORLAND JERSEY BREEDERS' ANNUAL MEETING

The annual meeting of the Orland Jersey Cattle Club was held in Orland the evening of March 26.

Following the election of officers Dr. H. W. Hand, president of the state association, delivered an address on the high producing qualities of Jerseys, illustrating his talk by colored slides.

During the doctor's remarks he stated it was the duty of every Jersey breeder to try and place a registered bull at the head of any grade herd in the community even if it was necessary to make a discount on the price of the animal.

He also stated he was willing to do this at any time and hoped other breeders would do likewise, as this would soon convince the owner of grades of the wisdom of adopting pure breds.

Prof. E. C. Voorhies of the state university gave a very interesting talk on the Jersey, its possibilities in this state and the opportunities offered breeders. He called special attention to the success obtained in other communities where the breeding operations were confined to the same blood lines as much as possible.

H. West of Scappoose, Oregon, who has been breeding Jerseys for 30 years, spoke briefly regarding some of his importations.

At the conclusion of the program light refreshments were served by the lady members of the club. The following officers were elected for the ensuing year: President, D. Nickel; vice president, C. A. Whitsett; secretary, Mrs. Nickel; treasurer, A. J. Morly.

ANCHORAGE BERKSHIRE SALES

Mrs. Ruth Hardy of Anchorage Farms, Orland, writes that since March 1 the following fine list of sales has been made. Practically all of the sales represent the blood of the noted boar Star Leader and indicate the esteem accorded him by buyers. The sales follow:

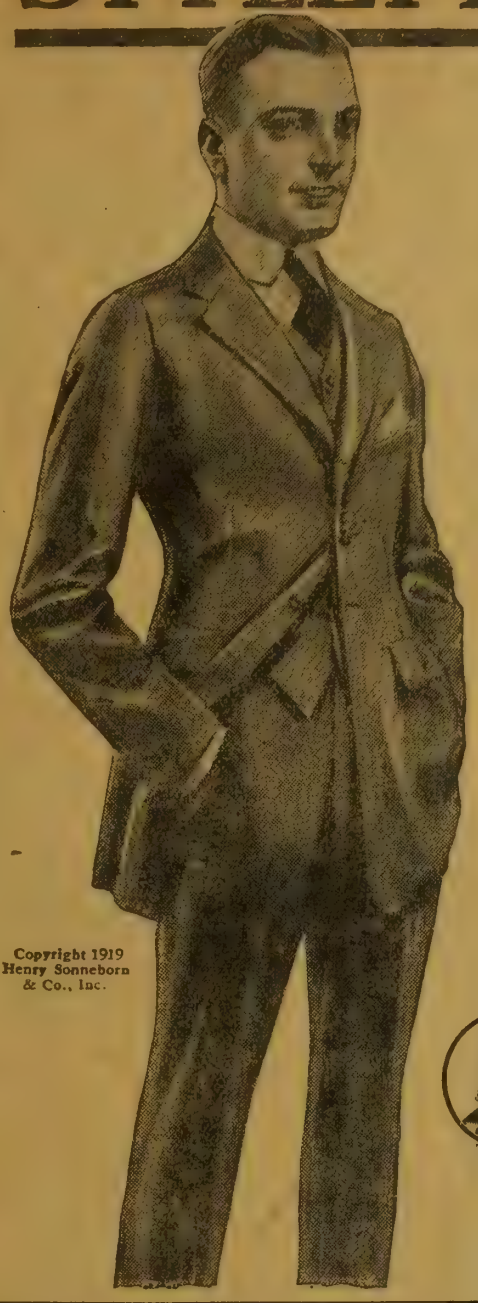
George P. Upham, Martinez, one daughter of Star Leader and one bred gilt; M. G. Algots, Los Angeles, four bred gilts, two bred to sons of Star Leader, one to a son of Ames Rival 70th, and one to a son of Baron Duke 261; D. D. Wilson, Loomis, two bred gilts; H. Tracy, Corning, four mature sows and a son of Star Leader; F. Fuller, Taylorville, one sow pig; Wm. M. Walsh, two bred gilts, bred to a son of Star Leader; Mr. Ondres, Orland, one young boar; M. Morey, Orland, two bred gilts and one sow pig; R. Ryerson, Holtville, one boar pig, grandson of Star Leader; C. K. Robinson, Sacramento, a daughter of Star Leader; Pig Club, Redding, three sow pigs; E. N. Eibe, Glenn, two bred sows; M. Fortini, Orland, one bred gilt; J. F. Nahas, Merced, one bred gilt and one sow pig; Gee Brothers, Corning, two bred gilts; Long & Sons, Nevada City, two bred gilts; Joseph Gassoway, Grass Valley, one bred gilt; G. R. Holcomb Estate Company, Reno, Nevada, one bred gilt; Glenn Pettay, Redding, one boar pig.

Slocum Buying Top Durocs

In a letter written from Cincinnati, Ohio, Clayton N. Slocum, junior member of the Duroc breeding, establishment, H. P. Slocum & Son, Willows, says: "I am seeing a lot of good Durocs on this trip. I have visited the leading herds in Nebraska, Kentucky and Ohio. I find prices ruling very high on the kind of stuff I want, but I am determined to get some of the best for California. Among my selections to date are four gilts from the Ira Jackson herd. A brother to these gilts sold for $7500. Last week I bought a litter mate to Mammoth Sensation, a boar that the owners have refused to sell for $10,000. My new boar is a half brother to Great Sensation, which his owner, Ed M. Kern of Nebraska, values at $50,000.

"Before returning home I expect to visit herds in Michigan, Illinois, Iowa and Missouri and I believe that with the stuff I intend to buy we will have the best lot of herd boars on the Pacific Coast. We will have the blood lines that will put California on the map."

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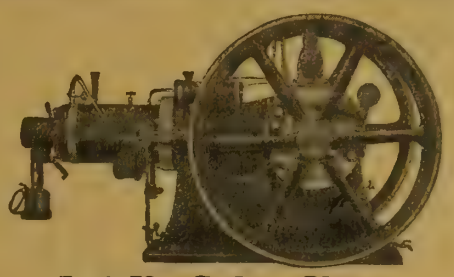
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5 acres in almonds, 4 years old, three different varieties.
5 acres in alfalfa.
9 1-2 acres for grain or other crops.
Ten inch cement pipe line over entire place for irrigating.
Good 4 room bungalow with screen porches, tank house with two rooms.
Two barns, chicken house and corrals, water piped into corrals.
Room for 400 chickens.
Domestic fruit orchard, shade trees.
Electric pumping plant, abundance of water.
Everything in good condition, an opportunity for some one which may never occur again.
Also the following live stock and implements:
One large team of mules and harness; one medium sorrel mare and harness; one light spring wagon; one Deering mowing machine; one hay rake; one Planet Junior Orchard cultivator; one spring tooth harrow; one spike; one two horse walking plow; one two horse lister; one two horse Ventura bean cutter; one three horse Fresno scraper; one single horse cultivator; also shovels, hay forks, etc.
Terms will be given on date of sale.
It will pay anyone contemplating purchasing an improved place to investigate this property and wait for this sale which you can purchase at your own figure.
O. S. GRANT, Auctioneer.
J. SCHNEIDER, McFarland, Cal.



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Notes on the Hereford Sale University Farm, April 9

For the second annual sale under the auspices of the Pacific Coast Hereford Breeders' Association, eight herds have been drawn on for 80 head, consisting of 58 females and 26 bulls. The offering as a whole is easily the choicest collection of Herefords ever assembled for sale on the Coast and will afford a rare opportunity for the established breeder, the beginner and the range man to make selections that will add strength to their herds.

The Herefords have won their way to popularity on sheer merit alone. In the early days of the breed in this country every possible obstacle was thrown against them and at times their supporters had to literally fight for recognition. Gradually the inherent merits of the breed were demonstrated and the movement to the great ranges set in. There has never been a halt. Each year more territory was invaded and the ground captured was held. Gradually the great herds of cattle throughout the West and Southwest began to show white faces. Today every range section has its Herefords and all cattlemen — even the supporters of other breeds — stand ready to acknowledge the beef making qualities of the breed, and to admit that under many conditions the Hereford is the range breed par excellence. California has not always been regarded as a Hereford stronghold, but in recent years a number of excellent herds have been established and there is a growing interest in the breed. It is expected that the approaching sale will develop more interest and result in the establishment of several new herds.

Part of the offering has been selected with special regard to the need of the range man.

One of the largest consignments comes from the Nevada herd of J. H. Cazier & Sons, Wells. This firm maintains one of the best known herds in the West. Their herd was established in 1904 on a foundation secured from the famous Alamo herd of the late Governor Sparks of Nevada, the Halleck Land and Cattle Company and the Hereford Corporation of Wyoming. For the past several years the chief herd bulls in service have been Harris Standard 2nd, a grandson of Bonnie Brae 8th out of a Distributor dam; and Debonair 64th, by Debonair 26th, by Debonair, and out of a granddaughter of Beau Donald. Within the month one of the best bulls of the breed has been installed at the head of the herd. This bull, Beau Blanchard 76th, was purchased from Jesse Engle & Sons, Sheridan, Missouri, for $10,000. He was calved October 6, 1917, and was sired by the noted Beau Blanchard, counted one of the strongest breeding bulls of the present day, and is out of Petrolea 12th by Domino, second dam by Beau Donorous, third dam by Militant and fourth dam by Beau Brummel.

Beau Blanchard 76th headed the second prize young herd at Kansas City last fall. The bringing of this bull to Nevada will mean much to the Hereford interests of California and it is to be hoped that some of the progressive breeders of this state will be as enterprising.

The 22 females, with the possible exception of one heifer, are bred or will have calves at foot to the service of Harris Standard 2nd, Debonair 64th, or Mystic Debonair, a son of Debonair 26th. Among the list are two daughters of McCord by Precursor.

The seven bulls include the three year old Mystic Debonair; an 18 months old son of Beau Perfection by Perfection, the sire of the famous Woodford and Perfection Fairfax. Five yearling bulls, all by Harris Standard 2nd, will sell.

W. D. Duke, whose Alamo herd of Herefords on his ranch near Likely is one of the largest in California, is sending forward 25 head, nine bulls and 16 females.

The Duke herd is founded almost entirely on Sparks breeding. In this connection it might be well to state that the old Alamo herd of Governor Sparks was counted one of the top collections in the West and probably exerted as wide influence on the cattle of the West as any herd.

Twelve of the Duke females are just turning two and most of them are bred to Alamo Reuben, the top bull, $1350, in the 1918 Davis sale. He is a son of Harris Standard 2d, and his dam is Rubena 22d, a daughter of the imported bull Rufus.



Valley Pastures are Rich

Pure bred Hereford bulls from this herd were recently shipped to the Hawaiian Islands. This is part of the breeding herd maintained by H. H. Gable, president Pacific Coast Hereford Breeders' Association.

Five of the bulls, junior yearlings, are out of Mr. Perfection dams and are sired by Picador, a grandson of Peerless Wilton, out of a Hesiod dam, or by Gus, a son of Mr. Perfection out of a Beau Donald 31st dam. Two heifers are by Gus and out of Beau Dale 2d dams. A senior yearling by a son of Mr. Perfection out of a Beau Dale 2nd dam, and a two year old by Majestic Folly, a son of Young Beau Brummel, are also catalogued.

W. J. Bemmerly of Woodland, who has just returned from a tour of Eastern Hereford establishments, is contributing 11 head, consisting of ten females and one bull.

Four of the females, three junior yearlings and a senior yearling, are sired by the Chandler bred bull, New Era 2nd, a son of Debonair out of a Beau Donald 33d dam. The dams of these heifers are by Mr. Perfection by Perfection 2nd, a full brother to the sire of Perfection Fairfax, and Woodford, and by Beau Donald 31st, one of the good breeding sons of the famous Beau Donald. Three heifers are by Mr. Perfection out of Beau Donald 31st dams. Bemmerly is also selling a young junior yearling heifer by Panama 33d by Cuba's Panama, the bull that has been responsible for so many of the good Herefords shown by A. B. Cook of Montana; a junior yearling heifer by Beau Donald 103d, a son of Beau Donald and out of a Beau Donald 40th dam, and the coming three year old cow by Maxwell out of Lady Barendo 190th. The bull from this herd is a junior yearling by New Era 2d, out of Mollie Hope by Beau Donald 31st, second dam Bright Hope by Lord Prettyface. Bright Hope was grand champion at the Lewis and Clark exposition and was never defeated.

The one of strictly bull consignments comes from Chas. Rule, Jenner, who is consigning seven head that in point of good breeding rank with the best to be sold. All are junior yearlings. Five are sired by Sonoma by Beau Perfection 9th by Perfection. The dam of Sonoma was Elvira by Romulus by Militant. The dams of two of the Sonoma bulls were by Beau Picture, a son of Beau President; one by Bright Stanway, one of the really good bulls of the breed

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one is by Simoon 5th, a grandson of Simoon; one is by Beau Randolph by Beau President. Two bulls are by Simoon 5th, referred to above—out of dams by Beau Picture and Beau Dandy by Beau Brummel.

H. M. Barngrover of Santa Clara, proprietor of the Veramont Stock Farm in Plumas County, will sell two cows and four bulls. It will be recalled that Barngrover recently purchased the bull Don Woodford 4th from Walter L. Yost of Kansas City, to assist his herd sire, Patrician 5th. Patrician 5th is an extremely well bred bull. He was sired by Patrician 4th by Paragon 12th. Paragon 12th was the bull that made the W. A. Dallmeyer herd in Missouri famous. Last year Paragon 12th was sold at a long price to the Parker Ranch in Hawaii. The dam of Patrician 5th was A Plum Erling by the great Lord Erling out of Armour Plum. With two such well bred bulls it is expected that the Vermont Herefords will be factors in the development of the breed on this coast. Four of the bulls listed, three senior yearlings and a junior yearling, are by Patrician 5th and are out of some of the best cows in the herd.

The two cows, both by Mr. Perfection, one out of a Beau Donald 31st dam, the other out of a Columbia cow, will prove attractions.

John A. Bunting of Mission San Jose is putting in only one entry—a two year old heifer. Bunting says that he is too anxious to build his herd up to sizeable proportions to go into his herd any deeper. She carries the service of California Prince Donald, grand champion at the 1918 California State Fair.

Mrs. D. O. Lively of San Francisco is the only woman consignor. She is selling a two year old heifer by Majestic Folly out of a dam by Mr. Perfection.

The University of California will sell the aged bull, Hopeful Prince 2nd. He is by Prince Lad 11th by Prime Lad 9th, and his dam is Bright Hope, an undefeated daughter of Lord Prettyface and counted one of the best cows on the Coast today.

Hopeful Prince 2nd was reserve champion at the P. P. I. E. and is a half brother to the grand champion steer of 1916.

EASTERN POLLED HEREFORDS TO SELL AT SACRAMENTO

April 10, the day following the Pacific Coast Hereford Breeders Association sale at the University Farm, Davis, the American Polled Hereford Breeders' Association will hold their first California "Breed Promotion" sale at the State Fair Grounds, Sacramento. This sale is one of a series that the association is holding this spring throughout the country and has as its object the advertising of the Polled Hereford.

Polled Herefords are a comparatively new development. They are true Herefords and the breed was really started when Warren Gammon, father of the present secretary, made inquiry among Hereford breeders as to whether they had any naturally polled calves in their herds. Polled calves were not unheard of, as from time to time naturally hornless calves appeared in various herds. He was successful in locating a few of both sexes and from that start the breed has been built up and has made considerable progress. During the past few years some highly satisfactory animals have been developed.

The sale at Sacramento will consist of 25 head of carefully selected bulls and females from the herds of the following consignors:

J. E. and Geo. Kirstin, Clarion, Iowa; Kerr Bros., Muscatine, Iowa; Harry Smith, Arcadia, Iowa; Fred Reppert, Decatur, Indiana; H. L. Schooley, West Liberty, Iowa; S. F. Haley, Tiskilwa, Illinois; D. O. Eddy, Wesington Springs, South Dakota; C. E. Brown, Rushville, Illinois; N. M. Leonard, Waukee, Iowa; H. B. Thomsfeldt, Lamars, Iowa; Hodgson Bros., Ottawa, Illinois; G. E. Pettigrew & Sons, Flandreau, South Dakota, and W. T. Nolin, Milford, Illinois.

The sale will be managed by B. O. Gammon and H. L. Schooley. Fred Reppert will be the auctioneer.

Lactein

What Is Lactein?

Lactein is a scientific condensed milk product for poultry and hogs. Made from pure buttermilk and whey, by our own process which retains all the health giving food values and a uniform acidity without the useless bulk of water.

Largest Poultry Farm in the World Recommends Lactein

Corless Bros., Mammoth Poultry Farm of thirty thousand laying hens and now making elaborate preparations for an additional twenty thousand more, and by far the largest poultry farm in the world, says:

"We have used Lactein and we are satisfied that it is a first class article, a fine tonic and egg producer. For baby chicks we consider the feeding of Lactein indispensable. You may refer anybody to us and we will heartily recommend Lactein."

Swine Breeders' Association Recommends Lactein For Hogs

A resolution urging every resident in the county to "keep a pig" was adopted by the Stanislaus Duroc-Jersey Swine Breeders' Association yesterday afternoon. The action was taken in view of the appeal of the government to increase the supply of hogs.

The association also declared itself as favoring the use of Lactein, manufactured by the Lactein Company, for the feeding of hogs. Several directors who stated they had used the Lactein for hog feeding highly recommend its use.—Modesto Herald.

LACTEIN is put up in wood barrels holding: five, ten, twenty-five and fifty-two gallons. Should your local feed dealer not have Lactein, write us direct and we will see that you are supplied without delay, or better still send us $3.50 and we will ship you a five gallon trial order by express prepaid. This, when diluted with water as per directions, makes 150 gallons of feeding solution, and is sufficient to acquaint you with the wonderful merits of Lactein. The price in fifty-two gallon barrels is 50 cents per gallon, or about 1½ cents a gallon when water necessary for feeding is added. Write for our booklet "MAKING EVERY CHICK A CHICKEN."

Lactein Company,
Modesto, California.

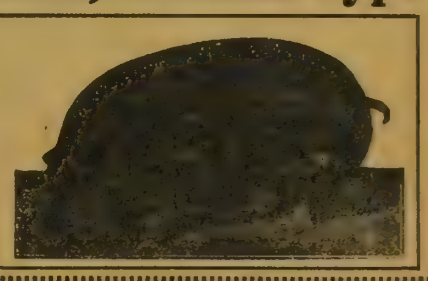
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As good as the best and better than the rest. A boar or a sow pig sired by my great herd boar Director, and out of one of my choice sows will add prestige to your herd. I am booking orders now for the pigs of March and April farrow. Write now and place your order.

L. A. DENKER
Boquet Canyon Saugus, Cal.

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



M. Bassett
Hanford, Kings County, Cal.

Uneeda Glenn County Herd
The Key Herd of Duroc-Jerseys

This herd produced more champions at the 1918 California and Oregon state fairs than any herd on the coast.

For sale now: Boars; gilts, bred or open; bred sows and a few weanling pigs of either sex.

Glenn County for Durocs
H. P. Slocum and Son
Willows, California



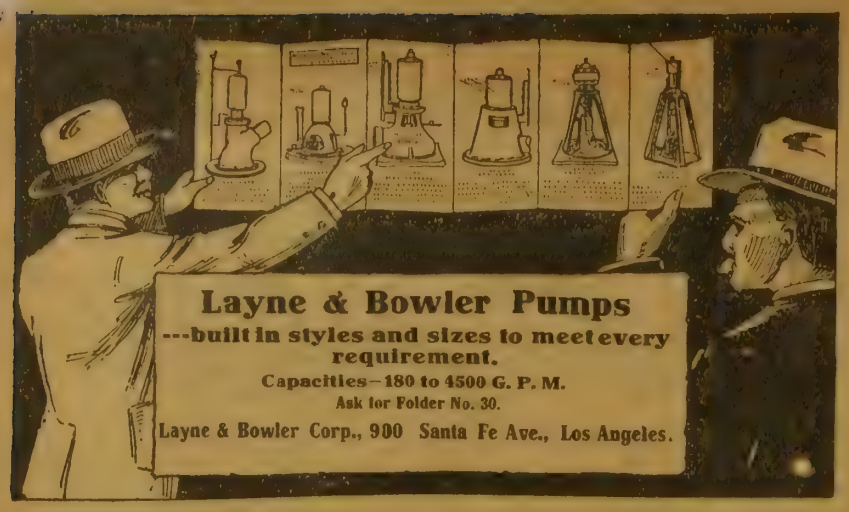
Prince Hiske Walker

He is by Prince Gelsche Walker and out of Hiske of Riverside, being therefore full brother to Lady Hiske Walker, 34.25 pounds butter in seven days as a junior four year old, former state record in class.

His offspring are uniformly straight, vigorous, and well marked. A few of his young sons for sale.

Packwood Farm
W. F. Mitchell, Owner *Visalia, Cal.*

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Notes on the Guaranty Sale

A smoker was tendered the visitors by the California Holstein-Friesian Association the evening before the sale. President Kiesel presided and called on about every one present for a few remarks.

Frederick Stimpson, proprietor of the Hollywood Farms, Hollywood, Washington, urged that the Holstein breeders of the Western States make every effort to have a Western member of the board of directors.

President Kiesel was appointed as delegate to the annual meeting to be held at Philadelphia this summer and O. W. Morris was appointed as alternate.

Resolutions were passed indorsing the pure feed bill now before the legislature in amended form.

A vote of thanks was also given Chas. Paine, Secretary of the State Board of Agriculture, for the many courtesies extended to assist the success of the sale.

During the smoker, Frank L. Morris announced that they were considering sending Tilly Alcartra, the world's greatest cow, to the court of Carnation King Sylvia, the $106,000 bull owned by the Carnation Stock Farms. What would a bull resulting from such a mating be worth?

Albert E. Smith of Sumas, Washington, who brought down a highly attractive lot of cattle, was enthusiastic over the appurtenances he found in this state for dairying. Three cows, a mother, daughter and granddaughter, from his herd, sold for $6100.

O. M. Plummer, general manager of the Portland International Live Stock Show, was on hand during the sale. Plummer states that his directors will offer a $65,000 prize list this year. The State of Washington has recently appropriated $10,000 to be distributed among Washington exhibitors at the Portland show and Plummer is endeavoring to induce the legislature of this state to do as much. The money will only be given California exhibitors.

E. C. Schroeder, whose herd of Holsteins at Moorhead, Minn., is counted one of the strong collections of the breed, attended the sale and announced that he was seriously considering moving his herd to this state. Such a herd would mean much to the Holstein interests of California.

The Carnation Stock Farms, Seattle, Washington, was represented by R. D. Kinger, who is the Pacific Coast manager of the Carnation Company. Kinger comes from a prominent family in live stock affairs. R. J. Kinger, a cousin, is secretary of the American Hereford Breeders' Association and J. C. Kinger, now in France, was manager of the celebrated Hereford Farms of Col. E. H. Taylor in Kentucky.

The honor of topping the sale goes to the Bridgford Company at Knightsen. It was from their herd that the $5000 yearling bull, the highest record bull on the Pacific Coast, came. Six head from this herd averaged $1884.

J. E. Peck of Calexico was one of the most persistent bidders on the choicer lots and succeeded in buying a particularly strong lot of females for his ranch in the Imperial Valley. Peck believes that the valley is destined to be one of the greatest dairy sections of the West and states that there is a real demand for good cattle.

E. M. Barry, Jr., Daggett, received many compliments on the discriminating manner in which he is assembling his herd. He is building on the blood of Prince Gelsche Walker and when stuff of that breeding came in the ring he kept nodding to the auctioneer until he had the last bid.

It is doubtful if Col. Ben A. Rhoades ever made a stronger sale. Starting with the first lot at 11 o'clock and with scarce an hour for lunch, he remained in the box until the last animal was sold at 8:40 p. m. and he was business all the time.

R. F. Bradley of San Bernardino secured many of the attractive females in the offering. Bradley expects to develop one of the good herds in Southern California.

Another good buyer from South of the Tehachapi was Geo. A. Brown of the Burr Company, Los Angeles. Brown selected four heifers of splendid breeding and nice individuality.

W. F. Mitchell of Visalia can count himself rather lucky to have the highest record bull on the Pacific Coast at the head of his herd at a cost of only $5000.

While the bull was selling breeders pledged 12 cows to be bred at $100 each—nearly 25 per cent on the investment to start with.

Gottshall & Magruder, Ripon, bought three daughters of the McAlister bull, It, for an average of $950. For one, It Idyl Segis, a daughter of the 35.66-pound cow, K. P. Idyl Segis, they paid $1450.

H. J. Long of Mason, Nevada, usually bid on the better sorts and succeeded in landing two—one a 28-pound from the Smith consignment, and one a fourth prize heifer at the National Dairy Show from the Carnation herd.

E. M. Marrow of Modesto confined his buying to tested cows and picked five with records from 18.1 pounds to 26 pounds. Included in his purchase was Belle Faskie Hengerveld De Kol 2d, grand champion at the 1918 California State Fair. She is bred to King Segis Alcartra Prilly, twice grand champion at Sacramento.

Toyon Farms Association, Los Altos, bought five head for an average of $1870. All were from Washington herds—four from Smith and one from Carnation. The Carnation cow, Ruby Pieterje of Forest Hill 2d, sold bred to the $106,000 bull and at the time of selling the consigners made an offer of $1200 for her calf in case it was a heifer. It was this firm that purchased the family of three from Smith for $6100.

Every cow or heifer that sold bred to Carnation King Sylvia, the $106,000 bull, was purchased by California breeders. J. E. Peck, Calexico; Toyon Farms, Association, Los Altos; J. M. Campbell, Escalon; J. D. Patterson, Patterson, and F. J. Gist of Tulare, each secured one.

One of the most critical buyers at the sale was W. J. Higdon of Tulare, whose success with Holsteins the past few years has been so conspicuous. The 30.32-pound Sir Skylark Ormsby Hengerveld Pet 2d, was taken at $1700 and two heifers, one bred to Judge Segis at $750, and one a daughter of Hollywood Homestead Veeman.

Col. H. C. Cranke of Nez Perce, Idaho, made his initial appearance in a California sale ring and his work was of a highly satisfactory character. Cranke was another visitor who said he was seriously considering coming to California to locate. This was his first visit to the state and he said he had never seen a section that offered such live stock possibilities.

SAVE CALIFORNIA'S DAIRY INDUSTRY

Pure feeds are essential, or if they are to be adulterated or "filled" with roughage, let that fact be stated so that the dairyman may buy with eyes open. Let every believer in the state's welfare write his assemblyman and senator and appeal for the passage of Assembly Bill 480 by Cummings or of the Higdon Senate Bill 93 with Cummings amendments. If this can be secured the live stock and poultry interests will be protected, and no honest miller wronged. Corn cobs and grain hulls may be fine for roughage but not wanted in concentrates.

STRENGTH!

Like this mammoth crane, Samson Tires are built to carry the load.

Every ounce of material that goes into their construction is tested for strength and endurance. That's why Samson Tires stand up under the severest strains of rough going.

The name "Samson" stands high in the estimation of the man who knows tire values.

Samson Tire & Rubber Corp.
Compton, California



Live Stock News Notes

Nevada Bull, Hereford Attraction

C. L. Hughes, manager for the sale of Herefords to be held under the auspices of the Pacific Coast Hereford Breeders' Association at Davis, April 9, states that he has just been informed by J. H. Cazier & Sons, Wells, Nev., that in order to increase the attractiveness of the offering, they have decided to substitute two bulls for two females originally catalogued. Both are attractive bulls, but one is especially outstanding. This bull, just turned two years old, is Brave Lad by Beau Monarch, a grandson of Beau President. The dam of Beau Monarch is a granddaughter of Beau Brummel. His own dam is also a granddaughter of Beau Brummel, thus making him a rather intensely bred Anxiety.

The Caziers speak very highly of this bull and assert that he will be an added attraction to their own consignment and the sale in general.

Dibblee Barn Burns

Quite recently the large horse barn on the San Julian Rancho, near Santa Barbara, owned by the Dibblee Estate, was destroyed by fire. At the time about 26 horses were in the barn but fortunately all but one were saved.

McCarty Strengthens His Poland Herd

Alex D. McCarty of San Francisco, who maintains a select herd of Poland Chinas at his Riverside Farms near Modesto, has recently received a bred gilt from Robinson Bros. of Norton, Illinois. She was sired by Fashion Masterpiece and is out of a Big Bob dam and bred to Expansion King, junior champion at Illinois and the National. McCarty is making plans for his debut as a Poland breeder at the forthcoming state fair.

Buys Jersey Bull

A. J. Morly, Jersey breeder of Orland, has purchased a young bull from H. West, Scappoose, Oregon.

The youngster is by Fussy Ferns Noble, a son of the $25,000 bull Golden Ferns Noble and out of an imported cow.

Establishing Duroc Herd

F. D. Burr of San Francisco, who has a large alfalfa farm near Orland, is establishing a herd of Duroc-Jerseys. Some 40 sows and several boars now comprise the herd. From these sows and litters will be developed the permanent herd with the addition of some new blood from the East.

The Burr purchases were chiefly from the Lamb and Slocum herds.

Receives Polands From East

R. J. Yates, Poland-China breeder of Orland, has recently received from the East a sow by Miller's Chief, bred to Miller's A. Wonder, and a gilt by Big Bone Leader bred to Big Bob's Leader.

Mr. Yates states he is entirely sold out with the exception of a few young pigs. Recent sales include 11 gilts, four sows and a boar to E. F. Hale, Orland; two gilts to R. P. Frisby, Napa; sow and gilt to Mrs. H. M. Goodfellow, Williams; boar and sow to J. H. Hartman, Del Paso Heights; boar to James McCampbell and a sow to John Merzwick, Geyserville.

Mr. Yates says that he has never known such a keen demand for pure bred hogs as exists at the present time.

Expect Big Year for Berkshires

Quite a number of improvements are under way in the swine department of the Mills Orchard Corporation, Hamilton City.

A large alfalfa field is being cut up into small lots for their Berkshire sows and litters and for their breeding animals.

The feed lots used for fattening hogs are being graded with a slope from the center to the sides along which are concrete drains. These lots will be graveled and oiled, thereby eliminating the mud during the rainy season. Concrete hog wallows and drinking troughs are also being installed. Over 75 sows have farrowed during the past six weeks, with 130 more expected during the next month.

Since the first of the year four cars of fat hogs have been sent to market with two more just fininshing off.

Mr. Mills states that the total sales from the swine department this year will run close to $50,000.

Recent sales of pure bred Berkshires are: Bred gilt to A. A. Harris, Strathmore; bred gilt to Roy Gooch, Cedarville; bred gilt to Mrs. Clede W. Bliss, Pazo; sow to H. S. Norman, Visalia; boars to Mendocino State Hospital, Ukiah; Preston Reform School, Ione; Walter Pfeffner, Chico, and Thomas Dairy, Calistoga.

Will Show Durocs

W. T. Hollingshead & Sons of Orland are among the newer firms entering the fold of Duroc-Jersey breeders. They are developing two young boars, one by King's Model, the other by Bates' Orion King. Both will be shown this fall along with their futurity candidates.

This firm made their first show last year at the California State Fair with stock secured from the Slocum herd.

Farmers and dairymen of New York are said to be disappointed that the daylight saving law was not repealed.

Rule's Herefords



Sonoma No. 625000, 2465 pound bull at four years old—after two years hard service.

He is by Beau Perfection 9th No. 368012. A full brother to the great Woodford $50,000. Over 200 in herd. Foundation stock Gudgell & Simpson Anxiety bred cows. See my consignment at Hereford Sale, April 9th at Davis. Nine of them are by Sonoma, including four show yearlings.

Chas. Rule,
Duncans Mill, California.

When writing advertisers, mention The Cultivator.

Come to the Big
HEREFORD SALE

1 p. m., Wednesday, April 9, 1919, University Farm, Davis, Cal.

84 Registered Cows, Heifers and Bulls 84



Do You Want { First Class Breeding Females? / Herd Bulls of Real Quality? / Range Bulls of the Best Sort? } **They are in this Sale.**

Tie up to REGISTERED HEREFORDS right now. The quicker the start the sooner success will come, and REGISTERED HEREFORDS are going to be very much in evidence in the front ranks in California from now on.

Opportunity is Large in this Sale for the Buyer of High Class Herefords, for Whatever Purpose or Need.

CONTRIBUTORS TO SALE:

J. H. CAZIER & SONS CO., Wells, Nev.
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UNIVERSITY FARM, Davis, Cal.
CHAS. RULE, Jenner, Cal.
W. D. DUKE, Likely, Cal.
W. J. BEMMERLY, Woodland, Cal.
MRS. D. O. LIVELY, San Francisco.

Catalog of sale free on request. Please mention the Cultivator.

CATTLEMEN'S WEEK
April 7, 8, 9, 10, 1919.
UNIVERSITY FARM, DAVIS, CAL.
Something of interest every day.
COME AND BRING A NEIGHBOR

ANNUAL MEETING
The annual meeting of Pacific Coast Hereford Cattle Breeders' Association will be held at 10 A. M., Wednesday, April 9, in Animal Husbandry Building, University Farm, Davis.

SALE UNDER AUSPICES OF

Pacific Coast Hereford Cattle Breeders' Association

W. R. MADDEN, Secretary, Dixon, Cal.
Auctioneer—COL. FRED REPPERT, Decatur, Ind.
H. H. GABLE, President, Esparto, Cal.
Sales Manager—C. L. HUGHES, Sacramento, Cal.

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VENTILATING BROODER STOVE

Solves **VENTILATION**, gives about ten times more **WARM FRESH** air to chicks than any other brooder stove.
It's the only brooder stove with two **RADIATORS** hence compound **ECONOMY.**

It keeps chicks from crowding by proper application of heat, the only **SENSIBLE** way.

It's the only brooder stove using **CHEAP OIL TOPS** successfully as fuel.

It's **PETALUMA'S** latest sensation, and only brooder stove. It skins the bunch in **ECONOMY, Volume of VENTILATION** and **PROPER APPLICATION** of **HEAT. GUARANTEE—SIMPLY** send it back any time within 30 days' trial if you don't think it beats anything you every saw.

Get our catalogue No. 25. That's fair. **TRY IT.**

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Other profit-insuring poultry necessities are Pratts Poultry Regulator, Pratts White Diarrhea Remedy, Pratts Lice Killers, Pratts Disinfectant. Use them to prevent disease, to increase growth and production. *They are all guaranteed.* **Write for FREE Poultry Book.**

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Save the Baby Chicks

Our book, "CARE OF BABY CHICKS," and a package of GERMOZONE are the best insurance against chick losses. Those formerly losing more than half they hatched now raise better than 90 per cent. To you who have never tried GERMOZONE, we will send postpaid, book and package as above. You pay, if satisfied, 75c; 60 days' trial. We trust you.

Druggists and seed dealers sell GERMOZONE, the best poultry remedy and preventive. For old and young,—bowel trouble, colds, roup, musty or spoiled food, limber neck, chicken pox, sour crop, skin disease, etc. Sick chicks can't wait. Do it now.

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When Writing Advertisers, Mention The Cultivator.

Four Hundred Hens in Limited Space

By Jean A. Koethen

IT IS a difficult matter by any other system, and fraught with many chances of failure, but by the Philo system one can keep a good many hens in very limited space if only he is not afraid of work. L. Stratton of Glendale has proved this, and while he admits that the labor required increases as space decreases, he also insists that production is increased by close confinement.

The Philo system is based on the principle that a few hens in a small coop will lay more eggs and require less room than a large number of hens in one flock in a large house. Mr. Stratton has modified the Philo system to suit his own ideas of what California climate demands and has evolved a smaller and more simply constructed coop. The coops in which his 400 hens are housed are modeled after the Philo chick coop, but are higher, and those which are most satisfactory are also larger on the ground. The Philo chick coop is three by six, and one foot high. Mr. Stratton's coops are 30 inches high. His earlier models are of the same size on the ground as the Philo coop, but those of later design are four by eight instead of three by six. This allows each of the 12 hens in the coop two and a half instead of one and a half square feet.

As is shown by the picture, a characteristic feature of Mr. Stratton's coop is the open strip along the front, covered with wire, which permits the sun to enter the coop as long as it shines. In addition to the hinged roof or lid, which may be held at any angle by the notched stick which supports it, the coop is covered partly with wire and partly with a frame covered with canvas. This makes it possible to adjust the ventilation of the coop to suit any kind of weather.

Absolute cleanliness is essential in keeping fowls by this method. Mr. Stratton cleans the droppings from the bottom of the coop, which is the ground itself, every day, and moves the coops to new ground every few months. The more perfectly clean the coops are kept, the longer can they be kept in one place. The 30-odd coops which house Mr. Stratton's 400 Buff Leghorns and Rhode Island Reds are placed in rows fronting south and cover an area of not more than 2500 square feet.

Mr. Stratton's chick coop is far simpler than the Philo model. It consists of a frame three by four and two feet high, covered with tarred paper. Across a portion of the top are wooden slats on which the piece of tarred paper which serves for a roof is laid. A small section of the top is covered with wire over which may be laid, when it is needed, a long pane of glass. When the chicks are first out of the incubator the top is entirely covered with paper and glass. As they grow older the glass is removed and part or all the top left open according as the weather is warm or chilly. When the chicks are five weeks old they are moved to the smaller laying coops.

Last year Mr. Stratton caponized a hundred of his Rhode Island Red cockerels. In February of this year they weighed from nine to ten pounds apiece.



Multum In Parvo

Philo coops lend themselves to cramped positions or where it has been impossible to give space to larger houses and runways.

AMERICAN EGG LAYING CONTEST

By Russell F. Palmer, American Poultry School, Leavenworth, Kansas

In spite of the sudden changeable weather conditions here in February we secured a very high average egg yield from all the standard bred pullets in the American Egg Laying Contest. Understand, please, these pullets are not only standard bred, but every one was scored by a general licensed American Poultry Association judge and any bird that did not score up to a point to make it worthy of rec-

THE POULTRYMAN'S CALENDAR—APRIL, THE GROWING MONTH

Keep the chicks growing steadily these cool days. If there are late hatches they ought to get a splendid start, possibly even overtaking the March chicks if they are well cared for.

The secret of keeping chicks growing is never to let them stop for a minute. There must be no colds, no indigestion, no slack crops at night, no lice, no mites, no lack of greens or protein.

Remember, a chick a month old needs stronger food than one a week old. As the chick grows older, mash and scratch grain should be modified to suit its age. At Cornell, chicks are given this dry mash from the fifth day on: Three pounds each of bran, corn meal, middlings and beef scrap. After four weeks the grain ration is changed to three pounds whole wheat, two pounds cracked corn, one pound hulled oats. The mash is moistened with sour skim milk at first, but gradually more and more of it is given dry. At Storrs, after the first week the mash consists of two parts by weight of bran, and one each of corn meal, flour middlings, ground oats and beef scrap.

Set hens on turkey eggs any time this month.

ognition in any show room was disqualified from this contest.

Judging by the February work of the pullets in this contest it is going to be very difficult to even guess what single pullets or whose pen is likely to be the winner at the end of the year. It is just as hard at this time to even guess what variety or breed will contain the winners.

One thing that this and other contests have clearly proven—something worthy of thought and a matter the interested poultry public deserves and desires more information on and that is this: No one breed or no one variety can claim the best layers. Instead we find that more depends upon the family or strain of a variety than upon any particular variety. For instance a general idea prevails that White Leghorns are wonderful layers—they are. Still we find some families or strains of White Leghorns are decidedly poor layers while other strains are good layers. This has been found true with almost all varieties. In so far as the birds themselves are concerned high egg production depends altogether upon breeding and selection first; upon housing, feeding, systematic care and cleanliness second.

Including the substitutes there are 382 females in the contest. However, we find that all 384 of these fine standard bred pullets averaged an even 20 eggs each for the 28 days of February.

The five high pullets at the end of the fourth month were as follows: Silver Wyandotte, Buff Orpington, White Orpington, White Wyandotte and Buff Minorcas. These five are closely followed by a Buff and a White Leghorn. A pen of five S. C. White Leghorn pullets are easily leading on March 1, though second place for the pen record is in a tie between a pen of Barred Plymouth Rocks and a pen of White Wyandottes closely followed by a pen of White Orpingtons.

The averages and high totals made by the different varieties for the month of February were as follows:

Variety—	Feb. Best Pen Leader. Eggs	for Feb. Eggs
Brown Leghorn	23	99
White Leghorn	28	129
Buff Leghorn	26	99
Anconas	25	92
Buff Minorcas	25	101
W. Plymouth Rocks	26	97
Buff Rocks	28	122
Barred Rocks	28	94
S. C. Reds	28	136
R. C. Reds	26	89
White Wyandottes	27	116
Silver Wyandottes	23	99
White Orpingtons	26	116
Buff Orpingtons	28	110

PEEPS AND CLUCKS

Be sure the sitting hen is in a dry place these wet days, but let her get off every day to eat and run a little. See that corn is always within her reach.

Do you scald your chick fountains occasionally? Not every day but now and then, to make sure they are reasonably clean? A chick would rather drink from a puddle than anything else, but that is no reason for giving him a filthy fountain.

Don't skimp the feed of baby chicks. A chick, like a baby, is more easily underfed than overfed.

When you want to add variety to your chick ration, try a dish of plain bread and milk. Chopped cooked meat is a splendid appetizer also.

When the chicks in the brooder lie around comfortable near the edge of the hover the temperature is right. If they go far outside the hover, see if your heat is not too high.

Don't forget to put a little charcoal in the chick mash. Not all chicks feed it, but they all like it, and it may prevent digestive troubles.

A good ration for chicks the first four weeks is a mash consisting of wheat bran, four parts; alfalfa meal, two parts; corn meal, three parts; middlings, three parts; sifted beef scrap, four parts; ground bone, one part. The beef scrap is hopper fed; the other ingredients are moistened with skim or sour milk and fed three times a day. With this mash is fed a grain ration of three parts cracked wheat, two parts finely cracked corn, one part pinhead oat meal.

Don't expect the chicks to be free from lice if the hen is lousy. Devil's dust or some other good louse powder rubbed into her feathers every two or three weeks will keep them all clean.

Mites will always find their way into a brooder or brood coop sooner or later if means are not taken to keep them out. Go over the inside of your coop every week after the warm days come with crude carbolic acid and kerosene (one part acid to from five to ten of kerosene). Disinfect the brooders before each new hatch is put in and oftener if you suspect the presence of mites.

Chicks that are on a sandy or adobe soil must have chick grit constantly before them. Those on granite soil usually do very well without grit.

If you see a droopy chick, get out the louse powder.

POULTRY AND THE WOMEN FOLK

From earliest times the care of the poultry on the farm has devolved on its women. The egg money has belonged to the farmer's wife and she has been recognized head of the poultry department. Now that interest in poultry has extended into the city, it is the women everywhere who are most enthusiastic. No woman who has room for them can afford to ignore this most useful fad. Looking back at my own early married days, when no woman who considered herself anybody kept chickens or talked about them, and comparing them with these days when the most charming and cultured women I know, wives of college professors and ministers, often call me up for advice about their chickens and hens, I am amazed at the increasing respectability and distinction of the poultry industry. The farm woman who thinks city women have advantages she cannot share should congratulate herself that there is one fad, and that the most useful and healthful of all, which she may share with the women of the whole world. The farm girl, coming to maturity without her fling at the amusements of the city, may congratulate herself on having the opportunity for which thousands of city folks are longing. The farm boy, privileged to learn the care of stock and poultry and rotation of crops before he goes to college, has a chance which many city boys envy him. Are we coming back to the land? It looks so, and there is no better place for any boy or girl to begin than in the care of hens and chicks.

Prevent White Diarrhea From Killing Off Your Baby Chicks

Mayer's Six Weeks Baby Chick Developer is guaranteed to prevent White Diarrhea and raise 95 per cent of all your chicks or your money back—but it does still more than this—it is a tonic—a food—a builder of tissue, blood and bone. It is a scientifically prepared chick food that accomplishes the same wonderful results as the scientific foods that are used for babies the world over.

Raise All Your Chicks

White Diarrhea, the national poultry plague, kills millions of baby chicks every year. The poultry raiser's loss from this dreadful disease is tremendous. It's a crime against the poultry raiser's efforts and his labors. Stop losing from 30 to 55 per cent of your spring hatch. Prevent White Diarrhea by using Mayer's Six Weeks Baby Chick Developer.

This Big $2 Sack Will Last Six Weeks

Mayer's Six Weeks is put up in sealed sacks only. One sack will last an ordinary flock of 140 chicks for six weeks. Don't confuse our sacks with the ordinary four to six-ounce package, because it is entirely different. It contains no filler and is made up entirely of concentrated medicine and food.

Special Half Price Offer

A Regular $2 Sack, Prepaid, Only .. $1.00

Dealers' and Agents' Price: 12 $2 Sacks, $8.50

I am making you a special half-price offer on my regular $2.00 sack of Mayer's Six Weeks Baby Chick Developer for only $1.00 and I am paying the carrying charges myself. Order now direct from this ad and save exactly one-half. Prevent White Diarrhea—develop two-pound broilers in eight to ten weeks and start your pullets laying early. One big sack of this wonderful chick tonic and developer for only $1.00. Send the coupon now.

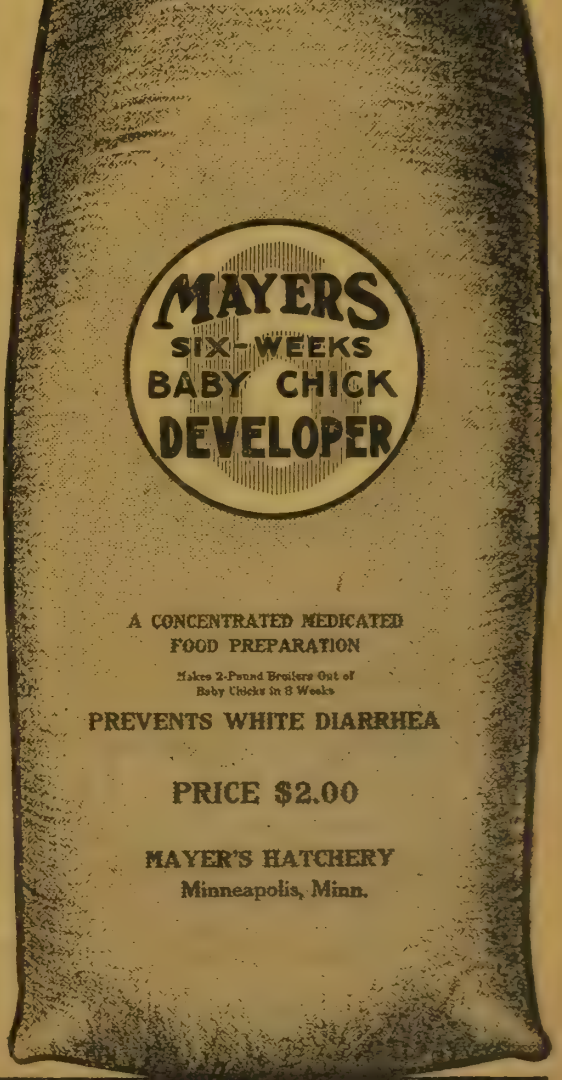
Is a Chick's Life Worth One Cent?

Think this over—what are you doing for your chicks? Are you giving them a chance to earn a big profit for you? For less than one cent you can make sure of raising 95 per cent of your hatch or your money back. The big sack that I am offering you here will last 140 chicks six weeks. Our grandfathers used to say "An ounce of prevention is worth a pound of cure." This old saying is as true today as it ever was. Raise all your chicks. Use Mayer's Six Weeks Baby Chick Developer.

Money Back Guarantee Every sack of Mayer's Six Weeks Baby Chick Developer is sold under an absolute guarantee. If you are not perfectly satisfied, you get your money back.

Order Today Thousands of successful poultry raisers are now using Mayer's Six Weeks. Every raiser should be using it. You should have a sack on hand all the time. Here is a chance to save one-half. Mail your order now. Just enclose $1.00 with the coupon.

MAYER'S HATCHERY
899 Security Bldg.,
Minneapolis, Minn.



MAIL THIS COUPON NOW

Mayer's Hatchery,
899 Security Bldg.,
Minneapolis, Minn.

Enclosed find $..... for which ship me ..... sacks of Mayer's Six Weeks Chick Developer. I am to get my money back if I am not satisfied.

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Town .....

State..... R. F. D.....

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For Sale—250,000 Homegrown fruit trees. Apricots, apples, pears, peaches, walnuts, etc. All stock guaranteed first class in every respect. You will save money by writing for our descriptive catalogue and low prices. Orange County Nursery Co., Box 236, Anaheim, California.

For Sale—About 1000 each of Eureka Lemon and Late Valencia Stock on Sour Root. 2 year buds from first class high producing trees, splendid root system. Charles Brooks, Sierra Madre, California. Tel. Red 14.

Closing Out—4,000 choice Marsh Seedless grapefruit, Eureka lemons and Washington navels, two-year-old buds in June, thirty cents each in lots of fifty, twenty-five cents each in lots of one hundred. P. M. Bevington, Elsinore, California.

For Sale—Budding Cloth 50c yard; also leading varieties citrus nursery stock. Selected and pedigreed buds. Order quick for early delivery. Cyrus W. Wilhite, Citrus Nurseries, Glendora, California. Box 154.

Florida Sour and California Sweet Seedling Orange Seed—Bed Stock. The time to plant is propitious; order now. SOUTHLAND NURSERIES, 1941 E. Colo. St., Pasadena, California.

Manzanillo and Mission Olive Trees selected stock. Free from scale. One inch and over. Thirty-five cents each at nursery. E. E. Barnes, Highland, Calif.

Walnut Trees, Artichoke Plants, and Wagner Rhubarb plants for sale cheap. Mammoth Walnut Nursery, P. O. Box 826, Watsonville, California.

For Sale—175 Placentia Perfection Walnuts, fine 3-year trees, 40 cents at nursery. G. W. Sherwood, Fullerton. Phone 158 R2.

Olive Trees—Mission, Manzanillo. Propagated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, California.

For Sale—Fine yearling Valencia orange trees. John L. Preston, R. D. No. 2, Anaheim. Phone 747-R2.

Grafted Feijoas or Pineapple Guava. Large plants $3.00 each, 10 for $25. Wm. Boyes, Lomita, California.

For Sale—3000 select orange trees. Also 1000 lemon trees; first class trees; 20,000 seed bed stock. A. R. Rideout, Whittier.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—8000 Mission and Manzanillo olive trees. All kinds citrus trees. York Nurseries, Highland, California.

BUDDED AVOCADOS.
MATHER'S AVOCADO NURSERY, 137 N. Fair Oaks Ave., Pasadena, California.

MACHINERY

FOR SALE—USED RANCH TOOLS.
Guaranteed to do as much work as new. WE SELL FOR LESS. CALL AND SEE
WINDMILLS — 8 ft., $29 to $35; 10 ft. $39 to $45; 12 ft., $58 to $68; 16 ft., $135.
REDWOOD TANKS — NEW, used, all sizes, 25,000 gal., $135; 50,000 gal., $250.
NEW GALV. TANKS—1000 gal., $42.50; 2000, $53. USED 6000, $125; 7000, $145.
RANCH TOOLS—6 H. Lambert engine, $95; 10 ft. grain drill, $95; mower, $45; beet drills, $35; 4-gang disc plow, $120; potato planter, $75; disc harrow, spike harrows, Planet Jr. new potato digger, $20; galv. water trough, $7.50; 10 ton McDonald pitless wagon scales, $150; 2-row bean cultivator, $35; 4 in. irrigating pipe, $14.90; 6-in., 25c; 7-in., 32c; 10-in., 43c; sundries.
PUMPS — Complete pumping plant double acting deep well Dow pump 12 H. Western engine, pipe and rods for 135 ft. lift belting, all accessories on cars, $875 or less than half, engine alone costs $700 now. 1-in. centrifugal, 2-in. American, $35; 2½ B. & J., $45; 4-in. horizontal cent., $82.50; 6 hor., $125; 4 two stage, $150; 7 vert. Krogh, $150; single Pomona plunger pump $50, many others. 50 brass cylinders. Checks, Liberty Bonds accepted. DEMMITT CO., upstairs, 120 N. Main. Yards, 816 Yale, Los Angeles. Also buy first-class used material.

ENGINES AND PUMPS FOR SALE
REPLACED BY ELECTRICITY.
One 25 H. P. Fairbanks Morse.
One 25 H. P. Fairbanks Morse.
One 20 H. P. Samson (needs reboring) $150.00.
12 1¼ H. P. Bull Pup engines (new) $35.00 each.
One 3 H. P. Simplicity.
One 9 H. P. Lambert.
One 6 H. P. Samson.
One 9 H. P. Foos.
One 15 H. P. International.
One 12 H. P. International.
One 2 H. P. Fairbanks.
One 12 H. P. Olds (never used).
One 2½ H. P. Jumbo.
One 35 H. P. Fairbanks Morse.
The above used engines are in good repair and most of them have pumps with them. They will sell at about one-half price. Make date with us by telephone or letter that we may give you the proper attention. Charge telephone calls to us. Phone 90, Crowe Hardware, Tulare, California.

Retiring from Dairy Business—Will sell one eight unit Calf-Waw milking machine, only been used six months. Address J. Devlin, Box 291, Napa, California.

For Sale—Two Bemis Transplanters, only used once, good as new. Apply to John A. Hill Box 491, San Jacinto, California.

3-Inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 22912.

For Sale—Tractor Light Caterpillar type and double disc plow; bargain. 1224 S. Main, Los Angeles.

SEEDS AND PLANTS

Dwarf Milo Seed for Sale—This seed was grown in the San Jacinto Valley and is the best from 400 sacks that was raised on 10 acres of land which is an average of a little over two and one-half tons per acre. This seed is large plump grain and well matured. Price $6.00 per hundred, f. o. b. San Jacinto. W. L. Helwig.

Your Garden Will Not Be Complete unless you have a few hills of the world's finest muskmelon, "Casad's Special," a heavy yielder, vigorous grower, long season, grows where others won't. Send for seed package, 25c. Roland C. Casad, originator and grower, Covina, California.

Canadian Peas Grow and Produce better hog feed, better silage and forage crops; eliminate summer fallow worry, increase soil fertility; 100 pound sack, $5. Write for quantity prices, samples, Canadians, Alaskas. Garfield Fruit & Produce Co., Garfield, Washington.

Sudan Seed—First class in every respect. Plump and well matured. Free from Johnson grass. Price f. o. b. Napa, 12½ cents a lb. for 100 lbs. or more; 15 cents a lb. for less. Prices quoted on carload. T. H. Stice, M. D., Napa, California.

Positively Thornless Mammoth Blackberry, found native at Mountain Pass Ranch, Jamestown, prolific, ripens early. Berries mammoth size, practically seedless. Plants ½ doz. $1.50. G. S. Wills, Box 125, Jamestown, California.

New Variety Sweet Potato plants, Nancy Hall, Early Triumph, Porto Rico yams, Yellow Mansemond, $7.50 per thousand, $1.00 per hundred. James Braswell, Lindsay, California.

Everbearing Strawberry Plants. Americus, $1.50 per 100. $3.00 per 250. Send for catalog. F. I. Moffet, Ellensburg, Washington.

Peruvian Alfalfa, Amber Cane, Milo Maize, Sudan Thousand-headed Kale, Artichokes, Seeds. Write for circular. Box 501, Fowler, California.

For Sale—Fancy re-cleaned amber Sorghum and Sudan grass. Also hand-picked seed beans any quantity. Aurora Seed Mill, Stockton, California.

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Our New Hardy Hybrid Alfalfa beats the best, don't compare with others, but write for facts. J. L. LAWSON, San Jose, California.

Fenton's Hybridized Dahlia Seed. The World's Best. 35 seed, 50 cents. Fenton's Dahlia Farm, 771 Buena Vista Avenue, San Francisco, California.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees, Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

Rhubarb Plants — Wagner's Giant Crimson Rhubarb plants, extra clean, 50 cents per dozen, $3.0 0per haundred. Currier Bulb Co., Seabright, California.

For Sale—Florida Sour orange seed and California sweet seedling orange seed. Order early. Milo Hunt, Whittier. Phone 250.

Giant Sudan or wonder plant seed. Greatest, best ensilage producer known. C. H. Benedict, Riverside.

Millions of Tomato, Pepper, Celery and other plants for sale. L. C. Johnson, Pomona.

For Sale — Grape cuttings, 10,000 select Sultana, ready to plant, cheap. Sterns Hutchins, Etiwanda, California. Tel. 173.

Yellow Sweet Potato plants $3.50 per thousand. W. L. Lutz, R. 3, Box 7, Santa Ana, California.

For Sale—Recleaned Soudan seed, 10c per pound f. o. b. Hopland. I. T. Wooldridge, Lakeport, California.

Select Hickory King seed corn $8.00 cwt. Geo. A. Stingle, El Monte, California.

HORSES

For Sale—Pure bred young shire stallions and fillies in foal to the champion stallion Rothwell Forester. Also registered Shorthorn bulls, ready for service, and a few yearling jacks and jennets. Ranch 49 miles west of Spokane and 10 miles west of Davenport on Sunset Boulevard. G. M. Wilson, Rocklyn, Wash.

HOGS

For Sale—A Son of World's Champion SUPERBA, "Greenfield's Black Boy" number 301043, two years old. Dam, Greenfield's Girl registered number 593,812. A fine specimen of large type, big bone, and short leg Poland-China, price $100. We show fine sons of this great hog. LA BONITA RANCHO, Charles Monson manager, Galena St. and Jurupa Ave., ½ mile south of Mission Boulevard (State Highway), W. Riverside, California.

O. I. C. BREEDER'S NOTICE
I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

Sweetwater Durocs
The most popular herd in the West—Our Durocs make us money. They will do so for you. Winsor Ranch, Bonita, San Diego County, Address R. K. Walker.

For Sale—Berkshire male ten months old. Anchorage Peer II, $65. Write E. Watson, Ramona, California, or G. Stewart, 1940 Market St., San Diego, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

LARK MEADOW RANCH
BERKSHIRES.
GEO. A. STINGLE, EL MONTE, CALIF.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLITS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

HOGS

CASTLEVIEW
Giant Type Berkshires.
We are booking orders for spring pigs from Grand Champion sows and sired by Mayfield Rockwood, sire of Champion barrow at 1919 Western Berkshire Congress.
Castleview Ranch, Santa Rosa, Calif.

BERKSHIRES BERKSHIRES
ANCHORAGE QUALITY
We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

BERKSHIRE BOARS AT 2c
SPECIAL OFFER
To introduce my world and national grand championship blood to farmers and breeders, I will sell a limited number of boar pigs, 6 to 9 months old, at two cents above the market price. They are by Baron Duke 201st, national grand champion, Winona Lee Champion 6th, first prize junior yearling 1917 State Fair, and from 650 pound prize winning sows. We will sell nothing that we would not use ourselves. Sandercock Land Co., 906 K St., Sacramento, California. In charge Natomas Land Sales.

BERKSHIRES GUERNSEYS
GRAPE WILD FARMS
A few fall boars left by Royal Superbus—also a limited number of fall gilts. We have early spring pigs of both sexes and we are breeding some top gilts for fall farrow. Prices upon application.
A. B. HUMPHREY,
Escalon, San Joaquin County, California.

"GROW THEM OUT"
BERNSTEIN'S PIG SALE
Sat., April 26th, '19, I will sell sixty-five registered Poland-Chinas to the highest bidder. A few bred sows and service boars. All the rest are PIGS from weanlings up to gilts ready to breed from fall litters. Come and BUY THEM YOUNG AND GROW THEM OUT. W. Bernstein, owner. Write for catalog to W. T. Dice, Sec., Box 374, Hanford, California.

We are sold out of Durocs all except two dandy boar pigs, six months old, sired by the great King Orion and out of King's Pride, a daughter of Kings Col., who won more prizes for get than any sire in the country. These pigs are big, long, high boys, cholera immuned, tuberculin tested and guaranteed right. Send for full information about them. Elliott-Brant Rancho, Owensmouth, California.

Billiken Chester Whites, are all sold except one yearling boar. Am booking orders for spring pigs to be shipped at weaning time. Can still accept a limited number of orders. My boars and sows are of the best blood and most approved type and the pigs I will have to offer will be equal to the best that can be obtained anywhere. C. B. Cunningham, Mills, California.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

For Sale—Poland China — Quality type. Young stock of boars and gilts for sale at all times. At the head of our herd stands some of the best blood—Superba and I. B. A. Wonders, the World and State Champions. Poland China Ranch, C\o H. B. Peake, Mgr., 358 11th Street, San Bernardino, California.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

For Sale — Berkshire boar Pacific Star Masterpiece 2nd 241131—2½ years old. Nil Goethes Masterpiece 198190, dam Star Belle Betsey 226782. Splendid herd header. J. E. Moltzer, Van Nuys, California. South Sherman Way, corner Rita Street.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Registered Duroc Gilts—Ten Sept. and seven June gilts, two bred sows. Well grown, good breeding, reasonable price. J. J. Prendergast, R. 2, Box 87A, San Bernardino, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

Bargains in Poland China Sows. All immune. Good mothers and prolific. Registered stuff. Also boars. Write for details. N. C. Hansen, Coachella, California.

MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Duroc-Jerseys — We breed the champions. Peter, Lamson & Walker, Devore, San Bernardino County, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California.

POULTRY

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. Our chix are doing fine where others are not. Will hatch 1500 to order for May 7th at $180 per 1000. Hatching eggs by the thousand $75. A few settings from our high record hens at $5.00 per 15. Only about ten dozen of our second season hens yet to sell. Eleven of these hens and a 266 egg male will make you a good breeding pen, $25 f.o.b. ranch. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

66 Egg Incubator Shipped to You — Express prepaid only $7.50 or for $12.75 we will send incubator and 66 hatching eggs, White, Buff or Brown Leghorn, Rhode Island Reds, Anconas or Black Minoreas. This is the famous 66 Peerless Hatcher made and warranted by H. M. Sheer Co., Quincy, Ill. Gives universal satisfaction—thousands in use in California. Send money order or check at once, as we can only sell a limited number at this price. POULTRYMEN'S CO-OPERATIVE HATCHERY, 732 So. Spring St., Los Angeles, California. 10 breeds of baby chicks for sale. Send for circular.

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially Interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2216 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs $2.50 per 15. Chicks March and following months 30c each. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose.

Super Quality White Leghorn Chicks, hatched right in Jubilee machines from best strains of foundation stock. Our customers come back each season, we can refer you to them. Write at once before we are all sold out. Newton Poultry Farm, Los Gatos, California.

Hatching Eggs—White Leghorns, Light Brown Leghorns, Dark Brown Leghorns, White Rocks, $2.50 per 15; $10.00 per 100. All bred to highest possible standard of beauty and utility. Mahajo Farm, P. O. Box 597, Sacramento, California.

S. C. R. I. Reds Exclusively. Pacific Coast Aristocrat strain. Baby chicks and hatching eggs from high class exhibition Hoganized stock. Order early. Rosedale Poultry Farm, Route A, Box 200D, Ceres, California.

Sly's Rhode Island Reds winners and layers. Hatching eggs from high-grade stock scientifically bred for exhibition and utility. Settings $5.00, $3.50 and $2.00. Send for catalogue. Albert Sly, 1644 Middleton Place, Los Angeles.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California.

White Wyandottes fine cockerels for sale. J. C. Fishels & Son Strain, $5 and $7 each. Eggs $3.00 per 15. J. W. Nicholson, Wasco, California.

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo. Schmitt, Box 263, Corcoran, California.

Black Minorca and Buff Wyandotte eggs $1.50 per setting. Chicks 20c each. A. G. Moore, 432 Ulysses street, Los Angeles.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Schellville, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

For Sale—Pit game cocks. Address F. B. Pritchard, Clarksburg, California.

POULTRY

Baby Chicks, Hatching Eggs, Breeding Males. Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns, CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

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CATTLE

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On Saturday, May 3rd, Napa State Hospital, Napa, California, will sell from its noted herd of grade Holsteins 20 fresh and springing cows; 50 bred heifers, about 20 of them springers; 30 unbred heifers. The 117 milking females in the herd, including many 2 year-olds with first calf, average 11,503.6 pounds milk last year. Some of these cows, and daughters of the best cows in the herd, bred to the great Napa State Hospital herd bulls, including a son of the world's record cow, Raphaella Johanna Aaggie 3d, will be sold. Registered sires used in the herd for the past 14 years; herd tuberculin tested for ten years. Eight choice registered Holstein bulls will also be sold, out of dams with official records up to over 29 pounds butter in seven days. Everything over six months of age tuberculin tested. Sales manager, C. L. Hughes, Sacramento; auctioneer, Col. Ben A. Rhoades, Los Angeles.

We have one or two Guernsey bull calves left old enough for service and several youngsters. All out of A. R. cows with big records and sired by the best blood in the country. You need a Guernsey bull to put color, flavor and butter fat in your milk. Herd free of tuberculosis by state test. Write for full information. Elliott-Brant Rancho, Owensmouth, California.

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Wanted—Place as foreman. Advertiser is thorough in all lines of farming, fruit growing and the care of live stock. Experienced in working all kinds of labor both tenant and wage systems. Address Box 22, Care of Cultivator.

Wanted—Second hand in good order, a one-man stump puller and a 300 gallon rotary pump, also some 6-inch redwood pipes. A. Laforge, R. D., Box 66, Newcastle, California.

Wanted to Rent by American man, a good dairy farm with cows and equipment, cash or terms. Address Box W, Care Cultivator.

Duroc Jerseys Wanted—Bred and open gilts and young sows. State price, breeding and when bred. Jersey Queen Farm, San Jose, California.

Contract Bee Farm work near by New colonies started 75c each, comb foundation wax painted ¾c each. Box 5, California Cultivator.

Wanted—From grower, two sacks Pinto beans, send sample and price. F. G. Cantelo, San Ysabel, California.

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Wanted—To hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minnesota.

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For Sale — 400 acres grain and stock ranch, 70 acres planted to wheat, barley, oats and rye, 100 acres more cleared and tillable, balance fine pasture land, hilly, with large oak and pine trees; 3 and 6 room house, large barn, windmill and tank, blacksmith shop and tools. Ranch fenced and cross-fenced, 3 miles hog tight, family orchard and garden irrigated from springs. Average rain fall 29.80 inches, elevation 1500, no alkali or hardpan fine for fruit of all kinds, considered the best climate; 6 miles from Coulterville, 3 miles from Pleasant Valley R. R. Station, Mariposa County, one-half mile to school, good roads and neighbors. Free outside range adjoining. Price $3000 cash and $8400 in 9 yearly payments 7 per cent, including 5 horses, all farm implements and household goods. A. F. Zurilgen, Greenfield Dairy, Chowchilla, Madera County, California.

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For Sale—20 acres close to Van Nuys and car line. Aqueduct water. Part medium heavy, part lighter soil. Fine for alfalfa and corn, hogs or dairy. Near L. A. Creamery 1000-acre dairy ranch. $550.00 per acre. W. P. Whitsett, owner and developer, Van Nuys properties. Phone 23, Van Nuys, California.

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For Sale—20 Acres 2½ miles southwest of Orland, under government irrigation project. 7 acres planted to a mixed orchard of carefully chosen lemons, deciduous fruit, grapes and berries. Balance farmed. Planned for a home place. Price $4,000, terms to suit purchaser. Address T. F. Fotheringhame, Orland, Glenn County, California.

For Sale, Rent or Exchange—Tulare County 480 acres, cotton and alfalfa land. North of Delano, 4 wells shallow water, 40 acres fenced, 4-room house, good stable. $50 per acre, terms. See owner. P. H. Manchester, 1480 West 23rd street, Los Angeles, California.

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For Sale—80 Acres, seeded to Bart wheat. Bargain for $12,000. One-third cash. Owner: Box 143, Calipatria, California.

For Sale—320 Acres Alfalfa Land, including water, located in Kings Co. Price, $100 per acre. Will divide, terms. J. A. Elliott, owner, 130 E. 25th street, Los Angeles. Phone 63247.

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By pounding away; for good hard knocks
Will make stepping stones of the stumbling blocks;
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He doesn't expect by a single stride
To jump to the front; he is satisfied
To do every day his level best,
And let the future take care of the rest.
For the man who sticks has the sense to see
He can make himself what he wants to be,
If he'll off with his coat and pitch right in—
Why, the man who sticks can't help but win.

—Oakland Enquirer.

STEREOSCOPE PLAYED A BIG PART IN WAR

By Douglas Reid in Popular Mechanics

BESIDE the plush album on the center table in the parlor of half the homes in America rests one of the deadliest weapons of this war. And yet, in all of American preparedness plans, in all the arming of a nation, not one voice lifted itself to suggest that a million citizen soldiers spring up overnight with stereoscopes in their hands.

The old fashioned stereoscope through which Uncle Elmer, Aunt Hetty, and little Chester—Sunday visitors—used to gaze so breathlessly upon marvelous views of the Mammoth Cave, Lincoln's Funeral, and Sardine Fishers off Brittany; this quaint semiridiculous old instrument of Sabbath entertainment carried roaring, smashing hell to the Huns of Wilhelm, the "scourge of the world".

It was the stereoscope that proved to be the greatest single aid to the detectives of the aerial photography corps of the Allies in their discovery of the expertly hidden batteries of the Germans. It was the stereoscope that penetrated the best battery camouflage that German artillerymen ever devised. Further than that, it removed the one great obstacle to the correct reading of aerial prints—lack of the proper perspective. The camera in the air shoots directly downward; in its pictures the height of objects is lost, and an entirely new viewpoint on the world given the observer. The familiar objects of life become mysterious to him when he cannot see their dimensions in the common fashion.

The camera looks with one eye. A man looks with two eyes, and these two eyes, being a few inches apart, inform the brain that the object looked at has length, breadth and depth. A one-eyed man looking at the front of a house would say it was a wall, but if he had another eye it would see a little of the side of the house and signal the information to the brain that the object had three dimensions.

Now the aerial photographers applied this truth as follows: They knew that two photographs taken of the same object with an ordinary stereoscopic camera, in which the lenses are 2¾ inches apart, would not produce the sterescopic effect, since the object photographed would be miles below, too far for the camera to catch its dimensions and make them apparent in a picture.

However, the photographers bethought themselves that if they put 100 yards between the two pictures—snapped a trench from one elevation, moved 100 yards ahead on a level, then shot again—it would be as though a giant with 100 yards between his eyes were looking at the object.

So they tried this, mounting the resultant photographs on cardboard and looking at them through an old-fashioned steroscope. The result was better than their anticipations; the depth and height of objects were tremendously exaggerated. A cottage looked like a tower, a bucket like a well, a trench like a canyon, a hill like a mountain. But they soon learned to translate these eccentricities into common sense—the great thing had been done, the landscape was made to assume reality in picturees.

Roadside ditches in which men might lie in insufficient shelter could now be told from high walls behind which there was ample shelter—an extremely important thing to know when men are to charge into such territory. Steep slopes up which the men were to charge, and which had been in ordinary photographs flat as water, now showed themselves in their true nature—death traps—and the discovery of the fact saved the lives of the attackers.

SOME TEXAS RECIPES

We read the Cultivator every week with much pleasure and profit and I am going to send you some Texas recipes for the household department.

Whole Wheat Biscuit

One pint sour milk, one teaspoon soda, one teaspoon baking powder, one teaspoon salt, one tablespoon sugar, two tablespoons shortening, enough whole wheat flour to make a firm dough. Roll them, cut out and bake in a hot oven. We buy wheat (when we can) and have our flour ground in a grist mill and have a better quality than commercial graham or whole wheat flour. We like it ground coarse like corn meal and use no other kind of flour except "when company comes."

Hoover Stew

One cup Lima beans, season with bacon or butter, cook two hours, then add one and a half cups raw diced potatoes and one cup raw chopped onions. Salt to taste and cook slowly one and a half hours. When nearly done add one cup sweet milk and thicken the soup with a little flour and water. Serve hot.

Custard Pie

One tablespoon butter, one-half cup sugar, two eggs beaten separately, adding the yellows first, then the whites, one cup of sweet milk and flavoring to taste. Heat nearly to the boiling point and pour into pan lined with uncooked pastry. Use only one crust and bake until firm and brown. This recipe can be used in various combinations. Adding a cup of cocoanut or pineapple makes a delicious pie. Or fill the crust half full of stewed dried apples, currants or seedless raisins and finish filling with the custard. This amount of custard will make two fruit custards.—Mrs. C. S. C., Labinal, Texas.

"A USE EVERYTHING IDEA"—THE HANDY STOCKING

I have read with interest a number of articles in the California Cultivator on making use of everything.

Here is another idea which may help us to let nothing go to waste in these days when so many are in dire need.

What shall we do with our stockings? When they are new, begin to watch them carefully and darn each small hole. They will wear twice as long. Take the money thus saved and send it to our unfortunate neighbors across the ocean for some good warm stockings. When ours are no longer fit to darn we may foot them.

Now if we have started out with good stockings the legs or parts of them may still be used in many ways.

Cut the top of the stocking off eight or nine inches in length, or the desired length according to the age of the child, gather or pleat at the cut end, sew on a pretty tassel and you have a good stocking cap for a child's play cap. If the stocking is a silk one, this makes a good auto cap for the child.

Did you ever try stocking tops for half sleeves? They are excellent. Put a little band around the wrist part and rubber at the top.

The next time you burn your finger on a hot kettle, sit down and fold together six or more thicknesses of an old stocking top—perhaps four and one-half by six and one-half inches or any size to suit—stitch around the edge without turning under for hem and several times back and forth across the holder, sew a tape hanger on and you have a kettle lifter in a few minutes. Hang several of these on a nail by the stove and you will be surprised to find how handy they are.

A good firm piece of a stocking top may be used to mend black petticoats and other ready-made garments of which you have no scraps.

Sew across the bottom of the cut end of another stocking top, tack a piece of tape or shoestring (long enough to tie around the top) at bottom of the hem of the upper part, and you have a convenient bag for twine, scraps and many things.

My favorite dust cloths are made of several stocking tops quilted together. I sprinkle these with 3-in-1 oil, and they may be used on the finest pieces of furniture. Put these dust cloths in a covered tin can or box for a few days after sprinkling with oil and they are ready for use. These may be clamped into a mop and used as you would a dollar dustless mop.

Other uses for the stocking will be sure to suggest themselves to you if you give it a little thought.—Subscriber.

SOME ECONOMY HINTS

By Mrs. A. W. Black

Cooking Economy

Noticing good economy hints from another I suggest these. Left over oatmeal mixed with eggs and fried resembles fried brains. Beat the eggs well and add a little milk. Left over cornmeal improves muffins greatly, just balance by extra baking powder. Left over meat, either raw or cooked, even fried, is appetizing if cut in small pieces, seasoned and cooked with curry powder and onions, the latter added shortly before serving so as to be slightly crisp. This should contain plenty of gravy which is best thickened a little. About a teaspoon curry is right for average size family. This curry preparation is to be served with rice freshly boiled with a little salt and most people relish it. Try it. A little left over rice, corn meal or gravy go in the soup pot. Bake your left over rice with milk, raisins and sugar. Milk baked into rice adds greatly to its nourishment, though water can be used. Don't use alum baking powder.

More Sack Uses

Many good suggestions have been given here for sacks of all kinds. I also have found them useful. Am now bleaching strong smooth flour sacks to make everyday rompers for the baby. Two-piece rompers buttoning at the bottom are simplest. My main suggestion is the use of rice or sugar sacks, which are very firm burlap, sewed together to form porch curtains for a sleeping porch. These will admit a subdued light preferable to canvas, except in cases in which one wishes to exclude light entirely. Cement sacks do very well in that case.

Chest Protector

Take outgrown white wool stockings and, if baby's, sew two together after cutting them from the top to the toe, cutting the heel in the middle. Then cut slightly to shape for the neck. Don't cut off the feet as you'll need these to obtain good length.

Simple Dyes

Blueing or diluted inks serve very well to dye cheesecloth for comforts, flimsy waist material and faded dainty things.

Honey Spice Cake (Original Recipe)

One cup white flour, one-half cup graham flour, three teaspoons baking powder, one-half teaspoon salt, one scant cup sugar, one-half teaspoon nutmeg, one-eighth teaspoon ginger, two teaspoons cinnamon. Sift these together and then add: Two tablespoons honey, two tablespoons shortening, one cup milk, two egg yolks, beaten, one-half cup nut meats.

Bake in two small layer pans in moderate oven and frost with white frosting, using two egg whites stiffly beaten into syrup made of one cup sugar cooked with one-half cup water till it forms soft ball in cold water. Add one teaspoon vanilla, one teaspoon baking powder, beat well and apply to cake.

PAINT THE SCREENS

The life of the screens over windows and doors may be more than doubled if they are painted at least once a year. A screen paint should be used or else a light or thin mixture. Too thick a paint fills the holes and gums up so that it practically destroys the screen.

A SCRAP OF RIBBON

August, 1914. The late days of August. The "Little Contemptibles" in retreat. With the "Little Contemptibles" bles" and under their protection, the inhabitants of Belgian villages, sleeping, eating, marching, bivouacking side by side with their protectors.

For days, from the moment when he had appeared as her shield and champion, Marie-Claire had never left the big, silent Englishman. They ate and drank from the same mess-kit. At night his blanket covered her, while he went without. During the day they marched. In all the gloom and strain of that retreat he remained unchanged. She saw him mounting guard, going without food, without sleep, at the business of war, going in and coming out of action. He was always the same.

To Marie-Claire, too, he was always the same—gentle, respectful, chivalrous. In days like those, miracles were always happening. In the heart of Marie-Claire, one happened—the miracle of love.

One day, after the battle, a general took from his coat the scarlet ribbon of the Legion of Honor and pinned it on the tunic of a British private. Marie-Claire heard the big man beside her catch his breath.

"I'd give my life-blood for such a bit of ribbon," he said. Marie-Claire looked at him. There was light like a glare on his face and a bayonet-flash in his eyes. In that moment, Marie-Claire, was glad, for she had read his heart's desire.

At the Marne she lost him. Then, a comrade straggled into the village where she had taken refuge, and told her the last of him. No line, no cross, above him. No scarlet symbol for him. His only the glory that was the Marne.

Two years later. After Verdun. A Belgian nurse stands before a general at the prise d'armes and receives along with the salute, a red ribbon for her wearing. She hears of her devotion and daring in the dark days at Verdun, from the general's lips. For the words that he reads she substitutes others.

An English breakfast table. A foreign letter. The white-haired mother opens the letter and first curiously takes out of the tissue-paper a bit of scarlet ribbon with a cross attached. Wondering, she reads:

"I want you to know, this is not mine, but his. This ribbon is his life-blood. My life is only his monument."
—Red Cross Bulletin.

HANG UP BROOM AND CLEANING IMPLEMENTS

Brooms which are suspended from nails, instead of standing in some corner, never become one-sided. The uneven wear of brooms is not due—as so many persons think—to the fact that the broom is used more on one side; it is because when unused it is allowed to rest sidewise against a wall with the bristles all bent in one direction. Then no amount of changing or turning while using can correct the bending. I have a broom which has been in constant use for nearly two years and as it is always hung up when not in use it is as free from the common one-sidedness as when it was bought. Soft brooms are also kept in much better condition when not allowed to rest on the bristles. Put up a row of nails in the shed, or wherever you keep the sweeping things, and see how much more room you have if you hang up brooms, mops and carpet-sweeper. Use the shed walls, too, for hanging the clotheshorse, the ironing-board, the clothes basket and market baskets. Get everything out of the way but still within reach. By using the walls in this way many more things can be kept nearer the places where they are used, because of the smaller amount of space which they occupy.

AIRSHIPS

By Alice E. Allen in Youth's Companion

You want to buy an airship?
Which make do you prefer?
The Dandelion's out of style,
But Thistle makes a stir.

Some fairies choose the Milkweed—
It carries quite a load;
I knew one who Witch Hazel bought,
Then found it would explode!

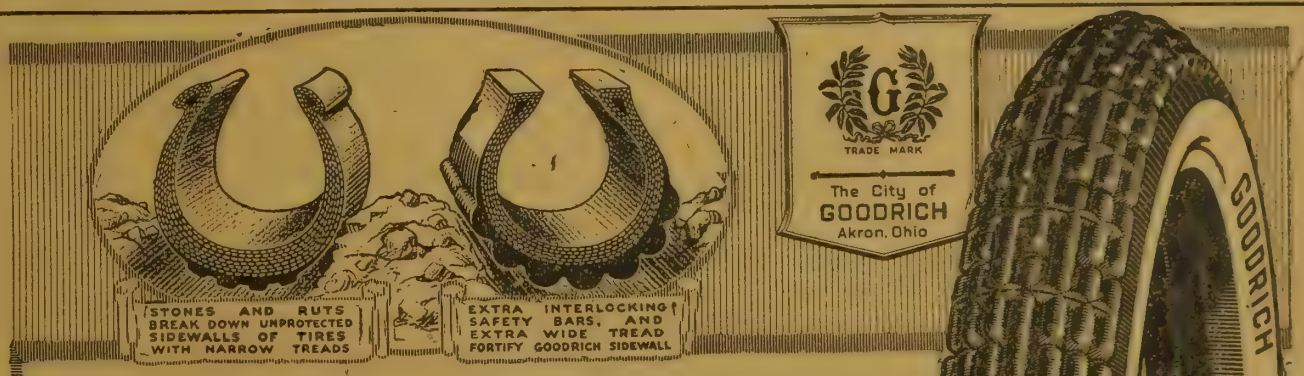
You want to travel swiftly?
To see the loveliest things?
And go quite safely? Seems to me
I'd try the Swallow's Wings.

Save 1-2 on Fuel



CHEAPEST HEAT YOU CAN BUY

The Sievert Oil Burner burns distillate costing only 7½ cents per gallon in cook stoves, heaters, furnaces, pasteurizers, boilers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Install it yourself. Write for circular and prices on different sizes, address Sievert Oil Burner Co., 710 North Main St., Los Angeles.



Rut Riding, and the Goodrich Sidewall

BETWEEN your farm and town is at least one stretch where you either drive in the groove of wagon trucks—or ride the bumps beside them. Without arguing which you do—or which is better for your tires—it is enough to say the ruts grow deeper day by day—and their sides of sand and gravel bits grind busily away at the sidewalls of your tires.

Turn now to Goodrich Tires, and see how the interlocking safety bars of Goodrich's thick, practical *safety tread* spread beyond the ball of the tire to the sides of it. And examine how the extra wide tread carries on up the sides beneath the side strips, and fortifies the inside of the tire with an extra shield of tough tread rubber.

That's the Goodrich answer to rut riding. It is one reason why Goodrich Tires meet the demands of farm service as if they were designed expressly for it.

For a Ford Car, Goodrich's "Three Seventy-five" Tire—a bigger Ford size—makes a super-Ford out of your car.

For a high power car, Goodrich Silvertown Cord Tires deliver a special high power service. Remember that whether you need pneumatic tires or truck tires, a farm on a Goodrich basis is saving money on its tires.

Buy Goodrich Tires from a Dealer

GOODRICH
TIRES
"BEST IN THE LONG RUN"





TALK about smokes, Prince Albert is geared to a joyhand-out standard that just lavishes smokehappiness on every man game enough to make a bee line for a tidy red tin and a jimmy pipe—old or new!

Get it straight that what you've hankered for in pipe or cigarette makin's smokes you'll find aplenty in P. A. It never yet fell short for any other man, and, it'll hand you such smokesatisfaction you'll think it's your birthday every time you fire up! *That's because P. A. has the quality!*

You can't any more make Prince Albert bite your tongue or parch your throat than you can make a horse drink when he's off the water! Bite and parch are cut out by our exclusive patented process!

You just lay back like a regular fellow and puff to beat the cards and wonder why in samhill you didn't nail a section in the P. A. smokepasture longer than you care to remember back!

Buy Prince Albert everywhere tobacco is sold. Toppy red bags, tidy red tins, handsome pound and half pound tin humidors—and —that clever, practical pound crystal glass humidor with sponge moistener top that keeps the tobacco in such perfect condition.

R. J. Reynolds Tobacco Company, Winston-Salem, N. C.

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WORM CONTROL

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WRITE FOR BULLETIN

California Rex Spray Co.

BENICIA, CALIF.

REX Sprays — The Standard for 20 years

When writing advertisers, mention The Cultivator.

Los Angeles Market

Los Angeles, April 2, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 55½ lb.; prices to retail merchants in 1-lb. squares, 58½-59½.

Dairy exchange prices last week on extras:

Mar.	26	27	28	29	31	Apr. 1
'19 ...	56	56	56	56	55½	55½

CHEESE

Brokers' prices:
California fresh, lb. 30

EGGS

Fresh extras, Produce Exchange closing price; 46 doz.; price to retail merchants, 49@51 doz.; case count, Produce Exchange closing price, 44 doz.; price to retail merchants, 47@49 doz.; pullets, Produce Exchange closing price, 44 doz., price to retail merchants, 47-49.

Dairy exchange prices last week on extras:

Mar.	26	27	28	29	31	Apr. 1
'19 ...	44	44	44	45	45	46

POULTRY

Prices to producers: Hens, 33@36; broilers, 42@50; fryers, 45; roasters, 38; old roosters, 18 capons, 43; ducks, 34; ducklings, 34@35; geese, 28; turkeys, 34@39; squabs, 55.

Belgian hares 18.

LIVE STOCK

By F. P. Allen, Bureau of Markets, Los Angeles

Live steers are daily becoming more of a drug on the market than for many months. Wholesalers have had to reduce their prices on dressed steers a dollar per hundred pounds in an effort to move accumulated supplies. Further declines are anticipated. Cows are fully steady owing largely to the light supply. Hogs are strong. Spring and fall lambs are steady. Ewes are firm.

The following prices for classes and grades of live stock represent those being paid by local killers f. o. b. Los Angeles County point prices are usually $1.00 to $1.50 less than these figures dependent upon the distance from this city.

Good steers .....13.00@13.50
Medium steers .....11.00@12.00
Common steers .....9.50@10.50
Good cows .....11.00@12.00
Medium cows .....9.00@10.50
Common cows .....6.00@7.50
Hogs No. 1, 175-225 lb. .....17.75@18.00
Hogs No. 2, 250-400 lb. .....16.50@17.00
Feeder hogs .....14.00@14.50

Above prices are for grain fed hogs in carload lots, f. o. b. Los Angeles.

Lambs No. 1, 55-70 lb. .....16.50@17.00
Lambs No. 2, 65-80 lb. .....15.00@15.50
Wethers No. 1, ...11.00@12.50
Ewes No. 1 .....9.00@10.50

POTATOES AND ONIONS

These are the actual prices obtained April 1 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.

Demand and movement good. Little change in prices. Stockton, Burbanks, quality generally good; sacked per 100 pounds, extra fancy, 3.50; fancy 3.00. Idaho Russets, quality and condition fair, 2.50@2.75; rurals, 2.25. New stock, homegrown Red Rose, 2.75 per lug box. Oregon, seed stock, White Rose and Red Rose, sacked per 100 pounds, 2.85@3.00. Homegrown, White Rose, best mostly 2.75@3.00.

Carlot sales to jobbers: Stockton Burbanks, sacked per 100 pounds, extra fancy $3.25. Idaho Russets sacked per 100 pounds, few sales $2.50. Rurals sacked per 100 pounds, $2.20.

Sweets, lug box best 1.35@1.50; sacked 4.25 per cwt.

Onions: Demand and movement moderate. Little change in prices. Stockton, sacked per 100 lb.; Browns, best from cold storage, 4.25@4.50; White Globes, 10.00@11.00; Homegrown green onions 15 bunch.

VEGETABLES

These are the actual prices obtained April 1 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz., best, 1.25; poorer....1.00

Asparagus: Imperial Valley, green, No. 1, 15@20 lb.; Northern Green, 15-20 lb.

Cabbage: Sales to retailers, best cabbage, 2.50-275.

Carlots: Demand active, prices slightly higher. Quality and condition fair. Carloads f. o. b. cash track. Early Winningstadt, California crates, best $75.00@85.00 per ton, crates extra.

Various California stock sold about steady in various consuming markets at 4.00@6.00 per crates.

Carrots, doz. .....40@45

Cauliflower: Best in cabbage crates, 2.50@2.75; poorer, 2.00.

Celery: Homegrowns, best, 8.00@8.50; poorer, 5.00 per crate.

Lettuce: Sales to retailers, best lettuce in cabbage crates 1.50@1.75, poorer 1.25.

Carlots: Demand good, little change in prices, quality and condition fair, carloads f. o. b. cash track, Iceberg in California crates Imperial Valley, medium and large sizes, 3.25@3.75; mostly 3.25@3.50. Los Angeles district, best medium sizes, mostly 2.25@2.50.

Best Imperial Valley ruled strong at 3.50@3.75 per crate, f. o. b. in producing sections and ranged steady in consuming market at 3.50 to 6.50 per crate. March 31: 18 carloads from Imperial Valley; 15 to Chicago.

Parsley, doz. .....20@25

Peas, Imperial Valley 7½@8 lb.; local (San Pedro) best 10@12; poorer 6@7 lb.

Peppers, Chili, lb., best 25

Bell, lb., best 40

Radishes 15

Rhubarb: Local Giant Strawberry, 1.50@1.65 per sacked box. Northern Strawberry, fancy 2.25@2.35 per box.

Spinach, doz. .....15@20

Squash—Hubbard, best, lb.....2½@3

Tomatoes: Quality and condition generally good. Mexico, best 3.25@3.50 per lug box. Poorer and small, 75@1.50 per lug box.

Turnips, doz. 25

FRUITS

These are the actual prices obtained April 1 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtowns, fy. medium size 3.00@3.50; loose 7 lb. Oak Glen, Rome Beauties and Pearmains, 3.50@3.75; Winesaps, 3.75@4.00; Yucaipa, Delicious, fy. large size, 3.00@3.50.

Pears: Winter Nellis, lb., 6@7.

Lemons: Fy. packed, 4.00@4.25; local pack, 4.00@4.25; loose, some tree ripe, 1.75@2.00.

Oranges: Navels, medium and large size, fy., 5.25@5.75; local packed, 3.00@4.00; Tangerines, 7@8½c lb.

Grapefruit: Local fy., 2.50@3.00 box; Tulare County, 2.75@3.00.

HONEY

Demand improving account of the increasing export demand. Little change in prices, remaining supplies very light. Carloads f. o. b. usual terms, California extracted light amber sage, 17½@18 lb.; light amber alfalfa, 15½ lb.; Idaho extracted white alfalfa, no sales reported; asking 18 lb.

BEANS

Demand slow, little change in prices. Warehouse cash to growers, choice recleaned, sacked per 100 lbs., Limas, 6.50@6.75; Henderson Bush mostly 6.00; Large Whites, best 6.00, mostly 5.50@5.75; Small Whites mostly 6.00@6.25; Blackeyes 3.00@3.10; Tepary, no sales reported.

GRAIN AND FEEDS

Carlot prices on local grain exchange.

Corn, sacked Yellow, 2.90, White....2.75
Wheat .....13.00@14.00
Milo 2.66½
Barley 2.31¼

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....19@24
Barley .....18@22
Alfalfa .....16.00@20.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:

No. 1 dairy.....24.00@25.00
Standard dairy .....21.00@22.00
Standard Alfalfa .....18.00@19.00

San Francisco Markets

San Francisco, April 1, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale dairy produce exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extra 58½
Prime Firsts .....Nominal

Prices extras past week and year ago:

Mar.	25	26	27	28	29	31
'19 ...	59	56½	55½	57	58	58½
'18 ...	46½	46½	46½	45	43½	

Rcts. wk. ending March 31, 475,200 lbs.

CHEESE

Dairy exch. quotations:

Cal. Flats 31
Ore. Triplets 32½
Jack, full cream .....25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras 46
Extra Pullets 44

Prices extras past week and year ago:

Mar.	25	26	27	28	29	31
'19 ...	44½	45	45	45	45½	46
'18 ...	39	40	40	39½	39	

Rcts. wk. ending March 31, 15,621 cases.

POULTRY

We quote to producers, lb.:

Hens, 37@38; broilers, 50@55; fryers, 45@50; old roosters, 23@25; young roosters, 45@50; turkeys, dressed, 42@44.

Ducks, 38@40; geese, 38@40.

Belgian hares, live, 16@17.

Jack Rabbits, 3.00@3.50.

Squabs, 60@65.

LIVE STOCK

Cattle—Grass fed, on foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. alive, 12@12½; 1200 to 1400 lbs., 12@12½; second quality, 11@11½; thin steers, 9@10.

Cows and Heifers—No. 1, 9@10; second quality, 8@9; common to thin, 4@6.

Calves — Light weight, per lb., 11½@12½; medium, 10½@11½; heavy, 8@10.

Sheep—Lb., gross weight: Wethers, unshorn, 11@11½; ewes, unshorn, 8½@9½; lambs, yearlings, 12@12½; milk, 13@14½.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 17½; 150 to 250 lbs., 18; 250 to 300 lbs., 17½; 300 to 400 lbs., 17.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers: Choice, 1050 to 1200 lbs., 13; medium to good, 950 to 1050 lbs., 12; good grass steers, 1000 to 1200 lbs., 11½@12; other steers, 950 and over, 10@11. Cows, 950 lbs., and up, 10; medium to good cows, 9; canners, 6½.

Hogs — Hard, grain fed, well finished

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Farmers who want to make money and save labor write for our illustrated folder on Austin Farm Ditcher.

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Cuts V-shaped ditch to depth of 4 feet, grades roads, builds terraces or levees. Reversible blade—of all steel construction—the supreme tool for digging draining ditches. Made by firm 40 years the leaders in earth working machinery.

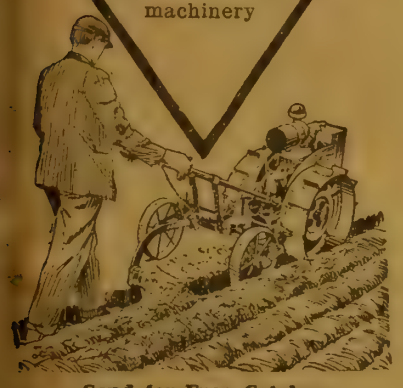
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Excellent also for Alfalfa, Vines, etc.
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CALIVADA
Sheep MANURES Steer

From highest nitrogeneous feed. Decomposed and concentrated by age in their own liquids, containing the highest percentage of Nitrogen, Phosphoric Acid, Soluble Potash, and readily available Humus.
Shipped commercial dry. Cars average 22 to 24 tons. Saves four-fifths labor in application. Thousands of tons now being shipped to citrus and deciduous growers in California.
Write for samples, prices and particulars today to insure prompt deliveries.

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Sales conducted in all parts of California and adjoining States. Twenty-five Years' Experience.
Ben. A. Rhoades, Auctioneer
1501-2-3 So. Main St., Los Angeles, Cal.

175 to 250 lbs., 18; 150 to 175 lbs., 17; under 150 lbs., 16½; 250 to 300 lbs., 17½; 300 lbs. and up, 17.

POTATOES

Supplies moderate. Demand and movement good; quality and condition generally good, sales to jobbers — California Burbanks fancy $3.00; U. S. grade No. 1, 2.50@2.75. Oregon Burbanks, U. S. Grade No. 1, 2.35@2.50. Fancy 2.65. Idaho and Washington Netted Gems, U. S. Grade No. 1, 2.25@2.50.

ONIONS

Storage, cwt. .....3.25@4.00
Garlic, lb. .....40@75

VEGETABLES

Wholesale selling price:
Artichokes, doz. .....50@90
Asparagus, lb. .....5@9
Beans, string, L. A. lb. .....40@50
Beets .....2.00@2.25
Brussels Sprouts, lb. .....6@8
Cabbage, Early Flat Dutch, 1.00@1.50.
Carlots: Demand and movement moderate, little change in prices. Quality and condition wide range. Street sales—Early Flat Dutch, bulk per 100 lbs., 1.50@1.75.
Carrots, sk. .....2.50@3.00
Celery, cr. .....4.00@6.00
Cauliflower, doz. .....50@1.00
Cucumbers, hothouse, bx. of 30..3.00@3.50
Egg Plant, lb., local, ...5@10
Lettuce: Per crate, southern, iced 1.75@3.00; Watsonville, 1.75@2.25; Imperial Valley, 4.00@4.50.
Large quantities. Supplies liberal. Demand and movement moderate. No change in prices, quality and condition wide range. Street sales, Imperial Valley stock in California crates, $4.00@4.50. Los Angeles district mostly $2.50, best $2.75@3.45; poorest, $2.00.
Mushrooms, bx. .....15@50
Peppers, Southern .....12@15
Peas .....6@10
Pumpkins, sk. .....1.00@1.10
Rhubarb, bx., Sebastopol.....1.75@2.00
Strawberry, bx. .....1.75@2.25
Squash—Cream .....90@1.00
Summer, cr. .....2.50@3.00
Spinach, lb. .....50@1.00
Tomatoes, Mex., cr. .....4.00@4.50
Turnips, bag .....2.25@2.50

FRESH FRUITS

Wholesale selling price:
Apples: Newtowns, 3.00@3.25; Winesaps, ex. ice, 3.50@4.00.
Bananas .....6½@7¼
Loquats, lb. .....10@18
Pears—Winter Nellis .....3.00@4.00
Common .....1.50@2.00

CITRUS

Box: Lemons, 3.00@4.00; Lemonettes, 2.00@2.50; grapefruit, 2.50@3.50; Mandarins, half orange bx., 3.50@4.00; tangerines, half orange bx., 3.50@4.00; Navel, 4.50@5.50; Mex. limes, case, 7.00@8.00.

BEANS

Demand and movement moderate, little change in prices. Carloads f. o. b. usual terms, recleaned sacked per hundred lbs.: Small Whites 6.50@6.60; Large Whites 6.15, Cranberries 5.00@5.50, Red Mexican 5.00@5.25, Pink 5.50, Blackeye 3.90@4.00.

HAY

Fancy Wheat Hay (light 5-wire bale) .....21.00@23.00
No. 1 Wheat or Wheat and Oat Hay .....17.00@19.00
No. 2 Wheat or Wheat and Oat Hay .....13.00@16.00
Choice Tame Oat Hay .....18.00@20.00
Other Tame Oat Hay.....13.00@16.00
Wild Oat Hay.....12.00@15.00
Barley Hay .....12.00@15.00
Alfalfa Hay .....15.00@18.00
Stock Hay .....12.00@14.00
No. 1 Barley Straw, bale..... .50@.80

Citrus Fruit Market

Los Angeles, April 2, 1919.

There has been slight shading of prices in some markets but exceptionally fine returns are still being made. There are still something over 3000 cars of navels to be shipped but these will be largely cleaned up during this month. Seedlings, sweets and St. Mikes will also clean up about the same time, after which Valencias will have the board through the summer.

The lemon market is no better. Indifferent or poor fruit is liable to command less than packing and freight charges. First class stock occasionally commands close up to $4.00. There are large quantities of foreigns being received.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California, oranges 13,000 cars, lemons 3163, total 16,163. To same date last season; oranges 6209, lemons 1644, total 7853. Central California this season; oranges 2993, lemons 354, total 3347. Last season to same date; oranges 1998, lemons 113, total 2111. Northern California; oranges 244, lemons 202 last year same date.

AT THE AUCTION

March 31

New York: 44 oranges, 4 lemons. Nav., 2.40-5.70. Seeds., 3.60-5.00. Sweets, 3.85 4.35. Mikes., 4.50-4.65. Lem., 2.30-3.80.

Cleveland: 10 oranges, 2 lemons. Nav., 3.40-5.50. Bloods, halves, 2.55-2.60; whole, 5.15. Lem., 2.65-3.25.

Philadelphia: 9 oranges, 2 lemons. Nav., 3.50-5.25. Bloods, 5.35. Lem., 2.40-3.90. Tang., halves, 2.35-3.00.

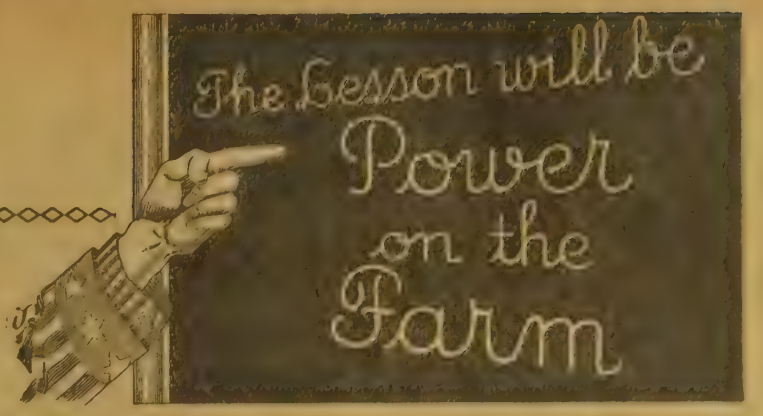
St. Louis: 7 oranges, 1 lemons. Nav., 3.95-5.20. Seeds., 5.00. Bloods, 5.00-5.05. Sweets, 5.00. Mikes, 5.00. Lem., 3.45

Boston: 22 oranges, 2 lemons. Nav., 3.60-5.30. Lem., 2.50-4.00. Bloods, 4.30-5.30.

WEATHER CONDITIONS

San Francisco, California, March 29, 1919.

Stations	Rainfall Wk.	Season.	Norm.	Temp Max.	Min.
Eureka	.08	33.64	38.16	68	46
Red Bluff	.08	25.86	21.18	70	46
Sacramento	.10	17.08	16.78	66	44
San Francisco	.43	25.54	19.33	64	48
San Jose	.29	18.98	14.48	70	42
Fresno	.00	6.54	8.17	74	44
San Luis Obispo	.03	17.78	17.89	68	46
Los Angeles	.01	8.18	13.82	64	48
San Diego	.00	[illegible]	8.76	64	48



Power Drives The Farm

The Second Annual Tractor Demonstration Will Be Held at Sacramento, May 6th--11, 1919. It Will Be a Six-Day Lesson on Power on the Farm.

It Will Be the Largest Exhibit Ever Held on the Pacific Coast

Tractors
Power Farming Machinery
Accessories

Tractors with 4 wheels, tractors with 3 wheels.
Tractors with 2 wheels, tractors with 2 tracks.
Tractors with 2 tracks and 1 wheel.
Tractors with 2 tracks and 2 wheels.
Tractors with 1 track and 2 wheels.
Tractors with one-cylinder engine.
Tractors with two-cylinder engine.
Tractors with four-cylinder engine.
Tractors with eight-cylinder engine.

—of upright, horizontal, single opposed, double opposed, valve-in-head, T-type and L-type—in fact all the types of engine construction.

See them pulling mould-board plows, disc plows, harrows, scrapers and all kinds of farm implements. Remember, there's nothing quite like seeing. At this demonstration there will be tractors to meet every demand for the big and little ranches, for the orchard, grove and vineyard, for hauling, for the pulley.

You will see these tractors at work, doing exactly what they will do for you on your farm. There's no telling equal to seeing. Come to see for yourself. Compare all these power farming tools while they are at work. See them in action as they would be if they were on your farm.

Free Admission. Free Auto Parking. Free Camping Grounds Nearby.

Excellent Restaurant Fully Equipped. Additional Information Upon Request.

California Tractor and Implement Association,

Hotel Land, Sacramento, California.

Cleveland Tractor



DOES MORE THAN PLOW

THE CLEVELAND TRACTOR pulls **rocks out of the** ground, not **itself.**

THE CLEVELAND TRACTOR, because of its track laying construction, travels **on top** of the ground; it plows; it sows; it cultivates; it reaps, and does other work on ranch or road, in **less** time, and at less cost, than with horses or mules.

THE CLEVELAND TRACTOR uses its power to **pull the implement**—not to pull **itself out of the ground.** That is one reason why it operates on so little fuel.

Send for "The Story of Cleveland Tractor Company," illustrated. Free as long as our supply lasts.

"THIRTY MINUTES FROM SERVICE." What it means to the grower when "time is money." It means that in our tractor organization, the **largest** and most **efficient** in Southern California, we have representatives so located throughout all of Southern California and Arizona that nearly every **CLEVELAND TRACTOR** user is within 30 minutes from one of them. Send for his name and address.

Mr. C. E. Everett of North Cambridge St., Orange, Calif., writes under date of March 17th, 1919:

"**My Cleveland Tractor,** bought in June, 1918, has given me every satisfaction. In my opinion it is the only tractor on the market suitable for orchard work, being easily handled, gets closer to the trees, without injury, than with horses. So far my upkeep expense is negligible, while the cost of operation is surprisingly low."

SMITH BROTHERS

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1626 South Figueroa Street **Los Angeles, California**

Deep Well Pumping Plants

at Bargain Prices

Layne & Bowler
(Deep Well)

PUMPS

Fairbanks-Morse Co.

ENGINES

These outfits are complete plants and have been used only to test the wells. Lack of water put the Irrigation Company out of business.

We purchased the plants and offer them at ½ the new selling price.

There are 28 Layne & Bowler pumps to fit 16-inch casing. 80, 90, 100, 125, 150-ft. settings.

There are 18 40-H. P. Fairbanks engines, and 10 50-H. P. Fairbanks engines. Complete in all details, pulleys, belt, etc.

The engines and pumps have been housed and are now in storage, and we guarantee same to be absolutely in A-1 shape.

Write us for further details.

Collins & Webb, Inc.
Machinery Dealers

412 East Third St. **Los Angeles, Cal.**

Easy Ditching



THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with



THE Martin

DITCHER, Grader and Terracer

Makes new ditches; cleans old ones; grades roads; builds dykes and terraces. Cuts alfalfa, Bermuda grass or sweet clover roots from ditch banks, without plowing. Does more work and better work than 100 men with old methods.

Made In Horse and Tractor Sizes

All steel. Reversible. Adjustable. No wheels, cogs or levers. More MARTINS now in actual use than all other farm ditchers combined. Warehouses and distributing points in nearly all Western States. Write for free descriptive catalog and nearest distributing point, together with list of MARTIN users near you.

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Federal Farm Loans

Long Term **Low Rate**

All loans made on an amortization plan whereby the borrower repays the principal gradually with each interest payment.
Over three thousand satisfied borrowers in this district.
It will pay you to investigate.
For information apply to the nearest NATIONAL FARM LOAN ASSOCIATION or write direct to

Federal Land Bank of Berkeley
California

SURFACE IRRIGATION PIPE

Prompt Delivery

Write for Catalog and Prices

Manufactured by



Woolwine Metal Products Co.

Eighth St. and Santa Fe Ave. Los Angeles

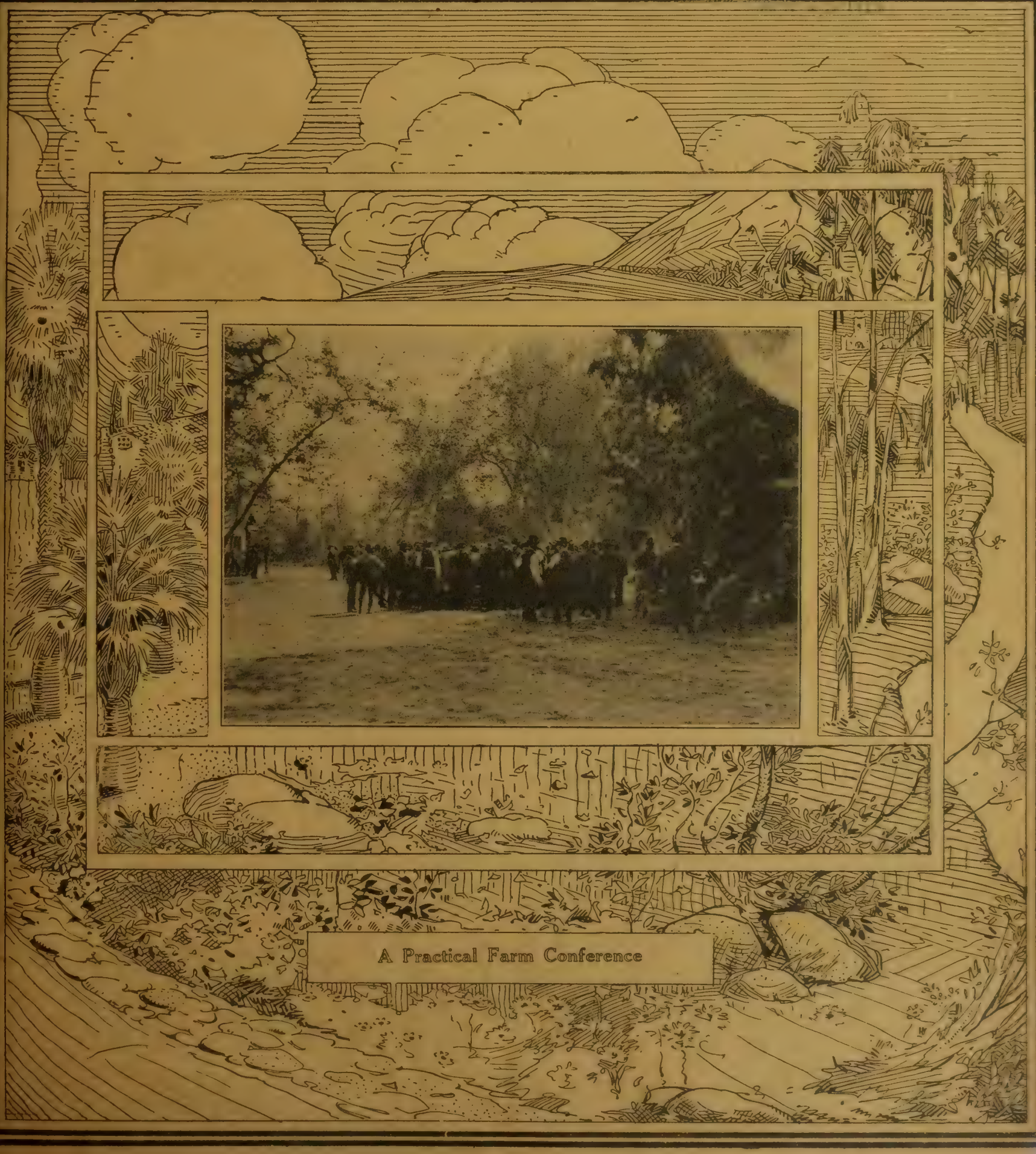
CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. VII — April 12, 1919 — No. 15

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A Practical Farm Conference

REO

"Oh! You'll Get There All Right —With That Reo!"

A CERTAIN LADY—you know a large percentage of Reo owners and drivers are women—a certain Reo Lady was making a long, cross-country trip accompanied by three other ladies.

WEATHER WAS AWFUL—no other word would describe it. Roads accordingly.

AT MANY PLACES there were detours where modern roads were being built.

YOU KNOW THE KIND—a mile to the south, then a mile to the west, north a mile again to the main road.

HEAVY TRAFFIC on what was never a road, but only a trail, cut ruts hub-deep in the slippery clay and sticky mud.

AND IN THE RUTS were chuck-holes that, concealed from view by mud and slush, had to be ever guarded against.

TO HIT ONE at speed were to throw the passengers out of the seats. To drive at more than a snail's pace were to take risks.

TO MAKE MATTERS WORSE, she frequently had to drive off the road and into the ditch in order to pass other cars that were hopelessly stalled.

AT TIMES OUR LADY was dismayed by the look of things ahead, and as she plowed through, drip-pan awash and gears in low, she would stop and ask other wayfarers if it was any worse ahead.

INVARIABLY—so fond are most folk of imparting bad news!—they would say, "Oh, yes—what you have gone through is good beside that next clay hill!"

THEN, CRITICALLY LOOKING at the car, the informant would exclaim confidently, "But you'll get through all right—with that Reo!"

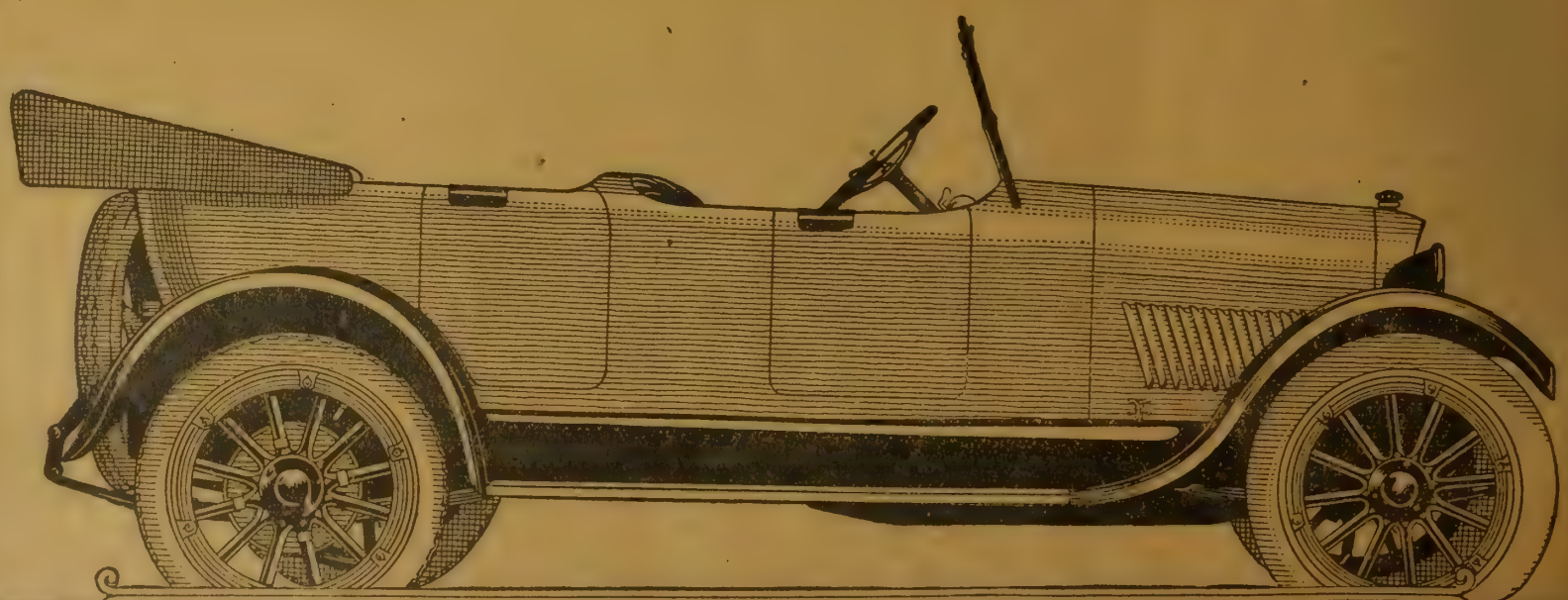
EVERY ONE SHE ASKED knew the Reo on sight—and every one voiced the conviction that, with her Reo, she'd get through all right regardless of how great the distance or how bad the roads.

AND SHE DID, which is merely to chronicle what every Reo owner knows and every owner of every other car concedes.

YOU'LL ALWAYS GET THROUGH—if you have a Reo.

"THERE ARE LOTS of good automobiles —but the man who owns a Reo is lucky."

Reo Motor Car Company, Lansing, Michigan



"THE GOLD STANDARD OF VALUES"

California Cultivator

Vol. LII, No. 15 | Los Angeles, April 12, 1919 | One Dollar Yearly

The Farm Separator: Its Care and Handling

By E. H. Hagemann

ALL separator manufacturers issue books of instructions giving rules and directions for setting up and operating their particular type of machine, which, if followed, will insure good care and successful operation. Some purchasers do not heed these instructions or advice and think they know more about the separator and how it should be handled than does the manufacturer, but such are usually taught expensive lessons. A separator is a very finely made piece of work, and no machinery used on the farm should have better care.

Handling

The operator should aim to secure two things if he expects the separator to do good work: First, a perfectly true motion of the bowl, and second, a sufficient uniform speed. If the bowl or separator shakes or vibrates while skimming there will be some remixing of the milk and cream and poor skimming will be the result. It is one of the first objects of the manufacturers to design a separator which is thoroughly balanced, and smooth in operation.

Any noticeable shaking or vibrating of the machine will invariably cause unnecessary loss of butter fat and shorten the life of the machine materially, and if the vibration becomes too violent at the high speed of skimming, it may be the cause of material damage as well.

In order to have a true motion of the bowl, the machine must be set level, be kept clean and well oiled. The oil should be thin, such as is recommended by the manufacturers. All bearings should be frequently flushed with coal oil to keep the parts free from gum, grit, etc. The separator should be set up on a good solid floor on foundation, so that it cannot move when operated.

Principle of Separation

It has long been known that centrifugal force would separate two substances of different specific gravities. The simplest way of demonstrating the principle of centrifugal cream separation is by rapidly spinning a pail filled with milk or other liquid. It will be noticed that the milk will climb upwards at the sides and sink away in the center. The force which makes the milk bank up against the sides of the pail is centrifugal force, and this, in holding the milk to the sides of the pail, of course exerts considerable pressure. Now then, if the pail were covered at the top so that the milk could not flow over the edges and it could be turned as fast as a separator bowl, none of the milk would remain in the bottom but would form a wall from top to bottom all around the inside of the pail. The pressure of the milk would become very great and the light cream particles would be squeezed out of place by the heavier skim-milk particles and a layer of cream extending from top to bottom of the pail would form on the inside of the wall of liquid. The cream particles fall back to the inside simply because they are lighter than the skim-milk particles and cannot hold their position in the body of milk against the great pressure of the heavier skim-milk particles.

Speed of Machine

Uniform speed such as is indicated in the instruction book packed with each machine should be kept up during the entire run. Much careless work is done in not keeping up a uniform speed. Too many guess at the speed, or the operator becomes tired or careless and unconsciously slacks up on the crank, and poor skimming is the result. If a separator is turned by hand the crank should be turned a given number of times per minute, and if run by engine see that all belts are tight at all times. If a separator is run at low speed the separation will be incomplete and the cream will be thin, also there will be a loss of butter fat in the skim milk. The bowl of the separator should be up to full speed before turning in the milk. Each machine has a rated capacity, and more milk than the capacity should not be crowded through. When purchasing a separator it is better to get one a little larger than necessary, than one too small.

The faster the milk passes through the bowl, the shorter the period in which the centrifugal force acts on it and the less complete is the separation. On the other hand the less milk going through the thicker will be the cream and the cleaner the separation.

Temperature of the Milk

The warmer the milk the more fluid. Cold milk is more viscous or less fluid than warm milk and the cream will not separate so readily. The milk should be separated as quickly as possible after milking or at a temperature not less than 84 to 86 degrees Fahrenheit. Then the skimming will be cleanest and the skim milk and cream better.

Use of the Cream Screw

The test of the cream varies with the speed of the bowl, the temperature of the milk, the amount of milk passing through the bowl, and the change of season when the cows are fresh and become strippers. These factors are usually overcome by adjusting the cream screw to make allowance for these changes.

Sanitary Condition of Separator

Much cream gets its start of fermentation and souring by skimming with an unclean separator. Many dairymen do not realize how quickly milk or cream can become unfit for a food article if it is not kept clean and handled in clean vessels. The slime and solid particles of dirt and unclean matter in the milk that are caught and held in the bowl are at just the right temperature to decay, and an evil smell develops in a few minutes. It is therefore evident that the milk must not pass over this decayed sour matter in the bowl from a second milking before it has been thoroughly cleansed. Dish cloths should not be used for washing dairy utensils. A good brush and a soda washing powder are best. Have plenty of hot water and scrub every part. Pour boiling hot water over bowl parts, scrubbing them and place them in the sun or dry place to drain.

When the bowl parts are again assembled for the next skimming care should be used that they are properly put together, and that all internal devices of the bowl, discs or other parts, are assembled according to number or other marks. No bowl parts should receive rough handling, allowing them to drop to the floor, etc. Such carelessness will soon cause the separator bowl to get out of balance.

Hard Work, Fun and Information

A HALF a hundred alleged automobiles, with dust covered occupants full of interrogation marks, moving from county to county, caused some little comment during the past few weeks. These men were all farm bureau directors or the advisers of various counties from Shasta to San Diego. They had met in Davis, later in Berkeley, had discussed the problems of the farmer and the best means of aiding in the solving of these problems. Then, in order to fill up on information which would aid in the trouble shooting game they drove from Berkeley down the east side of the bay and through Santa Clara County, thence south through other Coast counties to Santa Barbara, Ventura, Los Angeles, Orange, San Bernardino, Riverside. At nearly every county line they were met by delegations loaded with oranges.

The farm bureaus in each county vied with each other in giving a good time and incidentally advice as to the best county on earth in which to settle. Luncheons, dinners and banquets were provided so that good things were to be obtained. In Los Angeles County special arrangements were made by the farm bureau for luncheon on the Santa Anita ranch, after a forenoon in the San Fernando valley. Later the Holstein cattle were used by Mr. Scribner of the Los Angeles County farm bureau to teach the lesson of proper dairy cow selection Adjournment was then had to the piggery where Banker's Boy and other pure bred Poland-Chinas were used to demonstrate hog values.



Farm Advisers Getting Advised

This is one of several dozen such features which were staged during the farm bureau traveling convention which started at Berkeley and reached to Riverside. This is pruning demonstration and lecture given in North Whittier, Los Angeles County. The man holding the chart, his face just appearing above it, is Farm Adviser Coit, while the man dressed in galluses is Assistant Hodgson addressing the conference. After the short preliminary talk, a lemon tree in need of pruning was thoroughly pruned, with reason given for each cut made.

Later in the afternoon on the way to Orange County stop was made at North Whittier Heights, where Adviser Hodgson demonstrated and explained methods of lemon pruning, then over Turnbull Canyon, through Whittier and La Habra Valley, to Fullerton, where dinner was served in the high school cafeteria. The evening was given over to discussion of farm bureau matters and talks on marketing and to selection of root stocks for citrus trees.

After this session lasting until nearly midnight the entire bunch was ready for bugle call at six the next morning, and Orange County, a portion of Los Angeles County again and San Bernardino County were done the following day. The event ended with session at the citrus experiment station at Riverside and a banquet at Mission Inn.

At this last banquet those participating in the trip united in presenting to Walter E. Packard, assistant leader for the South, a beautiful gold chain and gold knife attached.

This because of service rendered and in honor of his departure for France, where he is to serve the federal government in giving agricultural instruction and information as to federal land settlement to soldiers still serving abroad.

Dean Hunt accompanied the party as far south as Ventura and claimed his share of the dust and travel stain. State Leader Crocheron was dad to the whole bunch.

Assistant Leaders Nelson and Ha-

Continued on Page 513

Agricultural News Notes of the Pacific Coast

Northern California

Quincy, Plumas County, is increasing its pure bred dairy herds.

A Yolo County farmer is discussing the matter of tobacco culture.

The area planted to rice in Yolo County this season will exceed 30,000 acres.

Commissioner Cody of Santa Clara reports slight damage to prunes this season from thrips.

One concern in Eldorado County has finished planting 8000 pear trees on its property near Five-Mile House.

Bullard, the Yolo County sheep grower, has just received 100 head of choice Rambouillets from South Africa.

Squirrel control people the state over are planning for a big spring drive. Shasta County's began on March 17.

Commissioner Stoupe of Shasta County has purchased 200 ounces of strychnine to distribute in squirred fighting campaign.

Community grazing is being discussed by cattlemen near Grass Valley, Nevada County. Three hundred head have been pledged.

The Delta section is planning for its biggest and best asparagus crop. The cannery at Rio Vista has greatly increased its capacity.

George Compere, formerly with the state horticultural commission, is now with the federal horticultural board and serving at New Orleans.

San Joaquin County farm center meetings: Tracy, April 11; Directors' meeting, Stockton, 12; Lockeford, 14; Ripon, 17; Manteca, 18; Escalon, 21; Live Oak, 28.

Harry Stabler, horticultural commissioner of Sutter County, has prevented entrance to the county of several shipments of meally bugs on ornamental plants.

W. I. Newcomb of Sonoma County has been making inspections for the state horticultural commissioner and reports outlook in Sacramento Valley as fine for immense crops.

County Horticultural Commissioner Norton of Nevada County reports less than one per cent of last year's pears were found to be infested with scab. The spraying campaign accounts for the success.

Eldorado County farm bureau is advocating a "Clean-up of Home Grounds Week." Prizes will be awarded for cleanest home grounds in town, on the farm, the best painted house and the best whitewashed barn.

The litigation between the Holt Manufacturing Company and the Daniel Best Manufacturing Company has been ended and the Holt Manufacturing Company has been declared the rightful owner of the Caterpillar patents.

President Rieker of the Associated Swine Breeders, Inc., is being sought under warrant charging passing of worthless check. This association has no connection with the California Swine Breeders which is a Simon-pure cooperative association.

Horticultural Commissioner Dutton of Mendocino County made this season a specially strong campaign against pear scab. Commissioner Hecke announces the April Monthly Bulletin will have authorized estimates of California's fruit crop.

Central California

April 5 was Blossom Day in the Santa Clara Valley.

The Modesto farm bureau will hold a fat hog auction April 18.

Kings County's first rabbit drive was held Sunday, March 30.

Tegner, Stanislaus County, recently held a rabbit drive netting about 200 rabbits.

John W. Dixon has been appointed horticultural commissioner of Inyo County.

Kings County grapes are already being contracted for for next fall's delivery.

Oakdale, Stanislaus County, has shipped several cars of prime steers to Los Angeles.

Kings County fair directors met in Hanford Monday to discuss next season's fair dates.

The state's $40,000,000 road bond campaign has enthusiastic support in the San Joaquin Valley.

J. M. Bomberger, the Tulare County alfalfa seed grower, has disposed of his ranch and his pure bred stock.

Fresno County's good roads association has formally launched a campaign for a $4,600,000 county highway fund.

The California Peach Growers, Incorporated, is signing up with the growers the new three year contract.

Members of the Turlock and Modesto irrigation districts are urging the passage of the Broughton power bill.

San Joaquin County plans organization of a county branch of The Farm Owners and Operators National Association.

County Commissioner Rutherford of Stanislaus County is appealing for general observation of the noxious weed drive.

Sealers of weights and measures in the central part of the state will soon take charge of the weighing in of milk and cream.

The money invested in California lands devoted to cattle culture and in the cattle is now estimated to aggregate $350,000,000.

County Horticultural Commissioner Rutherford of Stanislaus reports satisfactory control of the grasshopper pest by blackbirds.

Deciduous fruit growers of Madera County have organized association for packing and selling fresh fruits. Headquarters are at Madera.

Fred Howard, horticultural commissioner of Kings County, has been chosen general manager of the California Honey Producers Cooperative Exchange.

Kings County's semi-monthly fat hog sale resulted in some sales at 40 cents above quotations in San Francisco and Los Angeles. Seventy-nine of the hogs average $18.40.

County Horticultural Commissioner Fred K. Howard of Kings County has been cooperating with Prof. Barrett of the Riverside experiment station in an investigation of apricot gummosis in Kings County.

County Horticultural Commissioner Collins of Tulare has issued a bulletin covering noxious insects, plant diseases and rodent control in Tulare County. San Luis Obispo County has a new horticultural commissioner, Harold E. Alley.

Southern California

The Santa Ana Walnut Association has a large cracking plant .

Fullerton district reports very light planting of potatoes as yet.

Orange County walnut groves produced over 4000 tons of walnuts last year.

Large plantings of date offshoots are reported being made in the Coachella Valley.

The Winningstadt cabbage crop in the San Fernando Valley is practically cleaned up.

Apricot growers of Nuevo, Riverside County, have formed a marketing association.

J. H. Peck of Calexico has purchased several fine Holsteins at the Guaranty Sale at Sacramento.

President Turner of the California Bean Growers' Association has gone to New York to start a campaign to sell beans.

Navels, Seedlings and varieties of oranges other than Valencias will practically all be shipped before the end of April.

Announcement has been made that the new bean pool has fixed starting selling prices at $6.75 for limas and $6.50 for Bush Henderson.

Farmers of the Imperial Valley have formed a cooperative organization. Questions of irrigation and labor will be among the first taken up.

The Cuyama road, to connect Santa Barbara with Bakersfield, has some strong backers who are working in the legislature for an appropriation for its construction.

Manager Coykendall and H. C. Dunlap of the California Prune and Apricot Growers' Association have been in Santa Ana talking with growers as to marketing problems.

W. E. Packard, for years in charge of the experiment farm in the Imperial Valley, has been appointed to the army educational commission and will soon go to Europe to lecture before our soldiers on farm settlement.

The bee men of San Bernardino County have formed an organization of which H. T. Wagner of Redlands has been elected president, H. S. Burnham of Mentone, vice-President, and J. A. Mack of Bloomington, secretary.

The bean growers' pool, recently formed at Oxnard, appointed a committee to name prices at which selling should be started. The committee is J. M. Waterman, A. Levy, R. L. Churchill, Charles Donlon, C. C. Teague, W. J. Petit, A. J. Cruikshank, Roger G. Edwards and A. Camarillo.

Effort is being made in Ventura County to form a big Lima bean pool to take in the independent growers and dealers. By the provisions of the pool members may not dispose of beans outside the pool until after September 1, when they may withdraw if they have given 30 days written notice.

Rhubarb is moving out in carloads to the East, but prices are abnormally high,—about 30 per cent higher than this time last year, which is caused by active competition between buyers. Indications are, however, that receipts will be more liberal during the coming week and if Eastern demand falls off, which is probable, and if southern Illinois begins to ship, prices will decline materially.

The Coast and General

Florida "pineapple" oranges have sold in New York as high as $8.00 per box.

Cherry growers of The Dalles, Oregon, have formed a marketing association.

Chandler, Arizona, claims to have the leading agricultural high school in the state.

Hood River Valley, Oregon, reports apple and pear trees in fine condition and blossoms indicating average crop.

Producers of asparagus in Yakima, Washington, are experimenting largely this season in the use of nitrate of soda in asparagus production.

Beekeepers of Bellingham, Washington, have organized a marketing association. The annual output of the district is about 30,000 pounds honey.

Eighteen to 20 carloads of apples daily are being shipped from the Wenatchee district of Washington. More than 8000 carloads have already been sent out.

The farms of the United States have 3,000,000 hired men. As the census reports 12,500,000 engaged in agriculture, it is to be presumed that most of us are land owners.

The Rogue River Valley, Oregon, is hoping for a new irrigation district which will cover about 8000 acres. The Medford irrigation district has about 20,000 acres under water.

New York bean browers are charging that in filling government orders for beans purchases were made only from a "favored few" through the offices of interested "dollar a year" men.

Ten cars loaded with apples and equipped with the new heating appliances being tested out by the United States bureau of markets have left Wenatchee for the East, accompanied by expert observers.

The farmers of Graham County, using water from the Gila River, are at last organized as the Gila River Valley Water Users' Association. The primary purpose of this organization is to secure government assistance in building a storage reservoir on the upper Gila, Arizona.

Final returns to members of the Apple Growers' Association of Hood River, Oregon, will exceed $1,225,000 for the apple and pear crop and with the return from cherries and strawberries, the net business of 1918 is more than $1,500,000. This is the first year since 1911 that collections have all been made by this date.

The Oregon legislature has appropriated $4000 annually for maintenance of an experiment station to be located in the Hood River Valley. Hood River County will purchase a tract of land suitable for the home of the institution, and a permanent experiment station will be erected. The station will be administered by the Oregon agricultural college.

Florida dairymen have held the first annual meeting of their new association. The work as planned for the coming year includes a campaign for statewide eradication of cattle fever ticks; energetic effort to prevent any changes in present regulations governing manufacture, sale and distribution of oleomargarine and the securing of an appropriation by the legislature for an experienced dairy extension worker.

Fumigation With Liquid Hydrocyanic Acid

Address by R. S. Woglum Before American Association of Economic Entomologists

THE fumigation of citrus trees with hydrocyanic acid gas has been performed in California for more than 30 years, and during this period more radical changes in apparatus and methods have occurred than is to be found in the annals of any other insecticide either in this state or elsewhere. The original so-called "dry gas" process in which undiluted sulphuric acid was poured slowly into a cyanid solution, the resultant gas passing through a sulphuric acid bath, gave way in 1890 to the "pot method," which consists of placing dry cyanid with diluted sulphuric acid in an open vessel beneath the tented tree. In 1912 a simplified portable machine for generating cyanid gas outside the tent was invented, and this method of application rapidly and sucessfully displaced the "pot method." The latest development, liquid hydrocyanic acid, has proved the most revolutionary of all changes in field fumigation, promising ultimately to completely supersede current practices.

In 1915 C. W. Mally, working in South Africa. prepared and experimented with liquid hydrocyanic acid. It happened that William Dingle of Los Angeles, one of the inventors of the machine method of generation, began to develop simultaneously but entirely independently, the same method and in the early spring of 1916 publicly demonstrated the fumigation of citrus trees with liquid hydrocyanic acid.

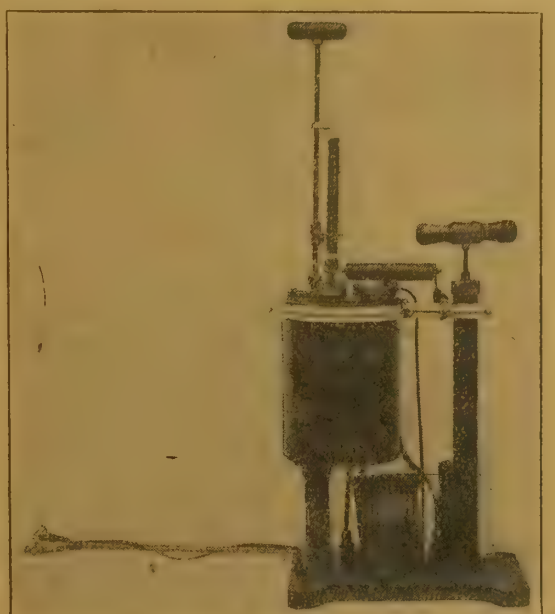
Liquid hydrocyanic acid is by no means new, having been known to chemists for many years. In its pure state it is a colorless liquid with a specific gravity of .70 at 65 degrees Fahrenheit. The high volatility of this substance (it boils at 80 degrees Fahrenheit) produces easy gasification at the ordinary temperatures of fumigation. If impure it decomposes rapidly.

The application of this gas to the tented tree is extremely simple. A tank, suitably vented, holding about two gallons, is mounted on a platform with a measuring device and a pump (see figure). The liquid hydrocyanic acid, after measurement into storage coils, is forcibly discharged through a short rod fitted with a mist type of spray nozzle and quickly disappears as an invisible gas.

During the season of 1917 approximately 540,000 pounds of solid sodium cyanid were converted into liquid hydrocyanic acid for the use of 30 fumigation outfits. So far this year more than one million pounds of sodium cyanid have been similarly treated for the use of 94 fumigation crews. A very much greater amount would have been used could it have been produced.

Gas Distribution

It has been the writer's belief for many years that gas distribution is influenced by the method of application or generation and in 1908 this led to the invention of a cover device for deflecting the rise of gas from a generating vessel. In pot fumigation a dense column of gas rises rapidly from the generator until deflected by the branches, foliage and ultimately the tent. The spreading of the gas through the lower part of the tree follows the forcing downward of the diffused column after contact with the tent top. This initial condition would point to the top of the tent receiving maximum gas distribution sooner than the bottom. Furthermore, the effect of the rise of gas would tend to cause a greater concentration toward the top, although in a non-gastight enclosure such as a tented tree, various factors, as yet little understood, are constantly exerting important influences, changes in which must alter the movement of the gas particles to no little extent. The diffusion through the tenting is most important and unquestionably is modified by such factors as texture, its condition as to moisture, chemical treatment and accumulation of dirt particles. Furthermore, atmospheric conditions during the exposure have been proven to influence scale-kill, thus probably affecting tent leakage. Factors acting wholly within the tent, yet believed to affect gas concentration to some extent, are absorption and adsorption of the foliage and the physical condition of the soil.



For Application of Liquid Hydrocyanic Acid Gas

This is the best type of pump or machine for applying liquid gas, and is the one pump used almost exclusively in 1918. Liquid gas has many advantages, and will be used more the coming season than ever.

The violence of the reaction in an open generating vessel affects the denseness and velocity of the rising column of hydrocyanic acid gas. When the reaction is rapid the initial maximum gas concentration must needs follow more quickly than when the generation takes place over a protracted period. Furthermore, consideration of the fact that leakage occurs immediately on contact of the gas with the tent surface, injects a factor that might alter the maximum gas density attained between a slow or rapid generation. Such a view would signify a difference, possibly very slight, in pot generated gas from potassium and sodium cyanid respectively, for solid potassium cyanid produces a violent reaction practically complete within one to three minutes. Solid sodium cyanid, on the other hand, is much slower in generation and low grade material used in California to a limited extent several years ago was observed in some cases to require fully 15 minutes for complete liberation of gas.

The gas evolved from fumigating machines is in the form of a dense cloud injected with much force at one edge of the tent along the ground. The evolution of the gas is almost instantaneous and in a different initial direction to that of pot generation. Thus the condition surrounding the concentration and distribution of this gas, in differing from that generated in vessels within the tented tree, gives grounds for possible difference in results between the two methods.

After this brief discussion of gas distribution in pot and machine practice, let us consider liquid hydrocyanic acid. This latter is injected at the edge of the tent with a small amount of force, as a mist, which on evaporating is left with little initial momentum. The result is a gas somewhat distributed toward the bottom of the tent, having much less initial velocity than in the case of gas generated under former methods. Furthermore, the gas from liquid hydrocyanic acid is cooled almost to the freezing point on formation and consequently is decidedly heavier than the hot machine or pot generated product (temperature of pot generated gas is 100 degrees to 153 degrees in accordance with dosage).

Since the molecular activity of gases increases proportionately as the temperature, it is evident that we have a very differently acting product in the new than in the old practice. The molecular activity of gas from liquid hydrocyanic acid is least when first generated but increases as it attains the temperature of the air, while in pot or machine generated gas quite the inverse is true, the initial molecular velocity of these being the greatest and decreasing as the gas cools to the lower air temperature. Thus it is evident that initial diffusion would be slower in the case of liquid hydrocyanic acid, and attained throughout the bottom of the tent sooner than the top. Differences in diffusion and molecular activity would signify a difference in tent leakage between the generated and atomized gas and that such takes place under field conditions is readily detectable by careful observation.

The destruction of scale pests on citrus trees is proportional to gas concentration and hydrocyanic acid gas being lighter than air, it is natural to presume that the greatest density, signifying the best scale kill, is toward the top of the tent. This presumption has been supported by the observation of practical fumigators and the experiments of investigators, of whom one of the first to give definite proof in support of this condition was Morrill in 1908, working in Florida with the citrus white fly, Dialeurodes citri. More recently Quayle conducted tests under tent forms with the bean weevil (Acanthoscelides obtectus) and the granary weevil (Calandra granaria) arriving at the same general conclusion, that the highest mortality is toward the top of the tent. Quayle, however, concluded that the percentage killed in the case of a tall tree is better toward the center than the top, a conclusion not in keeping with the data presented.

The writer has been conducting an investigation of the use of liquid hydrocyanic acid with special reference to dosage requirements and during the past season has closely followed the fumigation of more than 500 acres of citrus trees. It was felt that the difference in physical properties between gas obtained from liquid and field generated hydrocyanic acid is sufficient to demand a careful revision of the dosage schedule originally prepared for pot generated gas, but subsequently also adopted for machine and liquid hydrocyanic acid fumigation.

Accordingly gas diffusion was one of the first problems taken up, the determination of which was undertaken entomologically by obtaining data on scale-kill in different parts of tented trees.

The results of these experiments demonstrate that the scale-kill with liquid hyrocyanic acid as at present used is decidedly better toward the lower part of the tent than toward the top. This result was plainly shown in each of the trees which comprised these tests as well as in the totals. Scale infested units within a few inches of the ground showed a higher mortality than units in the tops of tall trees.

By the use of liquid hydrocyanic acid gas it was found that 91.15 per cent of the scale insects were killed in the top of the tree, while in the bottom of the tree 96.59 per cent were killed. In contrast experiments have by Morrill with pot generated gas showed 71 per cent kill in the top and 64 per cent in the bottom, and experiments by Quayle showed 65.6 per cent kill in top and 38.8 in bottom.

A striking difference between these results and those with liquid hydrocyanic acid is shown, the mortality with the latter being decidedly the greatest toward the bottom of the tent. In fact the percentage of mortality for liquid hydrocyanic acid in favor of the bottom of the tent is almost inversely proportionate to Morrill's results with pot fumigation for the top. It should be noted that the experiments with liquid hydrocyanic acid were carried on at comparatively high temperatures. Fumigation at very low temperatures would tend to develop even greater differences in scale-kill at various distances from the ground.

This greater density of gas toward the bottom of the tent with corresponding increased efficiency will necessitate changes in the present dosage schedule based on pot generation. A dosage schedule for liquid hydrocyanic acid is now being prepared and will be ready for the coming season's work.

Continued on Page 511

Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

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Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916.

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Saturday, April 12, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Nearly all the people shown on the cover this week are turning their backs on Cultivator readers, but this was because they were looking at a $1000 hog. This scene was in the grounds near the piggery of the Santa Anita Ranch near Los Angeles and shows one of the most interesting sessions held during the farm bureau traveling conference. Banker's Boy is the center of attraction. He was purchased by Manager Taylor of M. Bassett and was used as an object lesson in showing the farm bureau people the advantage of the pure bred boar.

BACK ON THE JOB

The boys are coming home, some from across, some from the cantonments, some from the shipyards, and from all kinds of activities which meant the winning of the war. Amongst others are A. M. Nelson, formerly with the 91st Division, who comes to his home county, Imperial, where he will take up his former work of agricultural publicity agent. Mr. Nelson went over the top in the Argonne. Another Imperial County boy is still with the army of occupation, Paul I. Dougherty, former farm adviser.

CALIFORNIA

Did anybody ever see the poppies brighter or larger or the wild flowers more plentiful or more beautiful, or the hills greener than this year?

It's just springtime in good old California.

SUCKERS

Funny, how many of us in this world are just plain suckers! This stands out in every daily newspaper which chronicles the work of some confidence game on some over-confiding man. The principal American sport during the past few months has been the exchanging of worthless "stocks" or "bonds" for Liberty Bonds. It is said by those who have investigated that it is astounding the number of people who have been bilked in this manner. From the treasury department we have this statement:

"The American people are paying out some half billion dollars a year to the support of worthless stock schemes. The people reap therefrom $500,000,000 worth of—thin air."

It is true there has been depreciation on Liberty Bonds, but if we could all have held our bonds there would have been no depreciation.

CARELESSNESS COSTS

The National Board of Fire Underwriters is sending out a fund of valuable information in the hope of inducing greater carefulness in disposal of cigarette stubs and burnt matches, on the part of the hunter, with his gun, and a dozen and one other manifestations of thoughtlessness which may cause loss of property or life. The campaign is to be taken up in America's great character factory, the public school, and 25,000,000 pupils are to be taught the advantage to the country of preventing this loss.

This campaign should appeal to Californians. Every drop of water here is of greater value than in any section of the world, and our water supply depends largely upon our watersheds. We believe no section of the country has suffered as has the Pacific Coast from carelessness in starting forest fires.

FUTURE OF BEEF

For some time we have watched with satisfaction the increased interest manifested among beef cattle men and we are glad to use this issue of the Cultivator in an effort to further the industry.

We believe that California has a great future in beef production. This state has every natural condition essential to such development.

However, times have changed and from now on cattlemen will be forced to give more careful attention to the details of their operations. Better bulls must come into use more extensively; modern methods of range management, including range control, winter feed provisions, water development, disease control, elimination of predatory animals, stronger calf crops and a hundred other details, must be considered; a more efficient marketing system must be evolved, and this can only come through organized effort.

Because we are certain that all these things will come in time, we are equally certain that the future holds much in store for the pure bred business, and we are but voicing common knowledge when we state that California offers one of the most attractive fields for the establishment of herds of pure bred beef cattle to be found anywhere in the world. No state, comparable to California, is as poorly provided with seed herds.

Any man, who likes the business and is qualified, need have no hesitancy in entering the pure bred beef cattle business—if he enters it along sane and conservative lines.

THE BEAN SITUATION

Between the culpability and the mistakes of some connected with the food administration and more mistakes made by some handlers of beans, all combined with last year's enormous production at the end of the war, there has resulted a cutting of more than half in the price of beans which obtained six months ago. Worse than all, no reasonable price—nor even unreasonable—has been obtainable. The situation has now been materially cleared and the market is already stiffening because of the formation of a pool to dispose of Limas at a price which will result in as little loss to the growers as possible. The pool consists of those already organized in the Lima Bean Association, together with outsiders, shippers, commission men and others. An executive committee consisting of J. M. Waterman, A. Levy, R. L. Churchill, Charles Donlon, C. C. Teague, W. J. Petit, A. J. Cruickshank, Roger G. Edwards and A. Camarillo has been named. E. O. Essig, formerly farm adviser of Ventura County, has been chosen secretary and manager of the new association.

This pool will be known as the Lima Bean Selling Agency, though it has appointed the A. & H. Levy Co., the J. M. Waterman Selling Agency, and the California Lima Bean Growers Association as special selling agents. Other dealers may become selling agents on application to the executive committee. Every grower uniting in this pool signs a contract transferring to the executive committee entire power over his crop.

This organization is the result of necessity on the part of the growers and interest taken in the situation by bankers of Los Angeles, Ventura and Orange Counties.

It is to be expected that this reconstruction period will bring serious problems to all manufacturers and producers, but none have suffered so severely as the bean growers.

LIONS AND LAMBS

All are familiar with the prophecy that the time will come when the lion and the lamb will reach a state of mental trust wherein the meekly ovine will go so far as to lie down without fear of the king of beasts. For the past few years there has existed slight evidence that the prophecy is likely to come to pass, but occasionally one, if he looked carefully, has been able to see a dim light in the turbulent world's affairs that might serve to strengthen his hope. Quite recently a new bit of evidence has manifested itself. It comes in the form of an announcement that representative live stock producers of the East, the packing interests and representatives of the United States bureau of markets met in a friendly way and outlined a plan for harmonizing all live stock interests to the end that producers might feel safe in approaching their arch enemies, the packers, with a fair hope that they could sit down together and discuss their differences and problems, and that these matters could be solved to the satisfaction of all.

Surely the world does move! Apparently the packing interests have seen the handwriting on the wall and have decided that the time has about arrived when if they are to be permitted to exist it will be highly necessary that they cut loose from their former "square headed" policy of operating their business on a public be damned plan, wherein the producer and consumer were regarded as fair game.

We believe there is wide possibility in the announced plan and we trust that some such plan will be born and live and function as a real force in live stock marketing affairs.

SHOULD BE SHACKLED

A lover of Roosevelt has picked upon this one epigrammatic utterance as his greatest: "The time is coming when we must shackle cunning as in the past we have shackled force."

If the time for shackling cunning is here it calls for more effective effort on the part of the American people than they have yet manifested. Many laudable steps have been taken which have resulted in its partial shackling, but cunning is much more difficult to overcome than mere force. Whether it be in political or in commercial life, cunning is strongly entrenched and will persist in perpetuating itself until the mass of us get together with more cooperative force than we have yet shown.

VOCATIONAL TRAINING

The federal board of vocational education has listed something over 22,000 partially disabled wounded men who are being investigated, and many of them will be given attention which will aid them in their life work. The board asks for information as to these men who have been at the front and who have been drafted out of service without availing themselves of the advantages which the government is offering them. It would be far better for the government and for the men if the ability may be secured to earn a good living and independence.

VICTORY LOAN

The government is letting out now and then an ocasional war secret which throws more light on the necessity for the big Victory Loan which this month is to see raised. One of these secrets was in effect that this war ended nearly 12 months before the American people anticipated. The Germans were not licked to the condition which most Americans desired. However, it is now allowed to leak out that the Germans did know of the wonderfully complete preparation America was making to give them their complete trouncing, and regarding this preparation it is now admitted that this country had provided for a tank for every 75 feet of the front which was to be occupied by the American armies. There were billions of dollars worth of shells, of ships, and monster guns to an extent greater than all the preparation of England, France and Germany.

Now the question is: "Were all these billions of dollars worth of supplies wasted?" America's keenest observers are answering in effect that these billions of dollars which were apparently wasted have saved one hundred to two hundred thousand American lives, and probably even more of our boys would have died on foreign soil if the Hun had not known that we were in the war to win.

Hence the appeal is made to pay the bill which has been accrued for the sake of saving the lives of our own boys.

Subscribe for the Victory Loan. Payments required are ten per cent at time of subscription or at least before May 10, ten per cent on or before July 15, 20 per cent on or before August 12, 20 per cent on or before September 9, 20 per cent on or before October 7, and the balance of 20 per cent on or before November 11, with accrued interest on deferred installments.



Put New Life In Your Engine

A dose of Johnson's Carbon Remover, the engine laxative, will cure 80% of engine troubles. It will increase the power of your car—improve acceleration—stop that knock—quiet your motor—save your batteries—cut down repair bills—and reduce your gas and oil consumption.

Don't wait until your motor is choked with carbon—remove it every week or two with Johnson's Carbon Remover. You can do it yourself in five minutes—no mechanical experience required. You will save from $3.00 to $5.00 over any other method of carbon removal without laying up your car and with very much better results.

JOHNSON'S CARBON REMOVER

is an absolutely harmless liquid to be poured or squirted into the cylinders. It contains no acids and does not affect lubrication or interfere with the oil in the crank case. Recommended by many of the leading car manufacturers including the Packard and Studebaker Companies.

For Tractors—Gas Engines

Johnson's Carbon Remover will also remove carbon from the motor of your tractor, giving it greater power and enabling it to work more satisfactorily and economically. It will make your tractor 100% efficient.

Johnson's Carbon Remover is for sale by Hardware, Accessory dealers and Garages. Send for our booklet on Keeping Cars Young—it's free.

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Established 1882

AUCTION SALE
TUESDAY, APRIL 15

1 1-2 miles east of McFarland, Kern Co. Cal.

The following property:

40 acres improved fruit and alfalfa ranch as follows:
18 1-2 acres bearing French Prunes, 5 years old.
5 acres in almonds, 4 years old, three different varieties.
5 acres in alfalfa.
9 1-2 acres for grain or other crops.
Ten inch cement pipe line over entire place for irrigating.
Good 4 room bungalow with screen porches, tank house with two rooms.
Two barns, chicken house and corrals, water piped into corrals.
Room for 400 chickens.
Domestic fruit orchard, shade trees.
Electric pumping plant, abundance of water.
Everything in good condition, an opportunity for some one which may never occur again.
Also the following live stock and implements:
One large team of mules and harness; one medium sorrel mare and harness; one light spring wagon; one Deering mowing machine; one hay rake; one Planet Junior Orchard cultivator; one spring tooth harrow; one spike; one two horse walking plow; one two horse lister; one two horse Ventura bean cutter; one three horse Fresno scraper; one single horse cultivator; also shovels, hay forks, etc.
Terms will be given on date of sale.
It will pay anyone contemplating purchasing an improved place to investigate this property and wait for this sale which you can purchase at your own figure.

O. S. GRANT, Auctioneer.
J. SCHNEIDER, McFarland, Cal.

There is no argument as to the best and cheapest source of available nitrogen for worn out frosted orchards. Where

Nitrate of Soda

is used the fruit never fails to set. Apply to orchard now for best results.

Mention crops interested in when writing for free information and literature.

Nitrate Agencies Co.
W. S. SPARR, Agent
321 Stimson Bldg., Los Angeles, Cal.

CALIFORNIA WALNUT GROWERS' FIRST CICULAR

The 1919 crop of California walnuts is just commencing to set. The trees that have leaved out thus far carry a uniformly good setting of nuts. Thus if the season progresses favorably from now on, and in consideration of the normal increase due to young acreage just coming into bearing and a heavy acreage of partially bearing trees which are almost doubling their production annually, California should turn out considerably the largest walnut crop in 1919 that has ever been harvested. In fact, with the young acreage coming on the walnut tonnage should about double in the next five years.

Southern California has experienced a winter season of unusually short rainfall, less than we have had during any season for the past ten years, but as most of the walnut groves are already under irrigation systems the shortage of moisture will not seriously affect the crop prospects in general.

It should be borne in mind that practically all the plantings during the last ten years have been of the Budded. Consequently the increase in the crop from now on will be represented almost entirely by Budded walnuts. As the output of this variety increases the differential over No. 1's will naturally decrease, and for 1919 it is probable that the differential will not be above two and one-half cents. As the Budded nut carries a thinner shell and higher cracking standard, the percentage of walnut meats (edible matter) to total weight is considerably greater than on the Soft Shells. Thus from a food value standpoint even at a five-cent differential the Budded is a cheaper food than the Soft Shell. The Budded also is easier to crack, carries a sweeter meat and is thus really the best buy in our line. The distributor who pushes the Budded nut is pushing the coming variety whereas the jobber that stays entirely with the Soft Shell is featuring a nut that will, in time, become entirely extinct the same as the old hardshell has.

We are just now approaching the period when normally more California walnuts are consumed than at any time of the year with the exception of the holiday period, Thanksgiving and Christmas. This other normally heavy consuming period is during the Jewish holidays, April 17 to 24, inclusive, and Easter; April 20. Every retail dealer should have a stock of Diamond Brand walnuts to take care of the Jewish holiday and Easter trade and should see that these goods are prominently displayed. A letter from Zanesville, Ohio, representative, conclusively proves our contention that from five to ten times as many California walnuts are sold when displayed as otherwise. Mrs. Consumer buys such items as fruit and nuts with her eye. The eye makes the appeal to the palate which prompts the purchase. Therefore may we not ask that you particularly urge your salesmen to talk walnut displays to their retail customers.

AVOCADO ASSOCIATION ANNUAL

The directors of the California Avocado Association met at Hotel Green, Pasadena, recently and selected dates for the next annual meeting. A most interesting program has been arranged. The annual will be held at Hotel Maryland, Pasadena, May 9 and 10.

The first session on Friday morning will be devoted to the business of the association and will be open to members only. The first feature of the Friday afternoon session will be the annual address of President W. H. Sallmon. The rest of the afternoon and Saturday forenoon will be devoted to papers and addresses. Saturday afternoon's program will be somewhat out of the ordinary, being given entirely to discussion of the industry, both from a business or marketing and from a cultural standpoint. Friday evening's program will consist of a dinner at Hotel Maryland, to be followed by responses to toasts, together with any unfinished business left from previous sessions.

The association has had a most prosperous year, 52 members being added. W. L. Hardin is the secretary. His address is 623 South San Pedro Street, Los Angeles.



No. 12

Top Dressing Talks

WHY do we call ARCADIAN Sulphate of Ammonia

The Great American Ammoniate

Because it is made in America from American coal in American plants, and is the only important and promising source that we have within our own borders. American farmers are wise to use it and develop its full possibilities. Furthermore, it is the best top dressing material for all crops that need nitrogen, because it is soluble, quick-acting, non-leaching, all available and always easy to spread. Try 100 to 150 pounds per acre on your orchard, field crops, vegetables or pastures, and watch the result

Arcadian Sulphate of Ammonia

ARCADIAN Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past. Especially kiln-dried and ground to make it fine and dry. Ammonia 25¼ per cent. Made in U. S. A.

For sale by: CALIFORNIA: San Francisco; Hawaiian Fertilizer Co., Pacific Bone, Coal & Fertilizing Co., Pacific Guano & Fertilizer Co., Western Meat Co., California Fertilizer Works. Los Angeles; Pacific Guano & Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Agricultural Chemical Works, Hauser Packing Co. Oregon: Portland; Union Meat Co.

For Information as to Application, write The Barrett Company Agricultural Department

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IT MAKES THEM FAT

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"More miles!" is every Ajax user's verdict.

AJAX ROAD KING

Ajax Road King yields more mileage because more mileage is built into it. The special Ajax feature—Ajax Shoulders of Strength—braces and reinforces the tread. See the picture of the Ajax Road King. Note how the Shoulders of Strength put more tread on the road—how they give more strength where strength is needed.

Dirt Track Champion

Ajax tires have won the dirt track championship of America for two successive years. In 1918 at county fairs, etc., all over the United States, they smashed 9 world's records and shattered 49 track records.

Tires which are best for dirt track racing are best for you, for dirt tracks are merely country roads fenced in.

Ajax tires will win for you. Try them.

Ajax Tires Are Guaranteed In Writing 5000 Miles

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Plowsole

A RECENT number of the Journal of Agricultural Research, Washington, D. C., contained a scientific discussion of "Relation of Inorganic Soil Colloids to Plowsole in Citrus Groves in Southern California by Charles A. Jensen of the United States bureau of plant industry and located at the Riverside Experiment Station.

We quote the summary:

A hard soil layer, here termed "plowsole," usually forms immediately under the soil mulch in cultivated citrus groves in Southern California. It often seriously limits the root system of the shallow rooted citrus trees and seriously interferes with penetration of irrigation water. After being broken up with a subsoiler it reforms when cultivation is resumed.

It does not form in mulched basins, nor seriously in groves surface mulched with organic matter and seldom cultivated.

Mechanical packing is not necessary for its formation, and it forms in all soil types examined in the area studied.

No greater accumulation of water soluble iron, calcium, magnesium, or silica was found in the plowsole than in the soil mulch or subsoil.

No greater acumulation of total ammonia soluble silica, iron, aluminium, or phosphoric acid was found in the plowsole than in the soil mulch or subsoil, after the calcium had been removed with hydrochloric acid.

The humus extract of plowsole contained more colloidal silica, iron, and aluminium than either the soil mulch or subsoil, but no more colloidal phosphoric acid.

Both the organic and inorganic colloidal material in the humus extract moved toward the positive pole in an electric current.

A conventional method for the determination of inorganic "colloid suspension" is given.

Plowsole contained a markedly higher percentage of inorganic colloid suspension than the soil mulch, and usually a higher percentage than the subsoil.

When soils were placed in pots in the laboratory, irrigated, and allowed to dry, the percentage of colloid suspension was found to be appreciably greater in the surface soil layer than in the subsurface layer, indicating that the colloids moved with the capillary soil moisture.

No relation could be observed between the percentage of inorganic colloid suspension and the percentage of organic carbon or humus in the soil.

Native uncultivated soils contained appreciably less colloid suspension than did similar soils which had been under cultivation for a number of years.

The decomposition of one per cent organic matter in soil had no marked effect on the percentage of inorganic colloid suspension; three per cent organic matter in some cases decreased the per cent of colloids. Barley decreased the amount of colloid suspension more than did alfalfa or manure.

The addition of ground lime rock appreciably decreased the percentage of inorganic colloid suspension in the soil when no organic matter was added. When organic matter was added, the flocculating effect of lime was appreciably diminished, especially in clay loam soil.

The addition of powdered sulphur and gypsum to soil markedly decreased the colloid content, and organic matter had no appreciable effect in counteracting the flocculating effect of these substances.

The addition of sodium nitrate to soil markedly increased the colloid content, and the addition of organic matter appreciably decreased the deflocculating effect of this compound.

The addition of lime, sulphur, sodium nitrate, iron sulphate, ammonium sulphate and organic matter to soils did not fundamentally change the composition of the inorganic colloid suspension obtained from the soil.

The addition of gypsum to soil increased the percentage of silica, calcium and manganese, and decreased the percentage of iron in the colloid suspension.

The inorganic colloid suspension contained an appreciably higher percentage of iron, aluminium, and manganese than the untreated soil.

In soils which readily form plowsole the percentage of silica in the colloid suspension was also appreciably higher than in the untreated soil.

The percentage of iron and aluminum in colloid suspensions from soils which readily form hard plowsole was higher than in colloid suspensions from soils which do not form a hard plowsole.

The percentage of iron and aluminum in the colloid suspension from a soil was found to be directly correlated with the readiness with which the soil formed plowsole.



Making Over to Secure Greater Profit

One of the trees in an Orange County orchard which is being made over into a more profitable bearing strain. Buds were inserted in these large branches and when it was sure they had "stuck" a portion of the top was cut out to allow young buds to grow and make a new top. The low hanging old branches were permitted to remain and take part of the sap and also to yield a partial crop before being entirely removed. Note the corn stalks which were placed around the buds for protection during cold SUBSOIL.

KADOTA FIG

W. Sam Clark of the Kadota Fig Orchard and Nursery at Sultana writes regarding "Farm Questions Answered," published by the Cultivator: "I am immensely pleased with the splendid book." However, he has a bit of criticism as to description of the Kadota, or rather a comparison of the Kadota and Endich, which appears on Page 56. Mr. Clark writes:

"I have looked the book over and can appreciate its true worth to all California farmers and growers, especially beginners. In reading over the fig section I see your informant, whoever he was, was in error regarding the identity of the Kadota. He says the Endich and the Kadota are one and the same. As well say that you and I being white men are one and the same family. He further says the Kadota growing near Los Angeles is larger than the same fig grown in the San Joaquin Valley, and larger than the Endich. It is always larger than the Endich, and my figs here are from two and one-half to

three and one-half inches in diameter, and I will buy your whole staff a new hat apiece if you will ever find an Endich anywhere as large as that. A Kadota grows a bigger tree sooner, produces double the tonnage of the average Endich, is always sweeter and makes a better dried article. Even Prof. Condit will tell you that the two figs are not identical, and Prof. Rixford is now an ardent admirer of the Kadota, yet he has seen the Endich all his life."

DISTRIBUTING GOPHER POISON

Horticultural Commissioner Bremner of Sonoma County has instituted a novel way of distributing the essential poison materials, strychnin and saccharin, for poisoning gophers. Directions say: "From a pepperbox sift slowly one-eighth ounce of powdered strychnin alkaloid, and one-tenth this quantity of saccharin, over four quarts of dampened baits, etc." Weighing these small amounts by the farmers was impossible, as none possesses sufficiently delicate scales, so Mr. Bremner weighs it out for them in small pepper cans with sifter tops. This amount is sufficient for preparing four quarts of bait, the needs of the average farmer, is convenient, handy and sells for a few cents. Commissioner Bremner considers that this method has greatly assisted him in the intensive gopher campaign he is carrying on in his county at the present time. A supply of this material is always carried along and sold to the farmers at the demonstrations.

BEE INDUSTRY IN ARIZONA

While Arizona is a large consumer of honey, in good seasons we ship out about 35 carloads, bringing a handsome income to our state. While the busy bee pays its keeper well for his care it is probably of more benefit to the farmer and fruit grower, especially the alfalfa seed raiser, for the bee it is that carries the pollen from bloom to bloom, fertilizing the alfalfa that has made our Arizona valleys famous for their yields of alfalfa seed.

Cochise County has 50 beekeepers with 295 colonies; Greenlee, 5 beekeepers with 250 colonies; Graham, 34 with 2486 colonies; Maricopa, 217 with 21,389 colonies; Pima 5 with 557 colonies; Pinal, 10 with 1569 colonies; Navajo, 13 with 1176 colonies; Yuma, 25 with 4398 colonies, making a total of 359 beekeepers in the state with 34,700 colonies.—B. A. Hadsell, Buckeye, Arizona.

FUMIGATION

Continued from Page 507

The question naturally arises, in view of the difference in distribution between gas from liquid hydrocyanic acid and the other methods of generation, as to any advantage or disadvantage therefrom in the use of this recent introduction. The infestation of scale insects on large citrus fruit trees is usually most severe on the lower or most protected part of the tree; especially is this true of the purple scale. The greater killing effect of liquid hydrocyanic acid at that part of the tree most severely infested with scale is the ideal to be sought, and at once brings this gas into favor over the field generated product for citrus tree fumigation.

There are other advantages favoring liquid hydrocyanic acid, which in themselves indicate that this new method will displace all others. The expenses of an outfit are reduced by doing away with cumbersome apparatus such as pots, generating machines, sulphuric acid drums and boxes of cyanid. The cost of tent mending is almost entirely done away with as liquid hydrocyanic acid is harmless to cloth. The treatment of small trees, frequently with such poor results in the past, can be performed with greater accuracy and corresponding certainty of results. Greater speed in tree treatment can be attained than previously and it appears possible that the quantity of hydrocyanic acid required for scale-kill can be slightly reduced over that formerly required.

However, improvement in manufacture so as to furnish a uniformly high grade product free of impurities that might start decomposition, improvements in containers through the use of a material free from chemical action with the gas, and improvement in the field application to guarantee accurate delivery and complete gasification of the required charge are necessary before this gas is placed on the high plane demanded for orchard fumigation in California. Assurance has been given that these faults will be corrected in the immediate future, in which case by the end of another year the hundred outfits using this gas are certain to be greatly augmented for time to come, or at least until some scientist discovers a method of scale control its superior.

GRAFTING WAX

County Horticultural Commissioner G. R. Gorton of San Diego advises that growers in his jurisdiction are using the following formula in making a grafting wax, intended to be applied cold: Resin, one pound; turpentine, one ounce; alcohol (denatured), eight ounces; linseed oil, one ounce. (Melt resin and add turpentine and alcohol). The foregoing is an old French formula and no doubt is known to some of the commissioners.

Commenting on this, Commissioner Gorton says: "The appearance of it on the trees was very good indeed, as it made a perfect protection for grafts, upon which it had been used, and seemed to stand up well after application."

Why *Deming* Power Sprayers?



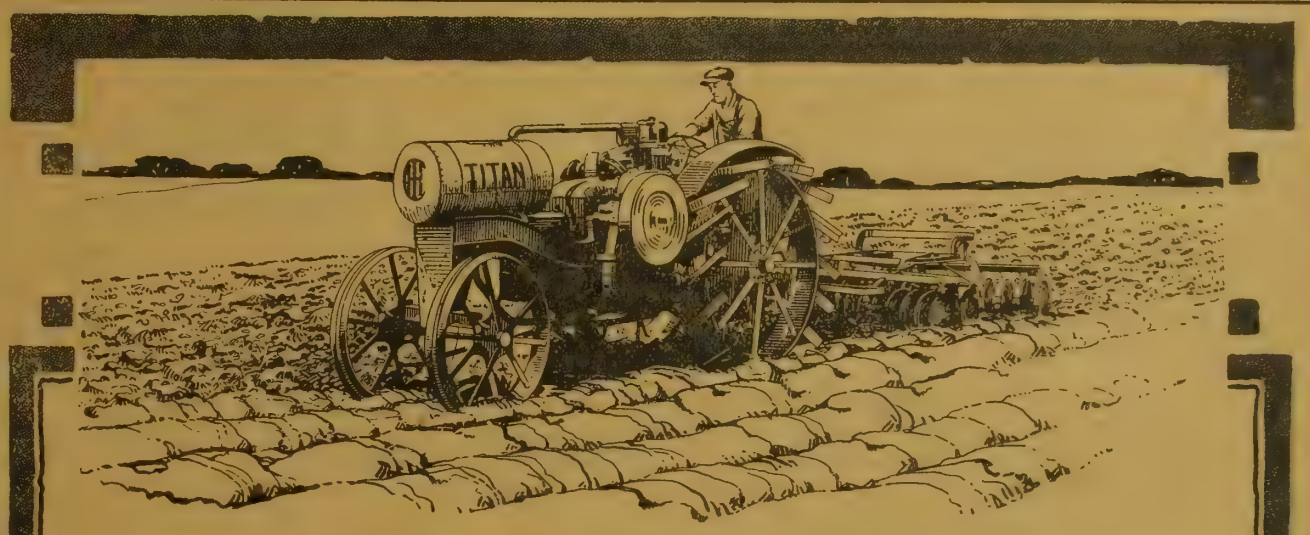
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If so, you need an International kerosene tractor. The size that gives you power for your heaviest load will handle all the work. Internationals use only as much fuel as the load requires. They are made to work with farm machines—the kind you are now using—and special hitches are provided for all kinds of field and road work. Their belt pulleys are large enough to prevent slippage, run at correct speed, and are set high enough to keep the belt off the ground. They all use kerosene or other low-grade fuels which means a big saving in operating expense.

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You know that we have supplied farmers with high-grade machines for nearly 88 years. You know that our tractors have furnished satisfactory farm power for more than 12 years. We have far too much at stake to market machines of any but the highest standards of quality. We expect to come back some day and sell you some other machines in the long list you see in this advertisement. In every sale we try to build for the future.

Tractor Service Whenever Needed

In line with this policy, we have developed a service organization which now consists of 89 branch houses and many thousands of loyal local dealers, wide awake and attentive to the needs of their customers. Service is a very essential part of any tractor sale. When you buy an International kerosene tractor you buy with it the assistance of an organization that brings a well stocked branch house or a live, local dealer within telephone call, fully equipped to keep your tractor working steadily.

International Tractor Sizes

International tractors, all using kerosene for fuel, are made in 8-16, 10-20, and 15-30 H. P. sizes. A line to the address below will bring you full information about all our tractors and about any other machines you mention in the list shown in this advertisement.

The Full Line of International Harvester Quality Machines

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Binders, Push Binders, Headers, Rice Binders, Harvester-Threshers, Reapers, Shockers, Threshers

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Manure Spreaders, Straw Spreading Attach., Farm Wagons, Farm Trucks, Stalk Cutters, Knife Grinders, Tractor Hitches, Binder Twine

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News Item

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Our business has increased in Southern California and we are desirous of serving our past and prospective customers in the best possible manner. We aim to carry a complete line of machinery and repair parts.

It will therefore pay you to see us when in the market for

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We are always in the Market for Lemon Culls

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Do not forget, when making your plans, or giving estimates, that we have the stock you need, and will allow VERY LIBERAL discount.

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P. E. Building, Los Angeles, Cal. Branch at Fresno



LOVE OF GARDENS

By Ernest Braunton

IF you are to get the fullest pleasure from your garden you must center your affections upon it. Make your garden beautiful and you will learn to love it. Have quality, not in the individual plant but in the garden as a whole, even in general effect. You do not need broad acres and great masses of bloom to have an attractive garden. Even a large window box may be a fairly complete garden.

Some very tidy gardens are a rare combination of flowers and vegetables, for one may take as much pride in growing a cauliflower as any other kind of a flower. There is charm in having fresh vegetables right from the garden of the raised-'em-myself sort. You should be able to grow better fruits and vegetables than you can buy and more satisfactory flowers, even if not of large size, for you may grow those that most please yourself. One really should grow those things, in both vegetables and flowers, that he cannot otherwise easily obtain. Whatever you grow get close to the garden, be intimate with it, for the home garden is for the affections. Do not consider it as something apart, but a part of your daily life. Look to it for change and relief from other duties, even as you so regard a good book. Then will you learn to love your garden and find labor therein the greatest of human pleasures.

The Garden Spirit

Dr. L. H. Bailey says: "Simple desires with every desire well planned and well carried out, result in the best gardens. The garden must be yours; if it is another's it is not worth the while to you. A good garden is the one that gives its owner the most pleasure; he may grow orchids or thistles. The measure of success in the garden is the sensitive mind rather than the plants."

How Vines Climb

Some vines are twiners, without tendrils or other means of clinging. The hop and the moonseed are examples. Some climb by little round suckers or discs, the well known Japanese ivy or ampelopsis is one. The the English ivy climbs by aerial roots and so do some of the trumpet vines and Ficus repens, but one trumpet vine, Bignonia Tweediana, climbs by little three-fingered claws. Clematis and other vines are supported by twining the leaf-stems about everything in reach, and still others, as roses, have to be tied to supports.

Standard of Avocados

Poor avocados there are none; except they are unripe. One who has eaten them in Mexico, South America, West Indies, Hawaii, Philippine Islands, India and other countries spent a day with the writer visiting various trees and groves and sampling rich fruits. This judge, a naval officer, said those in California were as devoid of fiber or strong taste as any he had tasted. He stated that in the tropics some were fibrous or stringy and others had an unpleasant taste weakly suggestive of coal oil. He found none of that class here. During the past week the writer has eaten one each of Blakeman, Spinks, Colorado, Linda, and Collins and could detect no difference in value though slight difference in flavor. Of these Linda is the largest and Collins the smallest.

Perennial Plants

In California, where all the year is spring, summer, and autumn, without winter, we must look to permanent effect throughout the year. Therefore must we grow perennials. There is no class of plants requiring less care. Annuals are of transient glory and involve much labor unless the seeds are sown broadcast. To set out individual plants is burdensome. But good old perennials, hardy, tough, and thriving in all soils and under all conditions, yielding flowers even in the midst of abuse and neglect, these are what all should grow. For after all no class of plants is more responsive to good care.

Many Americans do not eat enough greens and salad vegetables for their health.

FARM PICNIC

Plans are progressing rapidly at the University Farm at Davis for the Eleventh Annual Picnic day which will be held April 26 this year. Preparations are being made for 25,000 visitors, as everything points toward this picnic being the finest event of its kind ever staged. The refreshment committee announces that it will serve free coffee to all visitors who have cups with them in their picnic baskets. Many people last year forgot to bring any containers, so missed this opportunity. The entertainment committee has gotten up entry blanks for the athletic contests and these are now in the hands of various high schools and athletic organizations. The chairman of the parade this year announces some surprises and changes in the style of parade and more comedy will be furnished. Many tractors will be in the line of march. The reception committee has assigned students who will meet all machines as they enter the grounds and show them over the wonderful 1000-acre farm. Last year 3500 autos passed through the arch and brought a good part of the 18,000 visitors.

Picnic day is being looked forward to more and more each year by those who have attended before and know what a pleasure it is to be able to visit their state institution and see for themselves the wonderful strides being made in agriculture through the use of modern machinery and scientific methods. Another fact which appeals to many is its non-commercial atmosphere and the spirit of wholesome fun which prevails. The publicity committee announces as its slogan, "You furnish the lunch—we furnish the fun."

HARD WORK

Continued from Page 505

gen, Boy's Club Leader C. W. Rubel, and W. A. Lloyd, extension director for the United States Department of Agriculture for the Northwest, were also with the party. With these and the advisers the delegates from various county bureaus numbered 150.

Intensely practical method of gathering and disseminating information! The object of those entering into the conference was to gather the information that they might on their arrival home inform their members and neighbors of the lessons of such an institute conducted in the orchards and on the farms of the state. But, in addition, the farmers in each district visited attended both field demonstrations and the evening gatherings. Such a trip calls for some expense and more endurance. Especially was this the case with the conveyances, for the trouble shooter which followed the 47 machines which made the entire trip had occasion to offer its service to all excepting four.

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Sweet Corn Fodder

Would there be any food value for cows and horses in sweet corn fodder, cut up in ensilage cutter immediately after removing roasting ears? Would same keep in bins about ten feet square and six feet deep under roof? Should it be salted or otherwise treated or cured before cutting up and putting away?—Subscriber.

Yes, this fresh cut green stuff would make exceptionally fine feed for dairy cows and in limited quantities could be added to the ration of horses. It would be much richer in protein than the fodder from ripened corn, likewise it would be more acceptable to the cows. As to keeping in bins, do not think this would be successful unless they were made somewhat like a silo, air tight. Of course such silage would have lower value than the ordinary silage in which the full grain is cut up with the stalk. If treated as silage the salt would not be necessary, and in the large bins where the air would have access to it, we do not think it would keep even with salt added. The cutting of a few days' ration would, however, be entirely practicable.

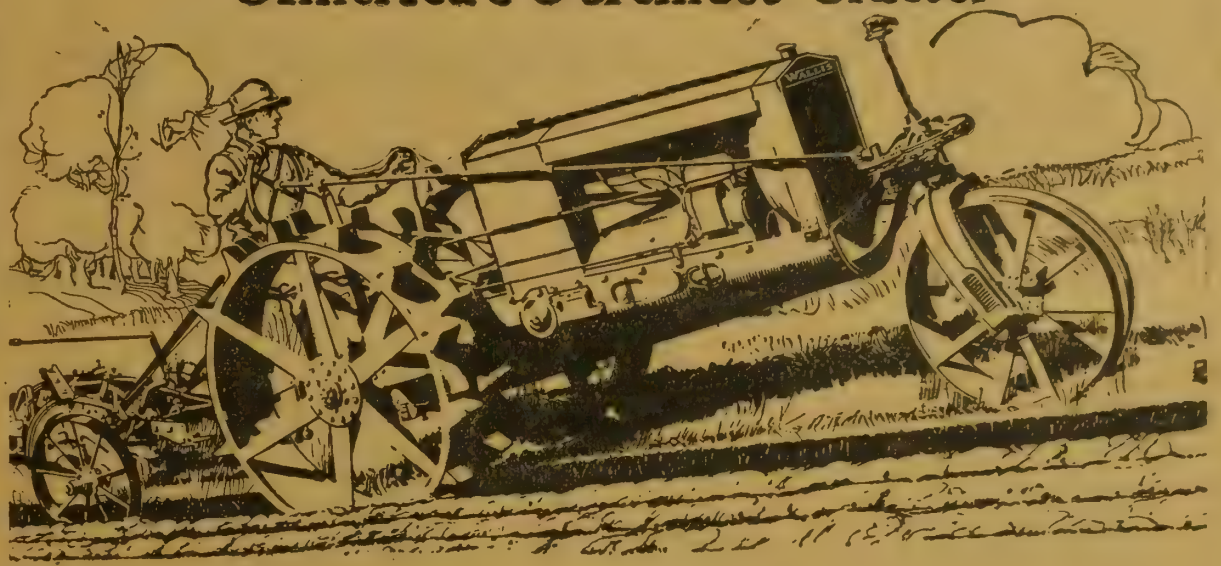
Bacteria for Beans

Will you please tell me what is the proper bacteria with which to inoculate Whip-poor-will cow peas before planting them as cover crop? Also manner of using?—Subscriber, Anaheim.

We believe the same bacteria used with any of the bean family will answer with the cow pea, which is more correctly a bean. The particulars as to using may be had upon the package in which the culture is secured. In a word, however, the culture is added to water which is sprinkled over the beans as they are shoveled over. The cost is about $2 per acre.

WALLIS

America's Foremost Tractor



WALLIS first combined great power, lightweight and durability in a tractor.

The Wallis "U" frame is an advanced idea—the strongest, yet lightest construction known to mechanics. The Wallis weighs 1,000 to 5,000 pounds less than tractors of equal drawbar power.

Wallis was first to enclose all gears, including the final drive. In the Wallis all materials are the finest—workmanship the best—motor as perfectly finished as that of an aeroplane or the highest grade automobile. At the National Tractor Demonstration, farmers marveled at how the Wallis motor was always cool.

The Wallis gives the greatest return for the money because it does the most work on the least fuel; with the fewest delays; and at lowest up-keep cost.

Why the Wallis is America's foremost tractor is explained in the latest Wallis catalog. A copy will be mailed on request.

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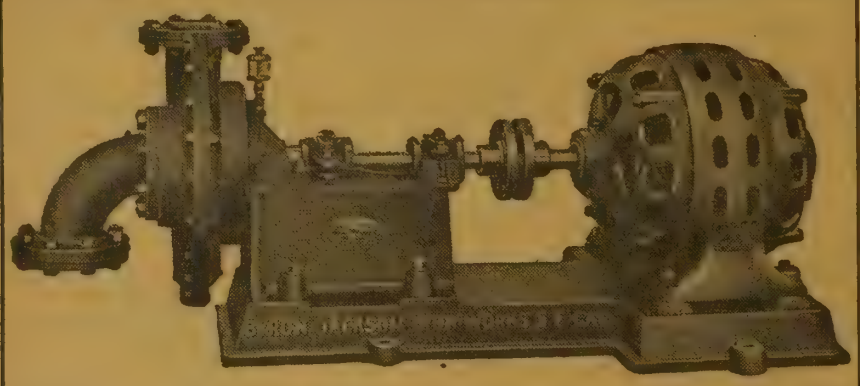
"If it's weighed on a FAIRBANKS, there's no argument"



CONSIDER the satisfaction of *knowing* that your weights are correct. Figure the loss totals which are bound to pile up when inaccurate, poorly constructed scales are used—then you'll see at once why thousands and thousands of users, for over 87 years have looked for the name FAIRBANKS when buying a scale.



Fairbanks, Morse & Co.
CHICAGO



Have You a Producing Ranch?
If not, Why not?
The difference between a "live" and a "dead" Ranch is "Water" and "No Water."
"Byron Jackson" Pumps meet every water condition
Write us giving your water conditions and requirements.
Our New Catalog No. 60-B for the asking.
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LA CROSSE TRACTORS --- IMPLEMENTS
Knapp Tractor and Machinery Co.,
416 Central Building - - - - - Los Angeles, Cal.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Whitewash for Barn

Please give good receipt for barn whitewash.—Subscriber, Durham.

For exterior of buildings here is a formula recommended in our issue of June 22, 1918:

1. Sixty-two pounds (one bushel) quicklime, slake with 12 gallons of hot water.
2. Two pounds common table salt, one pound sulphate of zinc, dissolved in two gallons of boiling water.
3. Two gallons skimmed milk.

Pour 2 into 1, then add the milk 3 and mix thoroughly.

Incubating Goose and Duck Eggs

Please give me particularse of hatching goose and duck eggs by incubator. Can I hatch them together? —J. L. C., Anaheim.

Both duck and goose eggs require a little lower temperature than hens' eggs during incubation. For duck eggs keep the incubator at 102 degrees the first three weeks and 103 degrees for the last week. The temperature may go above 103 degrees and sometimes will go as high as 104 degrees at hatching time. Operate the machine according to the manufacturer's directions. It is usually advisable to supply misture for duck eggs during the last week or ten days of incubation. This may be done by sprinkling the eggs with water heated to about 100 degrees, by placing a pan of water, a tray of moist sand or a wet sponge below the egg tray, or by sprinkling the floor of the incubator room. The eggs are usually turned twice daily after the second and through the twenty-sixth day and cooled once daily after the seventh and through the twenty-sixth day. After turning the eggs reverse the trays end for end and from one side to the other in two-tray incubators. When the ducklings are all hatched remove the egg tray and open ventilators according to manufacturer's directions, but keep the ducklings in the incubator from 24 to 36 hours after the hatch is over. It is important that duck eggs be tested the seventh day, or earlier, and again the fourteenth day, as germs decompose very rapidly.

For goose eggs incubators are run at a temperature of 101.5 to 102.5 degrees, and the eggs are sprinkled daily with warm water after the first week. As duck eggs, except the Muscovy, hatch in 28 days, while goose eggs require from 28 to 30 days, it would hardly do to put both in the same incubator. The duck eggs would hatch earlier and the goose eggs that had not hatched when the duck hatch was over would be lost. In addition to this objection, there is the question of temperature. An amount of heat that would be all right for duck eggs might kill the germ in the goose egg.

Chinese Photinia

Please tell me name of tree of which I enclose leaves and flowers.—F. D., Sanger.

This tree is Photinia serrulata, native of China. It is very closely related to our native Christmas berry or "Toyon", which is really P. arbutifolia, though it goes by the botannical name Heteromeles, This Chinese tree is hardy in all parts of California, of easy growth and a fine ornamental.—E. B.

Treatment for Alkali Soil

Have 20 acres which is spotted with alkali that I would like to plant to some kind of crop for ensilage. Different parties have told me that if I drill either lime, gypsum or some

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Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.
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Pomona "Made Right" Irrigation Gates and Valves
PRICES RIGHT — QUALITY RIGHT
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Top Dress with Nitrate of Soda
California Needs It
Careful tests there show that soils give greatly increased yields when *available* Nitrogen is added.
Nitrate of Soda
is the only form of Nitrogen *immediately* available. Write for "Cost of Available Nitrogen."
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BEEMAN
The Inexpensive Tractor For Small Ranches

Motors Equipment & Tractor Co
1310 South Grand Ave. Los Angeles, Ca

Big Moneymaker
You can make $180 a week with fruit and vegetable apparatus. Write at once. Cal. Dried Produce Co. New way fruit and vegetable drier. 20 Eighth Street, San Francisco, California.

In spite of scarcity of implemen and shortage of farm labor, Englan Scotland and Wales have all increa ed their acreage of wheat.

form of sulphur in with the seed (in the same furrow with the seed) that they will assist directly or indirectly in helping the plant overcome the ill effects of the alkali. Can you give me authentic information in regard to this? What form of sulphur is it they use?—Subscriber, Fullerton.

We do not think the use of sulphur in such quantities as would be possible under reasonable cost would affect materially the alkaline condition. However, gypsum is beneficial in this that it would change the black alkali to a white alkali which is less caustic and in addition is more readily leached from the soil by rains and heavy irrigation. Heavy application of coarse manure is also beneficial, but the most satisfactory of all treatment of alkaline soil is underdrainage. We would not consider the application of commercial fertilizer an aid in control of alkali sufficient to cover cost.

Planting Small Fruits

How far apart should rows and plants in row be with loganberry, dewberry, thornless blackberry, and what is best method of trellising each variety? I wish to set so as to secure greatest profit from the fruit which is to be sold on the market.—Subscriber, Newman.

All above rows should be five feet apart. Plants four to six feet apart in the row. Loganberry and thornless blackberry should be trained on wires stretched about five feet above the ground while dewberries do better on wires stretched about three feet above the ground. Wires stretched by placing strong posts at each end of the row with cross bar about two feet long running wire from each end of bar and two in between. The posts are set along the row at intervals to support the wire and plants.—De F. R.

Cost of Line Fence

My neighbor wants a fence between our places. Can he make me pay for half of it? I do not feel able now to pay for half the cost of fencing and I do not need my place fenced now.—Subscriber, Kingsburg.

If you have live stock running on your property which would be controlled by a line fence then the neighbor may insist on your joining in its cost. If your stock is not at liberty in your own field then the cost of the fence should be borne entirely by the neighbor. That is, this is according to the present state law. Should you later, however, proceed to use your property as a field for pasturing or keeping stock, then the neighbor may ask and secure one-half the cost of the line fence.

Satsuma Orange

I wish to set a commercial orchard to the Satsuma Oonshiu orange. What is the best budding stock for this orange?—Subscriber, Oroville.

This question was referred to R. M. Teague of the San Dimas Nurseries and he writes:

"The writer does not feel qualified to advise as to which would be preferable in this case. The sour stock grows a much larger tree and also produces larger fruit. However, we are under the impression that the Trifoliata root would ripen the fruit at least one month earlier and it might possibly be of a better quality, although not so large in size as if budded on sour stock. In as much as these are dwarf or semi-dwarf trees they would stand planting together much closer than the average stock. C. C. Chapman of Fullerton is planting some budded on Florida sour stock, but as we have never gone into the matter of the quality produced on these two stocks, we would not be in a position to pass on a situation of this kind. Perhaps the citrus experiment station at Riverside could give you more definite information, as we supplied it different plots of stock budded on the five different root stocks, viz., sweet orange, sour orange, rough lemon pomelo and Citrus Trifoliata."

Cherries Not Bearing

Why is it that a cherry tree which blossoms heavily fails to set any fruit?— Subscriber, Lodi.

Perhaps it is because of the section which may not have the right conditions for producing cherries. Again it may be the variety of tree. It is barely possible that it is because of lack of pollination. If the latter is the case, then planting another tree which blossoms at the same period would possibly correct the evil. However, our guess is that one of the first two reasons given is the more correct.

Pruning Almonds

How should almonds planted two years be trimmed? Some are good size, others slender. Should the slender ones be cut down within a foot of the ground and forced to run up a single straight shoot?—Subscriber, Newman.

It is now rather late for pruning almond trees and we do not fully understand the situation. If these trees have been planted two years and still have only slender shoots they are not very thrifty or strong growing and a new tree would perhaps be best. In planting, if they could have been topped down to say 16 or 18 inches and made to send out lateral shoots, say three or four good thrifty growing branches, this could have been made the foundation of the trees which another year could have been cut back to two or three good buds on the spurs. Do not allow orchard trees to run up to long whip like trunk.

Ownership of Manure

I sold my dairy of five cows to a tenant who keeps them on my walnut orchard. He is selling the manure off the place and even demands that I pay for what I need. What are my rights in this case?—Subscriber, Santa Ana.

Unless agreement provides otherwise, we think the tenant can control every product of the place, and manure is one of these products. However, we believe there is a technical point that if the manure is hauled from the stable and placed in piles or distributed then it becomes a part of the realty and may not be removed without consent of owner of the land.

Silver and gold don't rhyme, but they make a pleasant jingle.

THE NEW

Studebaker

CARS

THE New Studebaker Cars—notable for their thorough quality, for their comfort, their economy, and their beautiful lines—are the supreme product of Studebaker's 67 years of manufacturing experience.

You have known Studebaker Cars for years—you know how they have proven good under all the varying conditions of service on country roads. Your father—yes, and your grandfather—knew, too, the inbuilt quality and proven excellence of Studebaker vehicles.

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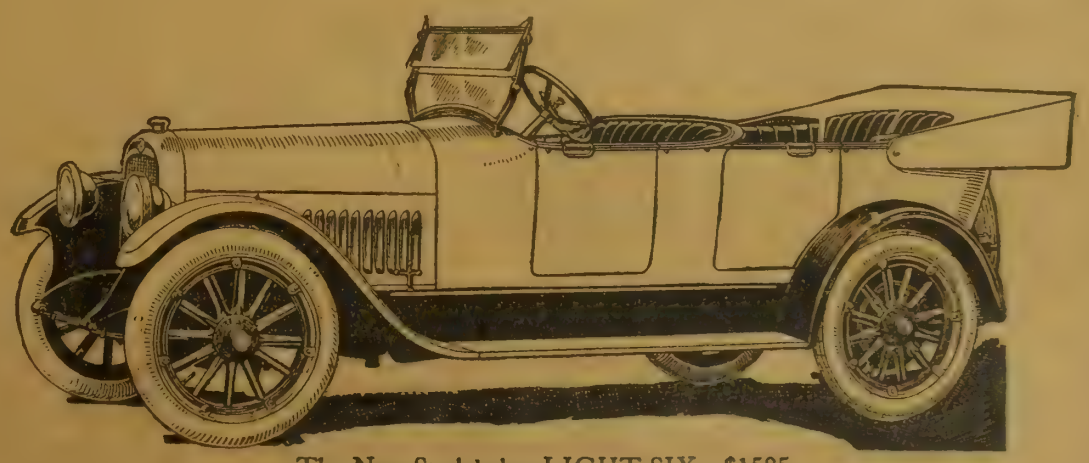
The LIGHT-FOUR	The LIGHT-SIX	The BIG-SIX
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The New Studebaker LIGHT-SIX—$1585

119-inch wheelbase; 50 h. p. motor, with "two-range" carburetor; genuine leather upholstery



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"From the beginning of the time I have been using powder for stump blasting and other agricultural work, I have found the powder made by The Giant Powder Co. to be the most satisfactory. Each certain percentage of Giant Powder is exactly what it is represented to be."

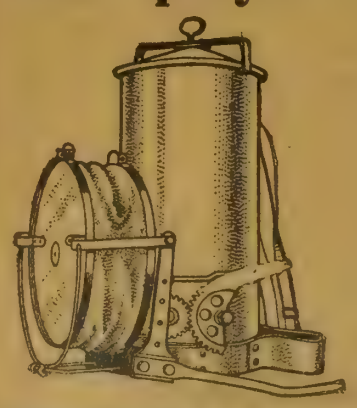
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of our own manufacture, under the following brands:

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We respectfully solicit inquiries and will be pleased to mail booklet upon request.

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Division of Property

Six children have come into possession of 400 acres of land by deed upon the death of their parents. All of the children are of age. Some of the land is better than the rest and there is a good house and barn. Now, can one or two of the children force a sale, or do the majority rule, as it is a hard matter to divide the land?—Subscriber.

Any one of the children may bring an action for partition of the property. This is a very flexible action and is calculated to take care of the interests of the parties as may seem best to the court in each instance, as for instance, a partial partition may be had, some may agree to pay off the one or two insisting upon their share, or whatever other way which may be found best and most agreeable.

Tax on Insurance

Is an insurance policy payable to an estate for $2000 subject to any tax?—Subscriber, Garden Grove.

As stated it would be subject only to an inheritance tax in case the person to whom it was to be distributed was the uncle, aunt, father, mother or descendant of such, in which event there would be $1000 exempt and a four per cent tax upon the other thousand; in the case of any more distant relatives or persons strangers to the blood of the deceased there would be $500 exempt and a tax of five per cent upon the remainder. Of course, the policy as a part of other property of the estate would bear its rate of inheritance taxation.

Contract Not Completed

A contracted with B to level a certain piece of land by the 15th day of May, 1919, for the total sum of $300 to be paid on completion. The contract was verbal and there were no witnesses. B has entered upon the work, put on very inefficient help and been very dilatory, but has finished about two-thirds of the work. B now states that he took the contract too cheap and if A will not give him more money he will quit; A refused to do this and B has quit. What are the rights of the parties? Does B have to finish the job to collect? Can A hire the job finished and charge to B's account?—Subscriber, Bakersfield.

The job being an entire one and the mere fact of an erroneous calculation of the amount necessary to give a profit not being sufficient to warrant B in repudiating his contract he must finish in order to collect. He having repudiated the contract and refused to finish, the option of three moves is in the hands of A; he may treat the contract as ended; he may immediately bring action for the breach as for any damages he may suffer through the repudiation of B; or he may complete the work and then bring action for any over-plus he has been required to pay for its completion, paying B the remainder of the $300. In order to prepare for any future trouble, the writer would suggest that A with two witnesses call upon B, state what the terms of the verbal contract were and have such terms assented to by B, either by words or through silence, recite the fact of the repudiation by B and the reason given, and demand that B forthwith proceed to complete the contract or stand responsible under one of the foregoing options which A is entitled to choose. Then having the evidence better prepared A can safely proceed to have his work done.

Liability for Water Run-Off

What is the liability of a rancher for the run-off of storm water in winter? What is his liability for the run-off of irrigation waste water in summer onto a neighbor's land?—Subscriber, Glendale.

The true measure of compensation for seepage or waste of irrigation water or storm water, in case of liability for the last named, is the value of the crops of your neighbor destroyed, although evidence of the adaptability of the land for crop may be considered. A land owner who permits water used in irrigating his fields to escape on his neighbor's land is liable for the damages caused and may be restrained from continuing the injury. As to storm water he is not responsible merely for the flow of water from his land to that of his neighbor, unless he has in some way changed the course, or by artificial means of gathering the water in ditches increased the damage which would be caused thereby; for the natural fall and run-off he is not responsible.

Road Right-of-Way

There is an old road laid out over 40 years ago, travelled over all that time with no objection; now a neighbor, who is an absentee owner, wishes to close the road, claiming it runs over his property. This will leave us with no way between our property and town . Shall we take this up with the supervisors, district attorney, or with whom?—Subscriber, Encinitas.

Although the history of the road is not sufficiently full to base a positive opinion upon, it would very strongly appear that you and your neighbors have a prescriptive right to the road. The best mode for you to employ would be to take the matter up with the supervisor for your district in his capacity as road commissioner; it is his duty to take the proper measures to provide you with either an enforcement of your rights in the present road or make other provision.

Community Property

What is community property and what is separate property?—Subscriber, M. T.

The separate property of either husband or wife is all that property owned prior to marriage and that acquired afterwards by gift, bequest, devise, or descent with rents, issues, and profits thereof. This includes both real and personal property. All other property acquired after marriage by either husband or wife, or both, is community property, except that the earnings and accumulations of the wife and of her minor children living with her, while she is living separate from her husband is likewise her separate property. It matters not that the original separate property may have been sold, the receipts of such sale are separate property and any subsequent re-investment is separate property. The wife may, without the consent of her husband, convey her separate property; she may even enter into contract with her husband in respect to her separate property.

Property Disposal

A man marries, has children, is divorced, at which time he leaves all his property to that family. He subsequently marries again and accumulates other property, real and personal. There are no children by the second marriage. On his death, without will, to whom does the second accumulation of property go? If a will was made wholly in favor of the second wife could the children of the first wife break it?—Subscriber, Galt.

These accumulations would be the community property of the second marriage of which the second wife is entitled to one-half with or without will. The other one-half is absolutely subject to the testamentary disposition of the husband; if he desired to cut off the children by the first wife by will he can do so, being careful in such will to mention them and state that such is his desire. In case of his decease without will the second wife would doubtless be entitled to one-third of the one-half which is subject to disposition and the children by the first marriage would be entitled to the remaining two-thirds of the said one-half divided share and share alike.

FRED K. HOWARD RESIGNS

County Horticultural Commissioner Fred K. Howard of Kings County has resigned in order to engage in commercial work. An examination was held April 11 at Hanford to establish a list of eligibles to fill the vacancy.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Calf Ailing

Can you tell me what is the matter with a three months old calf that chews its cud and in so doing spits out half digested matter of very offensive odor? The calf is fed alfalfa hay in addition to its milk ration. Other calves fed in the same manner as this one are correct in their digestion. What is the cause and what is the remedy?—Subscriber, Hemet.

Am inclined to think there is something wrong with the calf's teeth. Examine the mouth carefully. You may find a defective tooth or a thorn imbedded in the tongue or cheek. If you do not find anything wrong in the mouth then put a teaspoon of baking soda in the feed once a day for a week.

Labor Pains After Calving

We purchased a three year old Holstein heifer three weeks before she gave birth to a fine large bull calf. She seemed in normal condition except a swollen appearance in the rear with a small amount of discharge. After calving the discharge increased greatly and every three or four days she seemed to be in great pain trying to expel something. She was given douches of Creolin solution twice a day at first, then once a day and then every other day until the trouble disappeared, but after a rest of four days in the treatment the trouble returned. The discharge has the color and consistency of the white of an egg. What treatment would you advise?—Subscriber, Chalfant.

The swollen condition and slight discharge before calving was normal unless the swelling and discharge was very great. Such a discharge after calving is normal also but in fat or overfed animals it may be excessive. The pains you mention may be caused by some part of the uterus being misplaced. Such pains do occur when there seems to be no cause for it. You can only tell about the misplacement of part of the uterus by examination and then you must know the parts. Would suggest that she be kept in a stall for a week or more, that is low in front so when she stands her hind feet will be six or eight inches higher than the front feet. Also give her a teaspoon of the sulphate of iron in the feed once a day for a week to dry up the discharge. Also reduce the feed. The douches will probably do no good. Those troubles usually grow less and soon disappear.

Stringy Milk

Our cow is giving stringy or lumpy milk from two of her teats. She is about dry and will be fresh again about the first of April. The udder feels as though it was thick from some caked substance inside. The milk was extremely yellow for over two weeks before I started to dry her up. The milk did not flow readily without working the udder at the time of drawing the milk. The cow seems well otherwise. Will there be any ill effect from this when she is milking again?—Subscriber, Zelzah.

The quarters of the udder from which the stringy milk comes are congested. It may be caused by too rich feed. Feed her lightly until some time after she is fresh and see that she gets plenty of green feed to keep the bowels open. Rub the udder and continue to milk it out clean twice a day up to the time she is fresh again. Also get three pounds of epsom salts and two pounds of common salt. Mix them and give a large handful in her feed once a day until you have used it all. With careful handling you may get the udder back to its normal condition.



Show Me Facts!

BEFORE you buy *any* tractor you have every right to say to the manufacturer: "Show me what the USERS of your tractor have to say. *Show me* that it has already proved itself economical and practical in every-day work. *Show me* the *figures* your *users* have given you so that I may figure costs and so determine why I should own one of your tractors."

Here, then, is part of one of the large number of letters constantly received from farmers telling us what their *Cleveland Tractors* do for them.

To begin with, I used my Cleveland Tractor to plow about 305 acres during 1918 and used double discs, two 60 tooth harrows and a heavy wooden drag on one load for fitting.

When I plowed I covered from eight to ten acres a day with a two-bottom gang and covered about 40 acres a day with the harrows.

I harvested 150 acres of wheat and oats at 25 acres per day.

In July I used the Cleveland in loading hay, and got in the crop from 140 acres at the rate of about 35 tons a day.

Besides these things, I used my Cleveland for a great many belt jobs—put in 300 tons of ensilage in 32 hours, on 30 gallons of kerosene, for instance.

I now keep six horses, instead of the fourteen I had before and need two men less than previously.

My Cleveland is in excellent condition, ready for the 1919 season, and counting everything, I haven't spent over $10 for repairs.

F. H. JOHNSON,
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Such specific, definite facts tell why the Cleveland is so fully justifying the faith that so many farmers have placed in this compact, powerful Tractor. Write *today* for complete information and the name of your nearest Cleveland dealer.

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The largest producers of track-laying tractors in the world

Cleveland Tractor

IF YOU and the other readers of the California Cultivator knew of the great variety of man and mule labor this "machine of all work" is doing right here in Southern California—of the letters we and our 32 reliable dealer representatives are receiving daily from Growers and Ranchers—

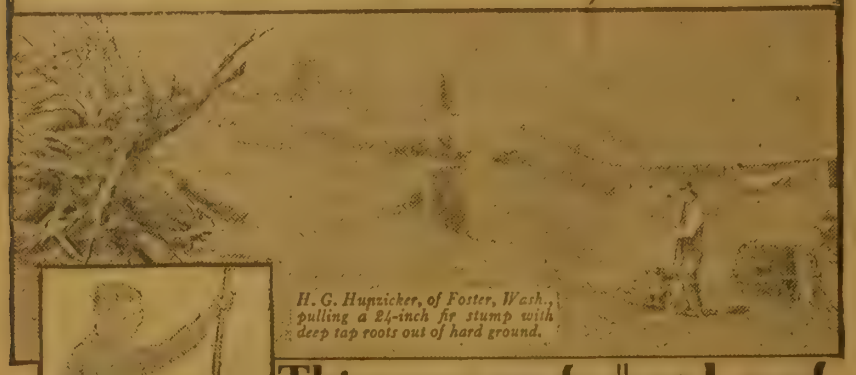
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This man made $35 Land Worth $200 an acre Pulling Big stumps by hand

CLEAR your stump land cheaply—no digging, no expense for teams or powder. Your own right arm on the lever of the "K" Stump Puller can rip out any stump that can be pulled with the best inch steel cable. I guarantee it. I refer you to U. S. Government officials. I give highest banking references.



Showing easy lever operation

HAND POWER
K Stump Puller

One man with a "K" can outpull 16 horses. Works by leverage—same principle as a jack. 100 lbs. pull on the lever gives a 48-ton pull on the stump. Made of best steel—guaranteed against breakage. Has two speeds—60 ft. per minute for hauling in cable or for small stumps—slow speed for heavy pulls. Works equally well on hillsides or marshes where horses cannot go.

Write me today for special offer and free booklet on Land Clearing.



Weight, without cable, 171 pounds

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No Stump Too Big For The K



MUSCLES OF STEEL

You can begin plowing early with the LAUSON TRACTOR. Early in the season, early in the day. The LAUSON is a good servant. It has muscles of steel and iron. You do not have to bed it, feed it, nor scrape its collar pads. Its shoulders never get sore and it drinks but never eats. And it even stops drinking when it stops working.

With the LAUSON Tractor one man can handle three times as much work because the physical element never enters in.

The LAUSON 15-25
DUST PROOF—ALL GEARS ENCLOSED

is built so that mechanical perfection and ruggedness appear in every detail of construction. It will stand the hard gruelling work of power farming day in and day out without a rest. Sold with or without Christensen starter.

Known as the Pattern Tractor

It is dust proof; all the gears, including the final drive, being fully enclosed and running in a bath of oil.

It has reserve power, the Lauson-Beaver valve-in-head engine being capable of delivering fully 25% surplus of power. There are 24 sets of Hyatt and Timken roller and ball bearings to insure easy running and freedom from friction.

You owe it to yourself not to purchase a tractor until you have seen the Lauson. Taking into consideration its power and durability, it is the most economical farm power unit on the market today. Your nearest local dealer will be glad to demonstrate the Lauson on *your* farm. If you don't know him, we will be glad to send you his name and address.

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The Wool Prospects

FRED A. ELLENWOOD, a practical wool grower and president of the California Wool Growers Association, in an address at the annual meeting gave a review of the situation and anticipated somewhat the coming year's possibilities:

"When our boys were leaving a year ago, thus creating a shortage of labor, we saw the cost of production increase until it was about doubled. Today, with the boys returning, we have noted but little reduction in production cost, yet wool and mutton, our finished products, have both decreased in value materially.

1911 Wool Market

This is anybody's guess at present. However, much depends upon the action taken by our own government in disposing of the great quantity of wool now owned by it. If our government refuses to sell this wool, without taking more than a ten per cent loss, our prices for the coming clip should be fair, although not equal to those of last year. Much also depends upon what England does with the Australian clip, as the Australian clip of 1919 belongs to the English government.

"If England does not permit much of this wool to enter the United States, that will help us materially, but none of us can tell what either the English government or our own government will do with the wool now owned by them. Our national secretary, S. W. McClure, is now in Washington, D. C., trying to combat the influence of the wool manufacturers. They are using all the skill possessed by a strong organization of the very smartest men in any branch of the wool business, trying to have wool prices reduced before our spring clip comes upon the market. The governor of Massachusetts, in which state so many woolen mills are located, has recently made a strong plea to our government officials for a reduction in the price of wool.

"Naturally wool manufacturers try to secure their raw material just as cheap as possible. As their raw material, wool, is our finished product, our financial interests are always conflicting. This 1919 wool clip has been produced at just about as high production cost as was ever known and our government should not permit last year's wool clip to go to the mills at a loss of more than ten per cent to the government.

"The only suggestion I have to offer concerning the wool market, at present, is for sheepmen not to contract their wool before it is sheared. If the market is not as we think it should be at that time, we can consign our wool and sell on the Boston market. We have had some experience the past year along that line and know we can do it if necessary. We should strive to have all the wool sold in this manner. Instead of wool dealers buying and speculating in wool, at our expense, they should simply be wool brokers, the same as live stock commission men are at the stock yards in Chicago, Omaha and other places.

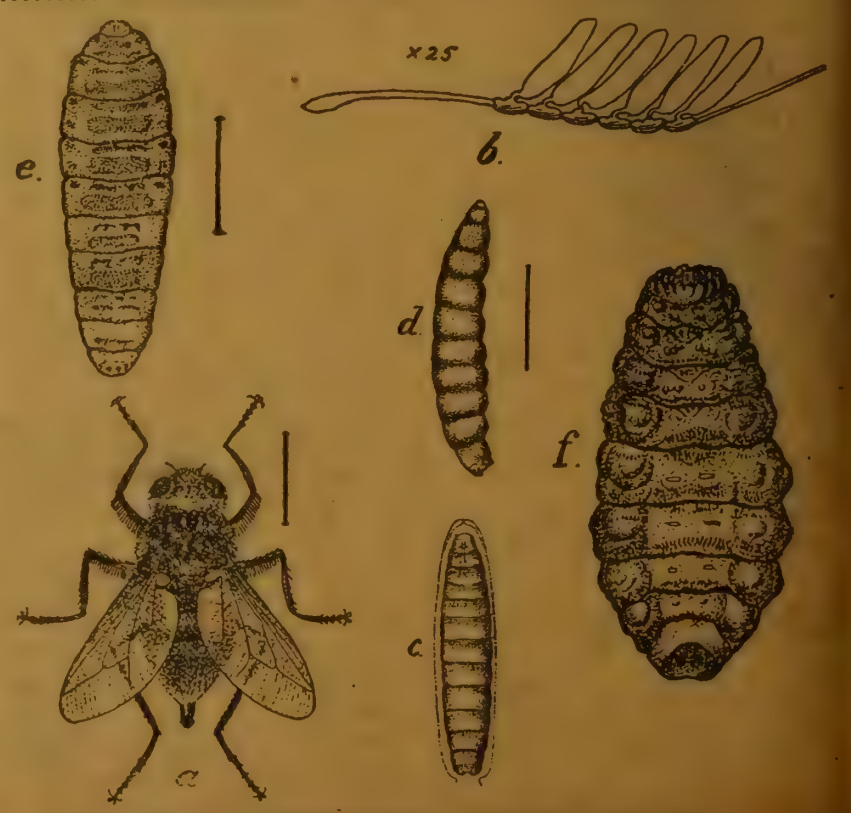
"One other point we have gained for future reference by the government handling the wool clip as it did last year, is the fact that the basic principle in determining the grease value of wool is the shrinkage, and if the government can determine this accurately enough to fix a grease market price on our wool, then it can surely estimate it close enough to determine the amount of duty that should be paid by an importer on grease wool.

"Eight years ago when we were urging a scoured content wool tariff importers and manufacturers argued that it was absurd to expect the government to determine the shrinkage on grease wool for the purpose of collecting wool duties. Everyone knows it can be done by the government now. Today we have no wool tariff, and prior to the present administration for a number of years, we had one framed by the manufacturers and importers for their special benefit. No wool tariff has ever been fair to the wool growers. Let us spend the next two years talking for a scoured pound wool tariff, one that will be fair to both the producer and the consumer, as well as the manufacturer, but without putting a burden on the consumer for the special benefit of the manufacturer and importer. This can all be accomplished by assessing wool duties, whatever they may be, upon the scoured content."

Touching upon the wool situation the statement just issued by the office of information, United States department of agriculture, is in effect:

Nearly 50 per cent of all looms making wool goods in the United States were idle on February 1 this year compared to 38 per cent idle on January 1. Figures on other idle wool machinery as given by the bureau of markets, department of agriculture, were: Woolen cards, 39 per cent; combs, 40 per cent; woolen spindles, 41 per cent; and worsted spindles, 49 per cent.

The report shows few machines working on double shift, while the percentage engaged on government orders is greatly reduced, not being over 10 per cent in any machinery group. Of the machinery reported in operation from 4 to 14 per cent was running 40 hours or less each week.



How He Looks When He, or Rather She, Is Enlarged

The warble fly (Hypoderma lineatum): a, adult female; b, eggs attached to a hair, x 25; c, larva as seen in egg; d, larva from esophagus of an ox; e, next stage of larva from beneath the skin of the back; f, larva at the stage when it leaves the back of cattle and falls to the ground—all enlarged (after Riley).



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pulled the hog lot out of the mud

—and the hogs paid for it

They wasted no feed and produced more ham and bacon.

You pay for a concrete feeding floor every year until you build one.

Once built—always built. No mud, no disease, no waste of grain—more pork with less corn — 100 per cent profit annually. CAN YOU BEAT IT?

You can build a concrete feeding floor.

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Concrete for Permanence

GRUBS, WARBLES, BOTS

THE common parasites known as grubs, warbles, bots, etc., found under the skin of the backs of cattle, where they form more or less conspicuous lumps during the latter part of winter and spring, are the larvae of a fly known as the heel fly or warble fly. This fly (Hypoderma lineatum) is about one-half inch long, very hairy, and somewhat resembles a small black bee. The flies appear early in the summer and are more or less prevalent until the beginning of cold weather. They deposit their eggs on the skin of cattle, fastening them to the hairs. The eggs are often deposited on the heels above the hoofs, hence the name "heel fly."

Although the flies are unable to bite, cattle seem to be much afraid of them, and often at their approach make violent efforts to escape, sometimes falling over precipices or becoming mired in water holes in the course of their headlong flight.

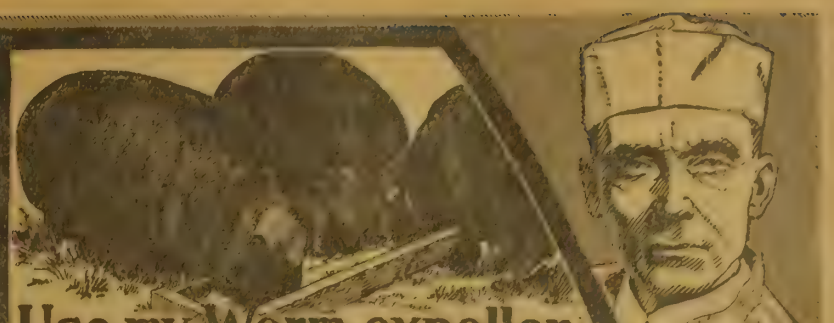
As a result of recent studies by various investigators it appears that the tiny grubs, newly hatched from the eggs, may gain entrance to the body by penetrating directly through the skin. Many observers, however, have held that the eggs or newly hatched larvae are taken into the mouth by the cattle licking themselves. It is possible, as in the case of several other parasites, that both modes of infection may occur and that the larvae may gain entrance to the body either by penetrating the skin or by being swallowed. From the evidence at present available it seems likely that the usual mode of entrance is through the skin. Irrespective of the mode of infection, the larvae evidently wander extensively through the tissues of the body, developmental stages being found in considerable numbers in the wall of the esophagus during the fall of the year. They have also been found in the spinal canal and in various other locations. Finally, about January they appear beneath the skin of the back, forming the well known swellings. The posterior end of the grub is near the small opening in the hide, through which the grub breathes and discharges its excrement, and through which, when its development is complete, it finally escapes. The anterior end of the grub is at the bottom of the tumor, where the mucus collects upon which it feeds. By spring or early summer the grub is full-grown and forces its way out of the skin, falling to the ground, into which it burrows for a short distance and transforms into the pupal stage. In about a month the mature fly emerges.

Grubs weaken cattle, cause them to fall off in flesh and milk and decrease the value of the hide. The beef in the immediate vicinity of a grub becomes slimy and of a greenish color, and is known to the butchers as "licked beef".

The total loss to the country on account of the warble fly is estimated at $35,000,000 to $50,000,000 a year, at the least, and may amount to considerably more.

Treatment for warbles.—During the winter and spring examine the cattle for the presence of warbles. By passing the hand over the backs of the animals the swellings marking the location of the grubs may be readily found. Pressure properly applied to the swellings will cause the grubs to "pop out" if they have reached a late stage of development. They may be more easily removed by means of slender forceps inserted into the opening of the warbles, and a still more certain method of removing them, particularly if the lumps are still very small, is to cut into the swellings with a sharp knife or bistoury, after which they may be pressed out. Care should be taken to crush all grubs removed, so as to prevent the possibility of their further development and transformation into flies. In order that none may escape it is advisable to examine the cattle every two weeks during the late winter and spring, at each examination removing the grubs which have developed sufficiently to cause perceptible swellings.

Another method of treatment is to force grease or oil into the openings of the warbles, which kills the grubs. This method is less certain than that of removing the grubs, and has the



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Worms are the worst cause of big hog loss. They cut down *your* profits, because practically all hogs have worms. I *know* this from my 26 years of veterinary practice. I also know that my Hog Prescription is a deadly enemy of worms—it *does the work*—rids hogs of worms, tones up the digestive organs and makes more hog-money for *you*.

It is the supreme remedy for nearly all hog ailments. A first-class tonic and blood purifier, fat producer and worm-expeller. Good for many cases of so-called cholera in hogs, such as diarrhea, bowel trouble, kidney worms, etc.

Don't tolerate wormy runts and costly feed loss—try my Hog Prescription

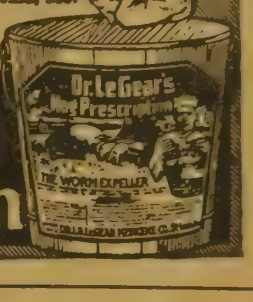
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Save baby chick loss by using Dr. LeGear's Poultry Prescription.

Dr. LeGear's Hog Prescription





The Mica makes it better

The highest-quality petroleum grease used in Mica Axle Grease would alone make good axle grease, but the powdered Mica makes it better. Gives cooler, smoother bearings—no hot boxes—and the grease lasts twice as long. Ask your dealer. Buy by the pail.

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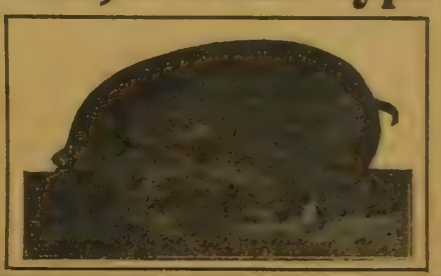
MICA AXLE GREASE

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Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett

Hanford, Kings County, Cal.





Raise Your Hogs and Cattle at a Profit

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A general conditioner, a worm expeller and a disease preventive.

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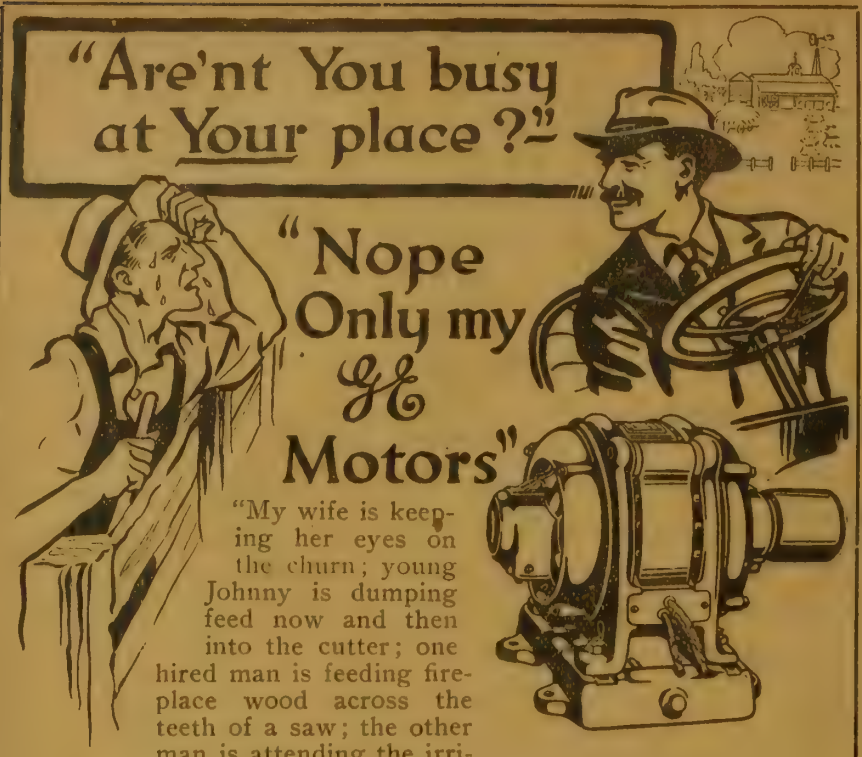


REGISTERED DUROC-JERSEYS

You can bank on this breed of hogs. The demand is greater than the supply. Every point the buyer demands for a profit-making hog is found in the Duroc. We can supply you with weaning pigs, either sex. Our herd boar has the blood of Ohio Chief, Defender, Crimson Wonder, Jack's Friend, Joe Orion, etc.

THE GARDINER RANCH

ROUTE 4, BOX 735. SACRAMENTO, CALIF.



"My wife is keeping her eyes on the churn; young Johnny is dumping feed now and then into the cutter; one hired man is feeding fireplace wood across the teeth of a saw; the other man is attending the irrigation canal in the west field—but the real work in each case is being done by my

G-E Farm Motors"

Not only do electric motors save manual labor but the work is done quicker and more economically. They allow the owner more time for general supervision without halting the necessary chores.

Ask the nearest lighting company about G-E motors for all kinds of farm work.

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General Office: Schenectady, N.Y.

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Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion and Don Castano, five gaited saddle stallion, winner in many prominent shows.

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We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

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Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited

Anita M. Baldwin
Santa Anita Calif.
W. H. Taylor, Supt.

Itch and Mange

Long, heavy coats of hair on horses are a nesting place for parasites, causing itch and mange, which irritate the horses and keep them from doing best work. Prevent these troubles by spring and fall clipping with a Stewart No. 1 Ball Bearing Machine. Only $9.75. Send $2—pay balance on arrival. Write for catalog.

CHICAGO FLEXIBLE SHAFT COMPANY
Dept. A 101, 12th St. and Central Ave., Chicago, Ill.



Retained After-birth

Cows can be made to clean easily without using force.

When cows do not clean properly after calving, it indicates a germ infection which is likely to run through the entire herd and result in Abortion and Barrenness.

The after-birth should be removed at once without force by means of the B-K douche and the cow treated to prevent her becoming an aborter or sterile. Authorities state that while there is no absolute cure for abortion and sterility, nevertheless the infection can be controlled by prompt treatment and the animal saved for successful breeding.

B-K is scientifically correct for this work. Used as a douche for the uterus, it quickly brings the after-birth, dissolves the slimy albuminous matter, kills the germs, stops discharges and controls the infection. B-K does not cause straining, but is soothing and heals the tissues.

Send for "evidenee" and free Bulletin No. 52 "Contagious Abortion." If your dealer does not have B-K send us his name.

GENERAL LABORATORIES
3166 S. Dickinson St., Madison, Wis.

B-K B-K B-K B-K B-K B-K B-K B-K

When writing advertisers, mention The Cultivator.

further objection that the dead grubs remain beneath the skin.

Cattle may be treated during the summer with fly repellents to keep off warble flies. The efficacy of repellents against these flies is probably, however, not very great.

JERSEY BREEDERS MEETING AT DAVIS

The California Jersey Cattle Club met at the University Farm, Davis, March 19.

The purpose of the meeting was to discuss greater pnublicity for the breed in this state. All were agreed that the Jersey was being handicapped and that the breeders of California were hiding their light under a basket. There are many excellent herds in the hands of California breeders that have made enviable records both in the show ring and on performance tests. These breeders have demonstrated to their own satisfaction that the Jersey is a profitable cow but they have not gone about letting the dairy interests of the state or the prospective dairymen know what they are accomplishing. This they propose to do by a general advertising campaign, the details of which will be worked out by a committee consisting of J. E. Thorp, S. F. Williams and Professor E. C. Voorhies.

At the suggestion of the president, Dr. Hand, who declared that the fight now being waged on the milk producers associations had its origin among the "vested interests," meaning the privately owned central plants, who were leaving no stone unturned to discredit the association's motives and work, a resolution was unanimously passed in support of the work of the state market director and protesting any attempt to enact legislation that would strike at the root of cooperative work in this state.

A resolution was also passed urging that all Jersey breeders inaugurate a systematic campaign on bovine tuberculosis.

The club voted to donate a suitable trophy to be awarded in the students' live stock fitting contest which will close at the University Farm April 26, Picnic Day.

Chas. Adams, manager of the Hearst ranch, was voted a membership in the club.

A luncheon was served at noon and in the afternoon a live stock demonstration was staged for the benefit of the visitors and the farm advisors.

HIGHEST JERSEY FAT RECORD IN STATE OF CALIFORNIA

Accepted by the Club to February 25, 1919

Under Two Years

Jewel of Venadera 275316, owned by Guy H. Miller, Modesto, 8017.8 pounds milk, 442.40 pounds fat, 1 year, 11 months old.

Junior Two-Year-Old

Mamie Owl 261075, owned by D. F. Conant, Modesto, 7830.3 pounds milk, 435.14 pounds fat, 2 years, 3 months old.

Senior Two-Year-Old

Interested Jap's Santa 296928, owned by University of California, 9052.5 pounds milk, 588.16 pounds fat, 2 years, 11 months old.

Junior Three-Year-old

Verde of Willowwood 343680, owned by J. E. Wherrell, Riverside, 10605.1 pounds of milk, 591.39 pounds fat, 3 years, 2 months old.

Senior Three-Year-Old

Jewel of Venadera 275316, owned by G. H. Miller, Modesto, 10262.6 pounds milk, 609.54 pounds fat, 3 years, 6 months old.

Junior Four-Year-Old

Interested Jap's Santa 296928, owned by University of California, Davis, 13308.5 pounds milk, 805.72 pounds fat, 4 years, 2 months old.

Senior Four-Year Old

Mermaiden's Fern 269301, owned by University of California, Davis, 9657.6 pounds milk, 536.80 pounds fat, 4 years, 7 months old.

Five Years and Over

Fern's Silver Ray 305081, owned by R. H. Van Derpoel, El Centro, 14692.8 pounds milk, 779.54 pounds fat, 8 years old.

New Harness

is cheaper than second-hand, dollar for dollar of cost. Come in and see what we have to offer you in HERCULES HARNESS and Horse Collars. Our own make and fully guaranteed.
Stallion collars made to order.

W. Davis & Sons
California's Pioneer Harness Manufacturers, 333 Market Street,
SAN FRANCISCO, CAL.
Catalogue of Harness, Saddlery, Trunks and Traveling Bags sent free on request.

Calf Enemies

WHITE SCOURS
BLACKLEG

Your Veterinarian can stamp them out with Cutter's Anti-Calf Scour Serum and Cutter's Germ Free Blackleg Filtrate and Aggressin, or Cutter's Blackleg Pills.

Ask him about them. If he hasn't our literature, write to us for information on these products.

The Cutter Laboratory
Berkeley, Cal., or Chicago, Ill.
"The Laboratory That Knows How"

Use a Shorthorn Bull



and add 200 pounds to every steer you raise. A load of Shorthorn yearlings sold for $20.75 at Denver in January, the record price for feeders. Four loads of Shorthorn steers brought $524, $361, $358, and $349 per head at Chicago in December. Why not start a Shorthorn herd by putting in two or three registered females and keeping the female increase? You would soon have a valuable herd at small cost. Pure breds pay the best.

Attention Buyers

For sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.

Hannon Bros.,
Care Geo. Irwin,
Third St. - - Lankershim



Butter Tests

by Agricultural Societies begun in 1886.

At the close of the year 1897, competitive tests between Holsteins and Jerseys were made on 72 different occasions, resulting in an excess of production of the Holsteins of 23 per cent over the Jerseys; an average per day of 1.992 pounds for the Holstein and 1.614 for the Jersey.

If interested in

HOLSTEIN CATTLE

Send for our booklets—they contain much valuable information.

HOLSTEIN - FRIESIAN ASSOCIATION OF AMERICA, Box 120 Bratlleboro, Vt.

Col. W. C. Lookingbill
Auctioneer
"Specialist" in Pure Bred Stock, Dairy Cattle and Real Estate
Will Appreciate Your Work
Address: Riverside, Calif.
P.S.—Will buy any good Dairy Herd or Beef Cattle

Mitchell Holsteins to Many New Buyers

One of the most satisfactory sales of Holsteins held in the state for some time, from the standpoint of the future welfare of the breed, was held by Walter F. Mitchell at his Packwood Farm, near Visalia, Thursday, April 3rd. The reason for such characterization of the Mitchell dispersion is due to the fact that few sales have served to distribute so satisfactory a class of cattle to as many new buyers. Few established breeders appear in the list of buyers—practically the entire offering being absorbed by new men. Such sales mean much for the advancement of the breed's interests.

The general average of the vendue was $325, but 28 cows, not many tested ones, averaged $428; 11 bred and open heifers averaged $256, and 12 young bulls were taken at an average of $198.

The top of the sale was registered by the good young cow Fayne Spring Farm Pontiac De Kol with a record as a senior three-year-old of 21.21 pounds butter. She is a daughter of Spring Farm King Pontiac 6th, a 34-pound bull. She was purchased by W. A. Walker of Ripon for $1055, a conservative value.

R. C. Sturgeon, Tulare, secured the second highest priced female in Sadie Maid Pontiac Segis. D. D. Elmore of Tulare paid $700 for Merry Maid Canary. H. E. Cornwell of Modesto took several of the top females, including Melody Maid Canary 20.49 pound senior three-year-old twin to the Elmore cow, at $650, and the December, 1915 twins, Moorland Contenta Jetze and Moorland Hermana Jetze, at $600 each.

J. L. Sebastian of Wasco selected six females and a bull.

The herd bull Prince Hiske Walker was not sent through the ring.

The sale was managed by C. L. Hughes of the California Breeders' Sales and Pedigree Company, and the auctioneers were Colonels Ben A. Rhoades of Los Angeles and Bell of Tulare.

The complete list of sales follow:

2. Fidessa Helena, October, 1910, 31.7 pounds, T. J. Gist, Tulare, $600.
3. Fayne Spring Farm Pontiac De Kol, June, 1914, 21.21 pounds, W. A. Walker, Ripon, $1055.
4. Norena Princess Hengerveld, June, 1913, 22.28 pounds, J. L. Sebastian, Wasco, $260.
5. Melody Maid Canary, April, 1913, 20.49 pounds, H. E. Cornwell, Modesto, $[illegible].
6. Belle Pontiac Maid, November, 1916, George Beck, Tulare, $240.
7. Merry Maid Canary, April, 1913, D. D. Elmore, Tulare, $700.
8. Sadie Maid Pontiac Segis, July, 1916, R. C. Sturgeon, Tulare, $725.
9. Zampa Zoe, March, 1912, 16.35 pounds, Burr Farms, Los Angeles, $255.
10. Zampa Zoe Homestead Pride, April, 1915, 20.02 pounds, L. W. Bardsley, Tulare, $450.
11. Donna Maid Maria, April, 1914, J. H. Will, Tulare, $310.
12. Twilight Shadow of Packwood, September, 1916, J. L. Sebastian, $195.
13. La Mona Hengerveld of Packwood, July, 1917, R. C. Sturgeon, $195.
14. La Mona Hengerveld Segis Pontiac, September, 1916, Robert Whaley, Tulare, $235.
15. Gleesome Countess Pontiac, July, 1917, H. E. Spires, Carruthers, $215.
16. Lady Elnora Burke, September, 1916, D. D. Elmore, $340.
17. Zeruah Zampa of Packwood, April, 1914, H. J. Stokes, Visalia, $260.
19. Thornless Cactus 2nd, April, 1915, J. L. Sebastian, $260.
20. Jessie June Maida, June, 1916, Mrs. G. Flaherty, Riverside, $295.
21. Dotty Drucilla Canary, August, 1911, Burr Farms, $275.
22. Drucilla Pride of Packwood, February, 1914, Jas. C. Coombs, Visalia, $305.
23. Pacie Ripple, February, 1913, 25.03 pounds, C. Hubbard, Riverdale, $180.
24. Johanna Clay Pontiac, October, 1916, T. J. Gist, Tulare, $500.
25. Lady Lorena Burke, April, 1917, Geo. P. Robinson, Sacramento, $160.
26. Lady Lorena of Packwood Farm, May, 1916, J. L. Sebastian, $205.
27. Zampa Aurelia Crane Pontiac, December, 1916, Geo. P. Robinson, $135.
28. Zampa Amelia Segis Pontiac, December, 1916, J. L. Sebastian, $165.
29. Moorland Contenta Jetze, December, 1915, H. E. Cornwell, $600.
30. Moorland Hermana Jetze, December, 1915, H. E. Cornwell, $600.
32. Dorothy Korndyke Burke, September, 1916, Kenneth Sturgeon, Tulare, $355.
33. Rosa Glen Korndkye, September, 1913, 16.08 pounds, L. W. Bardsley, $400.
34. Ravan Ripple Canary 2nd, May 1917, F. S. Borror & Son, Tipton, $215.
35. Gleesome Countess Elnora, August, 1911, 18.87 pounds, J. H. Will, $435.
36. Lady Zenobia 3rd, December, 1916, A. H. G. Bell, Tulare, $300.
37. Lady Mabel Burke, March, 1917, B. A. Overland, Visalia, $300.
38. Aggie Goshen Canary 2nd, May, 1917, B. J. Christmas, Wasco, $270.
39. Princess Evelyn Wayne, Hengerveld 2nd, May, 1916, J. H. Will, $300.
40. Apple Blossom Fatima De Kol, August, 1916, W. L. Choisser, Riverdale, $350.
41. Dora Hamilton Korndkye, June, 1916, H. E. Spires, $250.
42. Jennie Wren Edith Pride, August, 1914, A. H. G. Bell, $585.
43. Clarita Canary Pride, May, 1915, B. J. Christmas, $280.
44. Teola Sacajawea Hengerveld, November, 1915, A. F. Brown, Visalia, $185.
45. Fidessa Candida Burke De Kol, July, 1916, Burr Farms, $175.
46. Duchess Elizabeth Victoria, January, 1916, J. L. Sebastian, $400.

Bulls

47. Sir Pontiac Glenn Korndyke, April 1918, J. H. Smith, Hanford, $200.
48. Sir Veeman Prince, April, 1918, T. H. Flint, Del Rey, $210.
49. Prince Hiske Walker 2nd, Robert Whaley, April, 1918, $190.
50. Lord Segis De Kol, April, 1918, Frank E. Andrews, Riverdale, $100.
51. Thornless De Kol Cactus, November, 1917, A. F. Brown, $155.
52. Segis Pontiac Dot, October, 1917, Fred Sawtell, Visalia, $130.
53. Zenobia Crane De Kol, November, 1917, J. H. Hayes, Porterville, $175.
54. Segis Pontiac Pride of Packwood, June, 1917, M. S. Bettencourt, Visalia, $235.
56. Prince Zampa Walker, February, 1918, J. L. Sebastian, $125.
57. Prince Hiske Walker, 3rd, February, 1918, Jesse Simocs, Hanford, $175.

Satisfactory Sale of Putz' Registered and Grade Holsteins

On Wednesday, April 2, E. R. Putz of Laton closed out his Holstein holdings consisting of 45 registered cows, heifers and bulls and 45 grade cows and heifers. Seventeen registered cows and first calf heifers were cashed for an average of $331 and the general average for the registered end of the offering was $185. It might be stated that the average was held down by the fact that no especial effort had been made to condition the younger things. The grade cattle averaged $141, and indicated the keen demand that exists for grade dairy cattle in California just now.

The top animal in the sale was the aged cow Cantate Wonder 2nd, a daughter of Arcady Pontiac Wayne Hengerveld. She was purchased by L. W. Bardsley of Tulare, for $600.

George P. Robinson of Sacramento was the heaviest individual buyer, securing 15 head. Robinson picked a number of exceptional bargains including the herd bull, Prince Lunde Korndyke 2nd, a grandson of the premier sire of the herd, Pontiac Korndyke, at $150.

The second highest priced female, princess Una Hengerveld, by the same sire as the top cow, was taken by the Burr Farm, Los Angeles for $450. Another daughter of the same sire was purchased by K. N. Mulder for $430. Mulder was one of the best buyers of the better sorts.

The sale was held under the management of C. L. Hughes of the California Breeders' Sales and Pedigree Company. Col. Ben A. Rhoades officiated with the hammer.

The catalogued animals sold as follows:

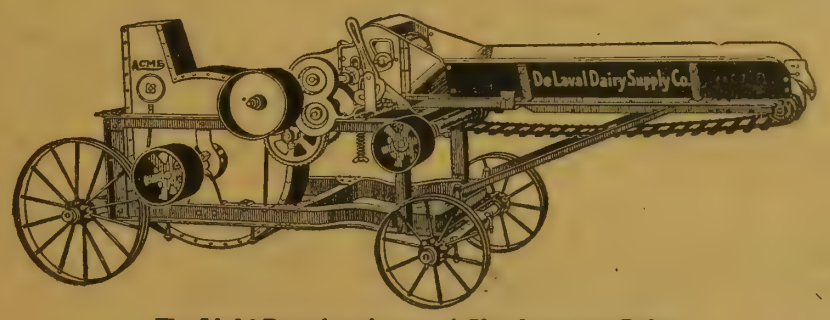
Females

2. Beauty Sunrise Hengerveld Laguna, March, 1916, Geo. P. Robinson, Sacramento, $175.
3. Snowflake Hengerveld Korndyke, December, 1917, L. W. Bardsley, Tulare, $90.
4. Lady Sunrise Hengerveld, September, 1918, R. C. Sturgeon, Tulare, $100.
5. Princess Butter Girl Lunde, March, 1916, Geo. P. Robinson, $200.
6. Laguna Pride De Kol, June, 1918, Geo. P. Robinson, $100.
7. Maude Onyx Korndyke, December, 1916, J. B. Roberts, $80.
8. Dottie Tueble Laguna, July, 1917, Geo. P. Robinson, $100.
9. Lady Hartog Laguna, November, 1917, Chas. Hubbard, Riverdale, $95.
10. Laguna Maud Korndyke, December, 1917, Geo. P. Robinson, $75.
11. Laguna Queen Korndyke, January, 1918, Frank Souza, Merced, $120.
12. Cantate Wonder Promise, February, 1918, Frank Souza, $130.
13. Princess Una Korndyke, March, 1918, Harry Hill, Riverdale, $85.
14. Queen Onyx Hengerveld, July, 1918, E. A. Pineo, Riverdale, $160.

Continued on Page 524

ACME Feed Cutters

The Cylinder Cutter with the durable All-Steel frame



The Light Running Acme---A Size for every Dairy

The Combined Silo Filler, Hay Chopper and Alfalfa Meal Machine.

STEEL has replaced wood in all modern machine design. It's stronger more durable and "stays put."

The steel frame of the Acme Feed Cutter can't warp or sag. It permanently holds all bearings in rigid alignment, eliminating needless wear and vibration common to the old style wood frame cutters.

Chopped feed will eliminate a wastage of from 15 per cent. to 25 per cent. of your hay. Chopped feed is all eaten.

The light running qualities of the Acme are further increased by the triple frame bracing allowing three bearings for the cutter head shaft, which reduces vibration from that source to the minimum and economizes power.

THE Acme is the most efficient type of cutter—the cylinder type. Its spiral knives give greater capacity per hoursepower than any other types and produce a cleaner cut, more uniform quality of silage. It is the only type for producing chopped hay or alfalfa meal.

OTHER VALUABLE FEATURES. Non-cloggable six-fan blower with direct drive insures elevation; positive automatic safety device; reversing gears; low feed table; steel wheel mounting.

Why buy a cutter that can be used for silo filling only? With an Acme you can fill the silo and make the machine pay its way in one season by chopping your dry feed and making alfalfa meal.

Cutter and Silo Catalogs upon request

De Laval Dairy Supply Co.,

61 Beale St., San Francisco.

Exclusive Distributors of

IDEAL GREEN FEED SILOS

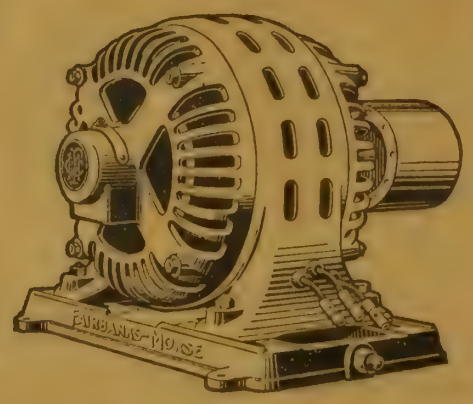
Leak Proof **Permanent**

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insures economy—service—
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MOTORS

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You can see hundreds of them at work on irrigation and reclamation jobs. The owners will tell you of their economical successful service. The efficient power for all makes of pumps.

Fairbanks-Morse "Y" oil engines also give economical irrigation power.

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More Power For Every Farmer

Every farmer—including YOU—needs and deserves the biggest power with the least possible weight and cost. When you buy this tractor you pay for 12-20 H.-P. and *get* 15-25 H.-P. In the

E-B 12-20 Model AA Tractor

(S. A. E. Rating)

you get a long list of special E-B features that will mean easier, better, more profitable farming. Here are a few of its advantages:

Four-cylinder kerosene motor, rated at 12-20 horsepower by conservative Society of Automotive Engineers' basis, actually delivers 15-25 horsepower in use; E-B patented enclosed transmission; dust-proof gearing; standard E-B construction; highest grade equipment, including Hyatt Roller Bearings; Ball Thrust Bearings; producer type Carburetor; K-W Magneto; high-grade Radiator; 88 parts heat treated. Pulls three plows in any ordinary soil; four in loose soil.

Ask your dealer or write us for complete facts.

Brock & Skidmore Berkeley, Calif.

EMERSON BRANTINGHAM THE E-B LINE FARM IMPLEMENT

Farm Tractor & Implement Co. Portland, Oregon

Live Stock News Notes

Duroc-Jersey Sows Bring Big Money

R. K. Walker of Winsor Ranch, San Diego County, sends report of record sale of Duroc-Jersey sows by Ed. M. Kern of Stanton, Nebraska. The average made on 50 head of catalogued sows was $1,021, which beats any average made by any breed of swine more than $200.

There was a large crowd of breeders from all parts of the United States present and the bidding was lively on each animal sold. The breeders were there to buy sows bred to Great Sensation and Great Orion, and were willing to pay the price for them. The top of the sale, of course, was the world's champion sow of 1918, Long Gano. She was bred to Great Orion, the world's champion boar of 1918, and sold to J. G. Donohue of Holbrook, Iowa, at $4,250, the longest price ever bid on a bred sow.

Mr. Walker adds: "Great Sensation, the boar on which Kern made his reputation and the boar that made this sale possible, is a grandson of Great Wonder, the sire of our boar Great Model. We also own five sows and three boars sired by Top Sensation, the litter mate to Great Sensation, and considered by many the better sire of the two."

Witherow's Durocs Now in Sutter County

H. C. Witherow, who has been breeding Duroc-Jerseys in Shasta County for several years, has moved his herd to his farm in Sutter County. The farm is located three miles south of Live Oak, on the National Highway, which Mr. Witherow believes is a better location, putting him nearer the center of the pure bred live stock industry.

The herd boar at present is Johnson's Defender Jr. by Johnson's Defender, reserve champion at the 1917 state fair, and out of Cherry Chief Lady, the grand champion sow at the same show. His band of sows, consisting of 12 head, are all bred for March or early April farrow. One, Shasta Daisy, has already farrowed a litter of 12.

His favorite sow is Col. B's Queen 4th by Col. B 2nd and out of Advancer of U. F. 10th. The Advancer family has proven the greatest producers ever owned by the University Farm.

Just as rapidly as suitable animals can be secured the herd will be increased, and the farm is being shaped up for maintainging a large herd.

The Witherow herd will be shown at the state fair.

Transfer of Fine Holsteins

The Lewis Company reports the following sales: To Burroughs Brothers, who are operating a certified dairy near Santa Clara, Prince Creamelle Skylark Ormsby, a good son of Sir Skylark Ormsby Hengerveld; to Chas. Monighetti, formerly of San Luis Obispo, now of Santa Clara County, Toyon Holland Valdessa, and five heifers; to Warne & Sons of Holtville, Toyon Perfection Valdessa; to F. W. Wehner of San Jose, ten heifers.

New Dairy Project at Durham

Geo. C. Kreutzer, superintendent of the State Land Colony at Durham, has announced that plans have been inaugurated for establishing a cooperative dairy association among the settlers of the colony.

It is proposed to finance the association to the extent of $50,000, which will be used for the purchase of cows and the building of a plant to distribute the product.

The members of the Durham Cooperative Stock Breeders' Association some time ago decided that only Holstein cattle and Duroc-Jersey swine would be bred by the members.

Another Holstein Sale

F. H. Everson, sales manager for the Great Lake Mills Holstein semi-annual consignment sale, announces the next sale to take place May 6 and 7 at Lake Mills, Wisconsin. These great breeders sales are attracting buyers from all parts of the country.

Chapple Increases Berkshire Herd

Wm. T. Chapple, owner of the Fair Oaks Ranch, Willits, has purchased two bred Berkshire sows from the

JERSEYS

THE dollar mark is part of a Jersey because she is a real money maker. Costs less to keep than any other cow and her milk is worth more. She gives the prosperous touch to your farm. Compare Jersey butterfat records with any other breed and you will not be satisfied with anything but Jerseys—the profit breed.

Ask Breeders for prices and pedigrees and let us send you valuable facts, free.

THE AMERICAN JERSEY CATTLE CLUB
322 West 23rd Street New York City

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right
S. F. WILLIAMS
ORLAND, CAL.
Member Orland Jersey Cattle Club.

Venadera Herd
REGISTERED JERSEYS
Young bulls from proven dams in Register of Merit
GUY H. MILLER
MODESTO, CAL.

ALL MY RECORDS
are made under ordinary dairy conditions. The farmers cow is
The Jersey
YOUNG BULLS FOR SALE
C. D. HAYWORTH
MODESTO, CAL.

Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
W. J. HACKETT
MODESTO, CAL.

Get One of My Jersey Bulls
to increase the production of your herd. They are rich in the blood of the great cow, Gertie of Glynllyn.
Visitors Welcome Correspondence Invited
A. A. Jenkins
R. R. Box 46 Tulare, Cal.

HOLSTEIN-FRIESIAN CATTLE
Registered young bulls from best families.
Registered Berkshire Pigs
Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.
Careful attention given to mail orders.
Whittier State School
Whittier, California

Carruther's Shorthorns and Berkshires
Choice collection of breeding cows—mostly Scotch—and representing the leading families, headed by Count Glory, grand champion at the last three state fairs, and Hallwood Villager. Bulls for sale at reasonable prices. Berkshire herd headed by the noted boar Ames' Rival 100. Correspondence invited.
W. M. CARRUTHERS, Live Oak, Cal.

Brighton Farm Herds
Registered Shorthorns
and
Berkshires—Both Sexes
H. L. & E. H. Murphy
Perkins, Cal.

Some of the finest
GUERNSEYS
In the West are at
Hollow-Hill Farm
Colton, Cal.
Only Bull Calves For Sale

Castleview herd at Santa Rosa. One of the sows was sired by Grand Leader 2nd and is bred to Mayfield Rookwood. The other sow is a daughter of Ames Rival 102nd and bred to Mayfield Rookwood.

Mr. Chapple states that the demand for breeding stock has been so keen that he found it necessary to increase the size of his herd.

Mr. Chapple has secured the service of E. W. Curtis, a well known young live stock man formerly in charge of the Alexander & Kellogg herd of milking Shorthorns. Curtis will be in charge of the Fair Oaks herds of Shorthorns and Berkshires.

Percherons in Demand

N. W. Thompson of Patterson, importer of Percherons and Belgians, reports sale of Percheron stallion Fernando 85689, to W. H. Klehn of Newman. Mr. Thompson writes: "Fernando is a 2-year-old black, weighing 1900 pounds, with plenty of bone, style and action, and the farmers about Newman are to be congratulated upon having such a good stallion in the community to breed to. I also sold last week a Percheron and a Belgian to parties in Nevada. I also disposed of 16 head of grade mares and geldings to S. J. Elliott of Turlock."

Famous Cattle Ranch Sold

Announcement has just been made that the Howard Estate has sold the famous 50,000 acre Quinto Ranch in San Joaquin and Santa Clara Counties to a company headed by Fred Landsdale, a banker of Palo Alto.

The Quinto Ranch was operated by the Howard Cattle Company for a number of years but for the past few years it has been leased. The property is considered one of the best cattle ranges in California.

Aberdeen-Angus Calendar

The American Aberdeen - Angus Breeders' Association, Union Stock Yards, Chicago, has issued a calendar illustrated by the 13 International grand champion carloads of steers and the 1918 grand champion steer. The calendar may be obtained by writing the association.

Thorp Jerseys to Hearst Estate

J. E. Thorp of Lockeford, owner of the Mossdale herds of Jersey cattle and Duroc-Jersey swine, reports the sale of three Jersey cows to the Hearst Estate. One of these cows he had expected to show this fall.

His herd is headed by Jolly Senator Raleigh, undefeated in class wherever shown and reserve grand champion at Sacramento last year.

Among his cows is Salome of Mossdale, grand champion at Sacramento last year and undefeated throughout the entire show circuit.

Several cows are now on test with others to follow on freshening. He has entirely sold out of Duroc-Jerseys, there remaining on the farm only his brood sows and animals reserved for his show herd this fall.

Volunteer's Queen has just farrowed 12 pigs from which he expects to select his futurity candidates.

At the head of his herd is Brookwater Regulator, a Mumford bred boar, and Freddie You'll Do, by Johnson's Defender.

The latter boar will be developed for the fall shows.

A number of improvements are contemplated after which his herd will be materially increased.

Oregon Jersey Breeder in California

H. West, Scappoose, Oregon, breeder of Jersey cattle, is visiting some of the breeders in California.

Mr. West has made three importations from the Island and will, as soon as conditions are a little more settled, make another.

Shorthorns for Knights Valley

A number of pure bred Shorthorns are to be placed immediately upon the Wes. Hooper ranch in Knights Valley by Frank P. Tuttle, the new owner. The price paid for the property was $75,000. Tuttle announces that he will use it for breeding prize stock.

Decides to Stay in Duroc Game

Dr. L. J. Belknap of San Jose, who, on March 18, dispersed his herd of Duroc-Jerseys, states that he has decided to continue the business, but on a larger scale.

He is negotiating for a ranch a few miles from San Jose which will be thoroughly equipped and stocked with the best Durocs he can purchase. As a starter he repurchased the sow Mabel D. which was sold in the sale to R. N. Jennings for $500.

He has written a number of Eastern breeders regarding stock and states he expects to purchase the very best animals and blood lines he can find. He also states that next year he will have a sale of 100 head.

Merrill & Son Have Crack Berkshire Boar

R. J. Merrill & Son, Berkshire breeders of Gilroy, had the misfortune of having their herd boar, Winona Compton 13th, injured in one of his front legs.

This boar is probably one of the best sons of Laurel Champion, having good length and depth, high arched back and very heavy bone.

It is hoped he will soon recover as he is too valuable a boar, both for the breed and his owners, to lose.

All their sows are bred for March and early April farrow, several litters having already arrived.

They expect to show at the leading fairs this fall and have reserved two boars and four gilts for the junior yearling classes.

Mr. Merrill states they have adopted the policy of developing their young stuff before offering it for sale, a policy that is to be highly commended.

Merced Jersey Breeders Meet

The Merced County Jersey Breeders held a meeting on Wednesday, March 12, at the ranch of David Larson, Stevinson. Ways and means of Jersey advertising were discussed. Mr. Voorhies of the University Farm, Davis, was present and addressed the breeders. The election of officers took place, in which David Larson of Stevinson, was elected president. E. W. Doane of Merced, secretary, and E. E. Greenough of Merced, treasurer.

Johnson Has Good Duroc Trade

Frederick M. Johnson, Duroc-Jersey breeder of Napa, has recently added to his herd the sow, King Orion Lady, by King Orion Cherry and out of a Taxpayer dam.

She is due to farrow soon to the service of Iowa Orion King, a son of Orion Cherry King Jr., the grand champion boar at the National Swine Show in 1916.

Johnson is counting on this litter to furnish his futurity candidates at the state fair this fall.

He had the misfortune to lose his aged boar recently, but has an excellent prospect in California Defender, a son of Johnson's Defender, and out of Kings Lady 3rd, junior champion at the 1917 state fair.

Johnson states that the past year has been his largest and most profitable. Recent sales include service boars to C. Madsen, Marysville, and N. Carboni, Napa. Boar pigs have been sold to W. L. Mitchell, Napa; Allen Baker, Nashmeade; G. Fitzhugh, Nashmeade; F. Korbel & Bro., Guerneyville; Frank Johnson, Guerneyville; six bred gilts were sold to L. H. Welch, Chowchilla; three to Harvey Berglum, Dixon; one each to A. L. Emery, San Juan; G. C. Grady, Woodland, and Thos. Harrison, Santa Rosa.

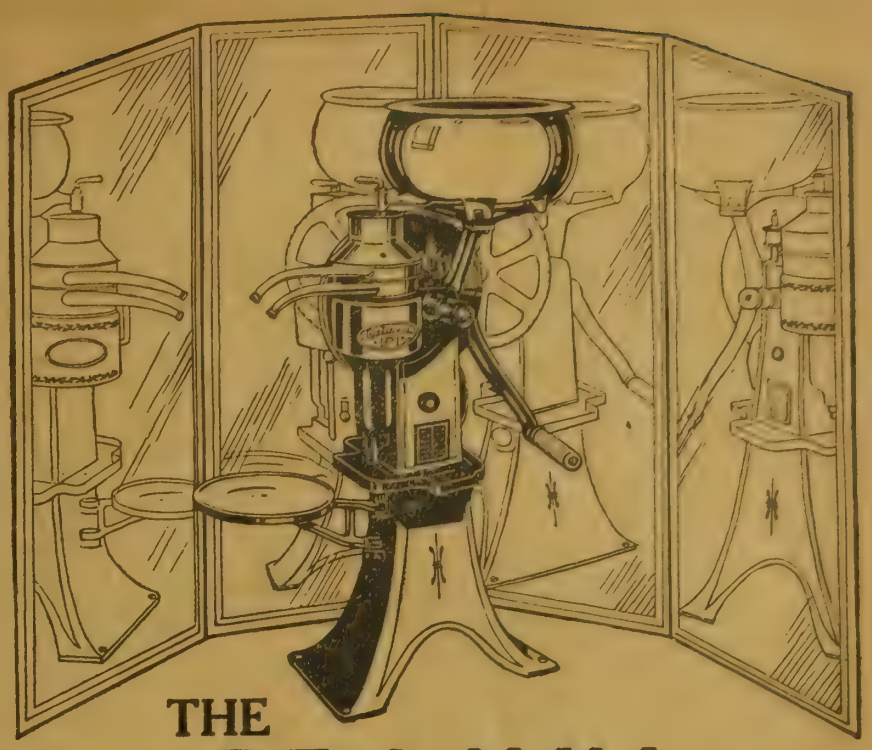
McCarty to Buy Eastern Sow

A. D. McCarty of San Francisco, who maintains a splendid herd of Poland-Chinas at his Riverina Farms, near Modesto, writes that he has recently commissioned Professor L. A. Weaver of the University of Missouri who judged Poland-Chinas and Duroc-Jerseys at the 1918 California state fair, to select and purchase for him a sow that will have sufficient class to be a factor in the senior yearling classes at the fall shows.

McCarty is determined to have one of the first herds of the West and with this idea in mind he has exercised unusual care in the selection of his foundation animals.

Berkshire Promotion Sale, Martinez, April 19

Catalogs have been issued for the first Berkshire promotion sale to be



THE
DE LAVAL
CREAM SEPARATOR
Every Reflection Shows Perfection

VIEWED from every angle, the De Laval is distinctly in a class by itself. It has a business-like appearance. It looks as if it were well made, and it is. It looks sturdy, and it is. There is no make-believe about it anywhere, from the wide-spreading substantial base to the solid, seamless, symmetrical supply can.

It's no wonder that big dairymen and creamerymen who have for years made a careful study of dairy methods and machinery refuse to consider any other separator but the De Laval. They know that from every angle—clean skimming, ease of operation, freedom from repairs, durability—there is no other cream separator that can compare with the De Laval.

They know that it has a record of 40 years of service behind it. They know that it can be depended upon. They know that they can't afford to take chances with any other cream separator—

And neither can you.

Order your De Laval now and let it begin saving cream for you right away. Remember that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or, if you don't know him, write to the nearest De Laval office as below.

DE LAVAL DAIRY SUPPLY COMPANY
THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST
ALPHA GASOLINE ENGINES — JAMES BARN EQUIPMENT
IDEAL GREEN FEED SILOS — VIKING ROTARY PUMPS
ACME FEED CUTTERS — LAUSON TRACTORS
EVERYTHING FOR THE DAIRY
Catalog of any of these lines mailed upon request
61 BEALE STREET, SAN FRANCISCO



American Horizontal Pump. Can also be furnished direct-connected to motor or engine.



American Vertical Pump. All lubricating done from surface. For deep well work.

American Centrifugal Pumps

—have easy flowlines, split casings so that interior of pump is readily accessible, improved hydraulic thrust balance, minimum of wearing parts, and many other advantages. A type and size for every pumping requirement.

Write For Catalog

It illustrates and describes the entire line of American Centrifugal Pumps and gives valuable information for the irrigator.

We have some open territory for live dealers

American Pump Co.,
73 Fremont St. San Francicco
422 E. Third St. Los Angeles

Retires from Business

This is the most sensational announcement ever made to the Holstein and dairy public in California. It means that on May 21 and 22 next the nationally famed herd of

McAlister & Sons

of

Chino, Cal.,

comprising about 200 head will be dispersed and every animal without single exception sold to the highest bidder.

Watch next week's ad for further announcement.

70 - 70 - 70



These Pigs now nicely weaned and growing fast will go to market in the big

BERNSTEIN POLAND-CHINA SALE

Saturday, April 26th, Hanford, Calif.

70 head of choice, Registered Poland-Chinas will be sold to the highest bidder.

OFFERING 8 bred sows, 15 July and August gilts, 15 October and November gilts, 8 young boars ready for service, 3 herd boars and 20 or more young pigs of both sexes, thrifty, vigorous and ready to be grown out for future use. Bred and raised under the best of conditions, are healthy and will make the buyer money.

Write for Catalog to W. T. Dice, Sec'y, Box 374, Hanford, Calif.

Wm. Bernstein, Owner

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Rhoades & Rhoades

Expert Live Stock Auctioneers

Pure Bred Stock Sales a Specialty

Sales conducted in all parts of California and adjoining States. Twenty-five Years' Experience.

Ben. A. Rhoades, Auctioneer

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Next Year's Crop

Prepare for a better crop next year by shearing this season with a machine. Work is much easier. You not only get longer, better wool without scarring the sheep, but leave a smooth stubble that will increase next year's growth.

Use a Stewart No. 9 Ball Bearing Shearing Machine. Price $14. If your dealer can't supply you send us his name. Write for catalog.

CHICAGO FLEXIBLE SHAFT COMPANY

Dept. B 101, 12th St. and Central Ave., Chicago, Ill.

California Cultivator

Costs Only $1.00 Yearly

Don't Cut Out

A SHOE BOIL, CAPPED HOCK OR BURSITIS

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ABSORBINE

TRADE MARK REG. U.S. PAT. OFF.

will reduce them and leave no blemishes. Stops lameness promptly. Does not blister or remove the hair, and horse can be worked. $2.50 a bottle delivered. Book 6 R Free.

W. F. Young, P.D.F., 244 Temple St., Springfield, Mass.

Prize Winning Berkshires

Two High Class Jr. Boars, choice $65.00. Six Fall Boars, choice $50.00. Sired by Ames Rival.

F. P. Hall **Perris, Cal.**

held at Martinez, April 19. The sale is the first of series that is being sponsored by the Western Berkshire Congress for the purpose of demonstrating to California farmers the qualities of the Berkshire.

In the intial sale, 33 boars, sows and gilts, selected from many of the best herds in California will be offered.

Frank B. Anderson, Box 724, Sacramento, secretary of the congress, is managing the event and catalogs may be obtained from him.

Wm. Bernstein's Poland-China Sale

Wm. Bernstein, who, for a number of years has been breeding Poland-China swine at Hanford will hold a public sale Saturday, April 26.

The offering should be of interest to both breeder, farmer and pig club boy, as it will consist of bred sows, gilts ready to breed for fall litters, young service boars and nicely weaned pigs.

Mr. Bernstein states that he has varied his offering from young pigs to aged animals in order to reach a larger number of buyers. The young pigs afford the opportunity of establishing foundation herds of pure bred Poland-Chinas to those who might not be in a position to purchase aged animals.

John Bernstein Brings Poland-Chinas

John Bernstein, of Hanford, who breeds Poland-Chinas, has just returned from a trip through Kansas, Nebraska, Iowa, Missouri, Illinois and Ohio, where he purchased 21 fall gilts, three fall boars and two bred sows.

He also secured for H. D. McCune of Lemoore three bred sows, for C. G. DeRaad, Lemoore, one bred sow, for Dimmick Brothers, Lemoore, one bred sow, and for Hoag & Son, Hanford, a bred sow and a young boar.

C. A. Vaughn accompanied him as far as Kansas City and secured a number of animals for his herd.

Kounias Building and Busy

George Kounias, owner of Kounias pure bred stock farm, Modesto, has under construction a large dairy barn, which when completed, will afford him a better opportunity for caring for his herd. He will in the next two or three weeks put six of his cows on official test.

PUTZ SALE

Continued from Page 521

15. Daisy De Kol Creamline, June, 1918, Frank Souza, $125.
16. Laguna Creamcup Korndyke, May, 1918, Burr Farm, Los Angeles, $140.
17. Dora Tuebie of Laguna, July 1918, Alan Milnes, Riverdale, $110.
18. Anita De Kol Lunde, September, 1918, Lewis Co., San Jose, $135.
19. Lady Hartog Holland, September, 1918, Lewis Co., $135.
20. Maud Hengerveld Sunshine, November, 1918, Alan Milnes, $135.
21. Bess Hengerveld Laguna, Geo. P. Robinson, $100.
22. Lad Detachy Henyerveld, December, 1918, Chas. Hubbard, $135.
23. Anita Katrina De Kol, July, 1916, D. M. McDonald, Fresno, $150.
24. Dora Tuebie Korndyke, August, 1916, L. W. Bardsley, $300.
25. Churchill Lady Hengerveld, October, 1912, K. H. Mulder, Modesto, $315.
26. Daisy De Kol Emmaline Jane, September, 1912, W. A. Walker, Ripon, $400.
27. Maud Onyx Hengerveld, November, 1912, R. C. Sturgeon, $335.
28. Delmar Kakenstein De Kol, November, 1912, Geo. P. Robinson, $190.
29. Holland Lady Hartog, April, 1913, K. H. Mulder, $260.
30. Copa De Oro Katrina De Kol 2nd, January, 1912, K. H. Mulder, $350.
31. Holland Dora Tuebie, March, 1913, Chas. Hubbard, $390.
32. Dottie Tuebie, January, 1913, K. H. Mulder, $290.
33. Cantate Sunrise Hengerveld 2nd, Geo. P. Robinson, $95.
34. Maud Onyx Hengerveld 2nd, January, 1915, K. H. Mulder, $275.
35. Cantate Snowflake Hengerveld, Geo. P. Robinson, $205.
36. Princess Hengerveld of Laguna, August, 1915, Geo. P. Robinson, $100.
37. Holland Lady Hartog 2nd, October, 1915, Burr Farm, $275.
38. Cantate Sunrise Hengerveld, December, 1912, K. H. Mulder, $430.
39. Princess Una Hengerveld, August, 1913, Burr Farm, $450.
40. Cantate Wonder 2nd, December, 1912, L. W. Bardsley, $600.

Bulls

1. Prince Lunde Korndyke 2nd, October, 1914, Geo. P. Robinson, $150.
39½. Calf, E. A. Pineo, $75.
41. Clyde King Laguna, February, 1918, M. V. Magruder, Hanford, $77.50.
42. Copa De Oro Korndyke, June, 1918, Chas. Hubbard, $60.
43. Laguna King Korndyke, June 1918, $60.
44. Unnamed, July, 1918, E. A. Pieno, $60.
45. King Lunde Butter Boy, August, 1918, Geo. P. Robinson, $50.
46. Sir Snowflake Hengerveld, October, 1918, J. H. Ross, Raisin City, $60.

BELKNAP DUROC-JERSEY SALE

By Bruce S. Bennett

The following account of sales made by L. J. Belknap Duroc-Jersey ranch was prepared by Mr. Bennett and put in type for use the week of the sale. Owing to mass of material, made necessary by the many public sales, especially of beef stock, and by error, this account is delayed.

It remained for Dr. L. J. Belknap of San Jose, retiring for the present from the breeding of Duroc-Jerseys, to demonstrate that pure bred swine of quality can be sold at public sale regardless of location, at profitable prices.

A few weeks ago the Doctor announced a dispersal sale of his herd and buyers were attracted from all over the state.

The first animal offered was the sow Lucy Orion, which was sold to A. L. Emery of San Juan for $1100, who also purchased the boar Orion Model Jr. for $1000 and the sow Lady Monarch for $375.

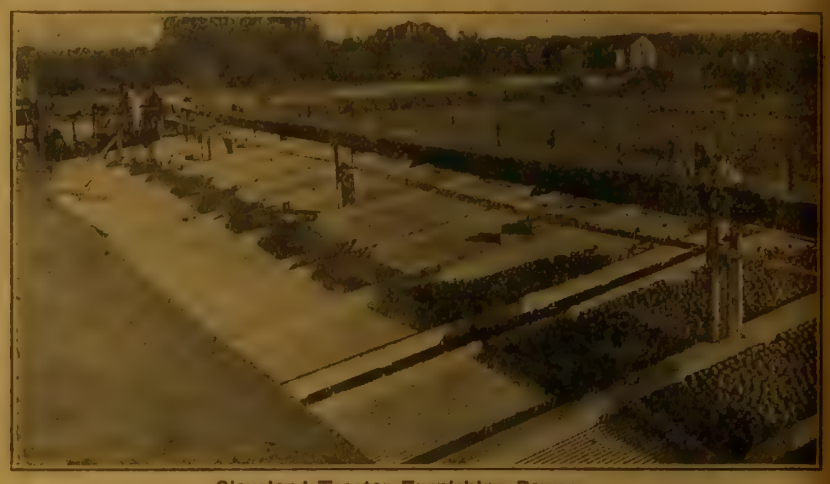
The sow Mable D. was purchased by R. N. Jennings of San Jose for $500.

The remainder of the sale consisted of bred gilts, young boars and weanling pigs. The average for 20 head, consisting of the aged animals, bred gilts and young boars, was $259.12, while the average for the 26 head, including the young pigs, was $210.20.

Ord L. Leachman, the live stock auctioneer of Sacramento, cried the sale, and aside from the high average he secured is to be commended for the rapid manner in which the animals were sold.

Following is the list of buyers and price paid:

Continued on Page 529



Cleveland Tractor Furnishing Power for the operation of the large Chapman packing house at San Gabriel.

Polands for Profit

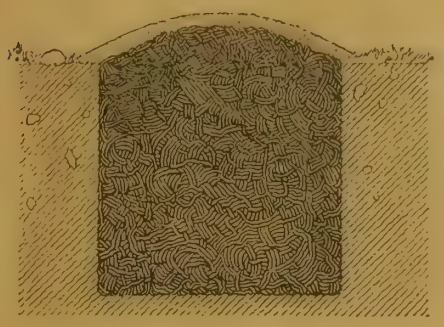


Booking orders for spring pigs sired by Long Jumbo and Yates' Big Orphan and out of prize winning sows. Strictly big type at reasonable prices. Complete satisfaction guaranteed.

R. J. Yates, Orland, Cal.

The Silos of Europe

The plodding farmers of Europe early recognized the value of silage. So they store their crops in deep pits dug in the soil.



Much of the silage is spoiled by this crude method. Much of the feed value escapes. Still there is some *succulent* feed for the stock when pastures are bare.

The European idea is good, but use of the idea is poor. Progressive American farmers are making the best possible use of many crops by storing them in SIMPLEX SILOS.

They Make Feeding Pay. Here are a Few Reasons Why:

1. **Wood construction** — One-piece unspliced staves of Oregon Pine (Douglas Fir) form the silo itself. Wood is the natural preserver. It prevents the ensilage from spoiling.



SIMPLEX SILO

2. **Good quality steel** is used for hoops and other hardware. A double interlocking system of anchoring gives the Simplex strength to resist storms.

The PAPEC Saves too--

3. **The Crissell Tangent Top** device holds the shape always round. The top stays the same size as bottom. Thus settling of the ensilage cannot form rotting air pockets. Simplex prevents waste.

Sooner or later you will build a silo. Find out more about the Simplex. Mail the coupon in the corner.

Just as the Simplex saves the food in the crop, Papec Ensilage Cutter saves power and cost in filling the silo. **It throws as well as blows.** Mail the coupon that asks for more information about Papec.



Santa Fe Lumber Co.

18 California St., San Francisco, Cal.

SANTA FE LUMBER COMPANY,

18 California St., San Francisco, Cal.

Please send me folder describing Simplex Silos, also information about Papec Ensilage Cutters.

Name .....

Address .....



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There are over 135,000 stockholders who own the American Telephone and Telegraph Company. This great body of people, larger than the entire population of such cities as Albany, Dayton or Tacoma, share the earnings produced by the Bell System.

More than 45,000 of these partners are workers in the telephone organization. They are linemen, switch board operators, clerks, mechanics, electricians.

The vast property of the Bell System represents the savings of these thousands of people, in many cases *all* their savings.

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AMERICAN TELEPHONE AND TELEGRAPH COMPANY
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One Policy *One System* *Universal Service*



Perforated Tree Protectors



that will keep squirrels, rabbits and gophers from barking your trees and give perfect protection from the hot sun, sand storms, raking bark in cultivation, etc. We make a number of kinds of wraps, among these are the Yucca which has the fastening wire entirely around it. Tell us your pest and we will tell you what kind to use.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour. For starting early vegetables, such as tomatoes, cabbage, egg-plant, cauliflower, cucumbers, cantaloupes and squash. Also, for propagating rose cuttings, geraniums, eucalyptus or olive cuttings. It is the most practical pot on the market today for propagating work. Write us for samples of either pots or protectors. Tell us which you are interested in.

The Expan Co.
935 E. Central Ave. Redlands, Cal.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS, MARCH 21, 1916.

of California Cultivator, published weekly at Los Angeles, Cal., for April 1, 1919.
State of California, County of Los Angeles, SS.

Before me, a Notary Public in and for the State and County aforesaid, personally appeared Frank H. Thomas who, having been duly sworn according to law, deposes and says that he is the publisher and business manager of the California Cultivator and that the following is to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

NAME OF—	POST OFFICE ADDRESS.
Publisher, Cultivator Publishing Co.,	Los Angeles, Cal.
Editor, C. B. Messenger,	Los Angeles, Cal.
Managing Editor,	
Business Manager, Frank H. Thomas,	Los Angeles, Cal.

2. That the owners are (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding one per cent or more of the total amount of stock.)

Cultivator Publishing Co.	
Frank H. Thomas,	Los Angeles, Cal.
B. M. Teague,	San Dimas, Cal.

3. That the known bondholders, mortgagees, and other security holders owning or holding one per cent or more of total amount of bonds, mortgages, or other securities, are: (If there are none, so state.)
None.

4. That the paragraphs next above, giving names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holders appear upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is———.
(This information is required from daily publications only.)

FRANK H. THOMAS, Manager.

Sworn to and subscribed before me this 26th day of March, 1919.
H. E. STORRS, Notary Public in and for Los Angeles County, California. (SEAL.)
(My commission expires March 22, 1921.)

Brooding and Feeding Baby Chicks

By Russell F. Palmer

MILLIONS of baby chicks are annually lost because of wrong methods and mistakes in brooding and feeding. Considering present egg prices and, if it requires two eggs on an average to produce one chick, then adding the cost, time and worry of incubation egg plus the value of baby chick food consumed before a chick dies, it will be seen the baby chick loss summed up in dollars and cents represents an enormous figure each year.

Thousands attempt poultry raising every spring who quit the effort through disgust because of this loss and disappointment which all too often follows. A little watchfulness, cooperation and a willingness to help a neighbor on the part of the more experienced poultry raiser will often safely steer the amateur raiser to success. Therefore let me urge that we help one another.

It behooves us to use methods which insure the lowest loss, most economical and quickest growth. Here at the American Poultry experimental station we use largely the brooder stove hover method of brooding. We have found this method dependable and it permits raising a larger number of chicks in proportion to labor. There are many of these stoves on the market and most all of them are good and to be depended upon. These brooder stoves are designed to brood from 250 to 750 chicks at a time. They do this very well for the first three to five weeks, after which greater success is more common if the brood is culled or separated into lots of 150 to 350 chicks depending upon the size of the house and the amount of range surrounding it, which is not used by other fowls or chicks.

We have found here that 250 to 350 together, even at the start will do somewhat better than if a larger number are put together. For this style of brooding we use a house 10x20 feet. The house has a partition in the center with a runway for the chicks to go from one room to the other and a swinging door for the attendant. The stove is placed on one side of the partition and the cool room is used for feeding and exercise. It is necessary to have a cool room so the chicks can get away from the heat. This is one of the secrets of successful brooding. It also pays to give the little fellows access to the ground as soon after starting to brood them as possible. Even the second and third day is none too early, care being taken the first few days to be certain they know the way into and out of their house. Provided the sun is shining and no hard winds can hit them, baby chicks will do well if allowed to run in and out even on fairly cold days. Do not put them out on hard frozen ground.

The houses for these brooder stoves are built similar to laying or breeding houses. Special care must be taken to insure proper house ventilation. A slow movement of fresh air coming in on one side a foot above the floor and raising gradually upward as it warms and the oxygen from it has been consumed, until it reaches a point close to the ceiling where there should be an exit opening, will help keep the house free from impurities and foul odors, thus maintaining health, vigor and appetite among the chicks.

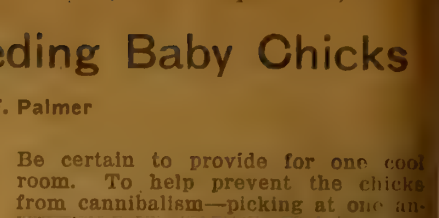
We would not build a special brooder house that could only be used three or four months a year. We locate these houses where the chicks can have plenty of range after they are partly grown. As soon as they are old enough to do without heat we remove the brooder stove and put in temporary roosts. The chicks roost in this house until fall or winter when we cull them and select the choicest for laying and breeding. In this way you avoid handling them so often, they are accustomed to their quarters, are not checked in their growth by moving and you get the benefit of your equipment throughout the year. Better to move the stove than the chicks.

Tack burlap cloth over ventilators to make the house comfortable and at least provide some method of ventilation near the floor, but avoid drafts. Be certain to provide for one cool room. To help prevent the chicks from cannibalism—picking at one another's toes or vents—paint the window panes with a bluish or whitish frosting. You want light in your brooder house but not the direct rays of the sun. Keep the chicks busy and active. Put fresh earth on the floor in one corner of the room every two or three days. This will help prevent foot and leg weakness, besides the little fellows like it. If they show signs of developing cannibalism, grind some lean meat and mix equal parts of bran, shorts, corn meal and ground meat with a little water, just to moisten it a trifle. After it is mixed run it through a sausage mill or meat grinder and then feed it to the chicks every day.

You will not be troubled with the chicks piling up and crowding at night in a room where you use these brooder stoves if your room is kept warm enough.

Start feeding the chicks when 60 to 72 hours old, but first see that each has a drink of tepid warm water to which has been added five medicine dropper drops of carbolic acid to each pint. This will help prevent bowel trouble. We have also found some of the intestinal antiseptics advertised for prevention of bowel trouble and diarrhoea when used in drinking water to be very good.

Cover the floor of the brooder rooms with clover or alfalfa chaff or fine cut straw. Don't have this too deep. Keep sour milk or buttermilk before them to drink at all times from the first day. For the first two or three days feed a mixture of two-thirds rolled oats, one-third wheat bran, mixed with hard boiled eggs, a little powdered charcoal and fine bone meal. Feed a little five times a day for the first three days. Then give two meals a day of commercial chick feed. The



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first mixture is fed morning, noon and night and the chick feed is given between meals. As they become older, gradually eliminate the rolled oats until you use only the chick feed and keep before them a dry mash mixed in the following proportions: Ten pounds wheat bran, two and a half pounds ground oats, five pounds shorts, five pounds corn meal, two ounces fine charcoal and two ounces fine salt. If you cannot secure sour milk or buttermilk then mix two pounds of dry beef scraps with the above. If you use any form of milk, keep it before them at all times or at least the first half hour of the day. They need some green food. Use clippings from sprouted oats or cut up some onions or lettuce occasionally.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, March 28, 1919. —Report for the twenty-first week ending March 27. Perhaps the most recent development in the egg laying contest at Storrs is the fact that the pen of White Wyandottes from Bridgeton, Rhode Island, that has been leading all other pens for the las thirteen weeks, has now been relegated to second place. A pen of Barred Rocks entered by Jules F. Francais, Westhampton Beach, Long Island, outlaid all other pens in the twenty-first week. These ten birds produced 51 eggs, bringing their total up to 717 eggs since the first of last November. The pen is going strong, and it looks as if they would be able to hold this lead, at least for several weeks. The Leghorns are picking up, and it's only a question of a very short time when the list of winners may be entirely reversed. The light breeds are sure to get into the honor column within the next week or two.

The total production for all pens for the twenty-first week amounted to 3301 eggs, or a yield of a little over 47 per cent. This was a little more than twice the number of eggs necessary to pay for the feed the hens consumed during the week. The following formula is useful for determining the exact number of eggs hens must lay to pay their board bill: divide the price of feed per hundred by the price of eggs per dozen and multiply by three. The result is the per cent egg yield necessary to pay for the feed. Suppose feed costs $3.20 and eggs are 40 cents a dozen. Dividing $3.20 by 40 cents gives eight, and multiplying by three gives 24 for the answer, which means that every 100 hens must lay 24 eggs a day to pay for their feed when the above prices prevail. The foundation for this formula is the fact that when all feed is purchased, a hen will consume about 90 pounds in a year or four ounces in a day.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Jules F. Francais, 717; Laurel Poultry Farm, 634; Rook Rose Farm, 559.

White Wyandottes

Obed G. Knight, 698; Patrick F. Sullivan, 633; Laurel Hill Farm, 589.

Rhode Island Reds

Laurel Hill Farm, 679; Deer Brook Poultry Farm, 561; Natick Farm, 553.

White Leghorns

A. P. Robinson, 618; S. G. McLean, 609; James O. LeFevre, 562.

Miscellaneous

Pequot Poultry Farm (Rhode Island Whites), 526; H. A. Wilson (White Rocks), 466; F. W. Cumpstone (Rhode Island Whites), 412.

THE SUBURBANITE

It was the busy hour of four,
When from a horticultural store
Emerged a gentleman, who bore—
1 hoe
1 spade
1 Wheelbarrow.
From thence our hero promptly went
Into a seed establishment,
And for these things his money spent—
1 box of bulbs
1 lot of shrubs
1 package of assorted seeds.
He has a garden under way,
And, if he's fairly lucky, say,
He'll have about the end of May—
1 nasturtium
1 radish
1 pot of mignonette.
—Cartoons Magazine.

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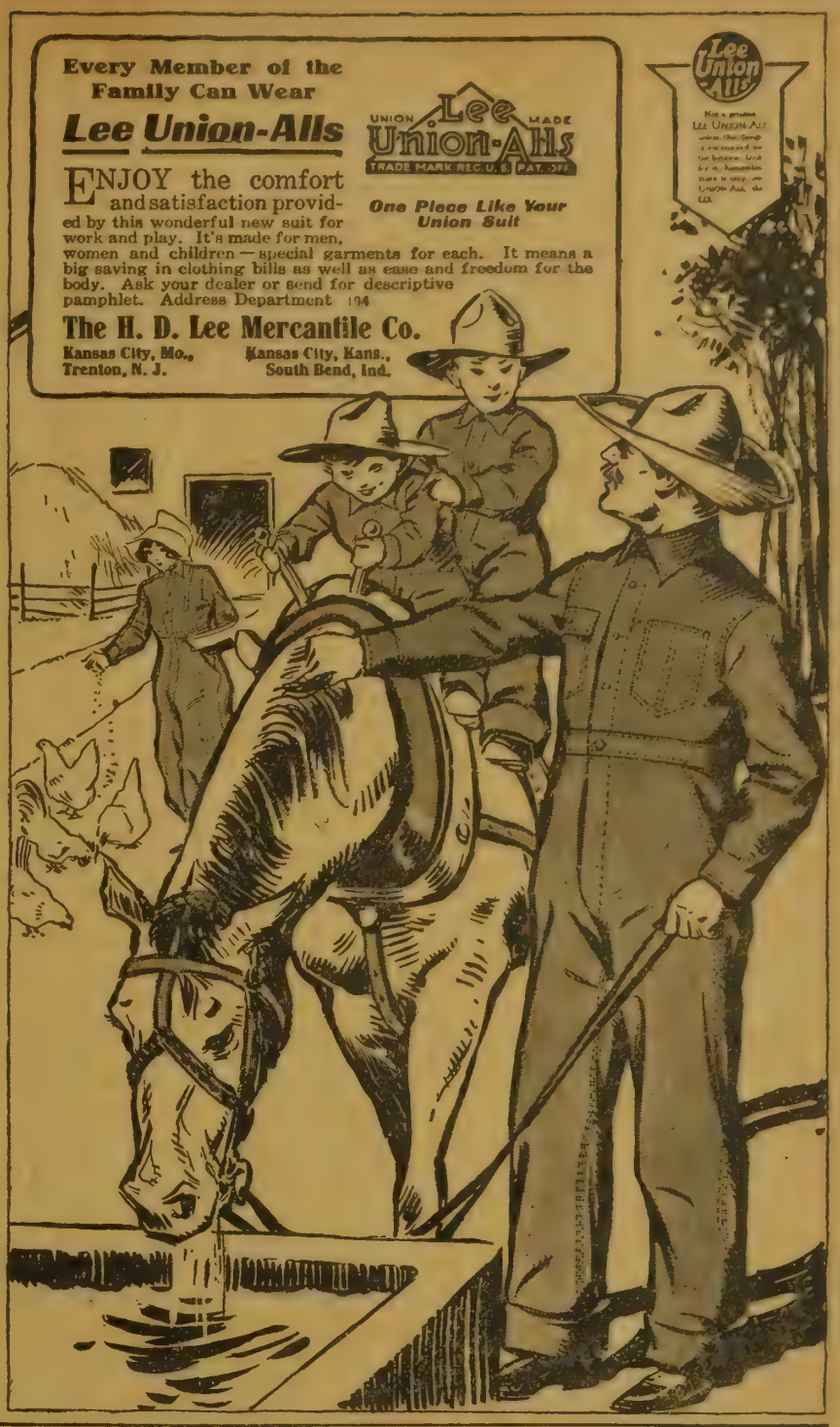
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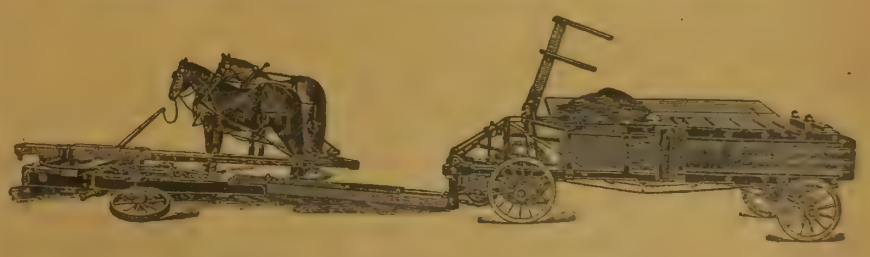
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For Sale—175 Placentia Perfection Walnuts, fine 3-year trees, 40 cents at nursery. G. W. Sherwood, Fullerton. Phone 158 R2.

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Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially Interesting Circular and Price List ready January 1. B. W. Archibald, Soquel, Santa Cruz Co., California.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Standard Bred S. C. White Leghorns. Winners at California Liberty Fair. Hatching eggs, $3 up per 15, $15 per hundred. Laying hens and pullets for sale to make room for young stock. ALESANDRO POULTRY YARDS. Telephone 53511, 623 Rosemont Ave., Los Angeles, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, Kirk Road, San Jose, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 216 eggs per hen. Hatching eggs, $2.50 per 15 eggs. Chicks 30c each; 7 pullets May hatch, laid 12 dozen December, 10 dozen January. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California.

Hatching Eggs—White Leghorns, Light Brown Leghorns, Dark Brown Leghorns, White Rocks, $2.50 per 15; $10.00 per 100. All bred to highest possible standard of beauty and utility. Mahaja Farm, P. O. Box 597, Sacramento, California

S. C. R. I. Reds Exclusively, Pacific Coast Aristocrat strain. Booking orders for May and June chix. Order at once. Send for mating list for hatching eggs. Rosedale Poultry Farm. Route A, Box 200D, Ceres, California.

Official World Champion Layers; Bred to Lay Barred Rocks. The greatest general purpose fowl on earth. Choice cocks and eggs for hatching at reasonable prices. Stanley Foote, 3923 San Rafael Ave., Los Angeles

Sly's Rhode Island Reds winners and layers. Hatching eggs from high-grade stock scientifically bred for exhibition and utility. Settings $5.00, $3.50 and $2.00. Send for catalogue. Albert Sly, 1644 Middleton Place, Los Angeles.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. BABY CHICKS, eggs, Cockerels. Fairmead Poultry Farm, Fairmead, California

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo. Schmitt, Box 263, Corcoran, California.

Black Minorca and Buff Wyandotte Eggs $1.50 per setting. Chicks 20c each, thoroughbred laying strain, none better. A. G. Moore, 432 Ulysses Street, Los Angeles

Black Orpingtons Lay, Weigh and Pay. Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Baby Chicks (White Leghorns) shipped on approval before remitting. No wee ones charged for. Schellville Hatchery, Schellville, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. V. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, Reservoir, Pomona, California.

Rhode Island Red Eggs for hatching MRS. RICHARD HOLDRIDGE, P. O. Box 282, Dixon, California.

POULTRY

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns, CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. S. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying ROGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for twenty years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

For Sale—Eggs from White Muscovy Ducks, 25c; Mammoth Bronze Turkeys, 25c to $3 each; Mammoth Toulouse Geese, 50c to $1 each; setting White Wyandotte Eggs, $1.50 to $3. Guinea Fowl, $4 a pair. A few choice Toulouse Ganders, $15 each. All stock blue ribbon winners. Paradise Valley Poultry Ranch, National City, Cal.

Baby Chicks Every Week. Order early and get the date you want. White and Brown Leghorns, Rhode Island Reds, Barred Rocks, Anconas; also hatching eggs. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch, Box W, Palo Alto.

Finest Hatchery in the World. Chicks, White Leghorns, Rhode Island Reds, 10s, 1000s, hatched right in our $60,000 brick and concrete hatchery from our Hoganized heavy layers. Stock, eggs. Pebbleside Poultry Farm, Sunnyvale, California.

Poultry for Profit—A 225 page book, with 18 pages of illustrations, tells you how to successfully house, feed and raise chickens, ducks and turkeys in California. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 N. Broadway, Los Angeles.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

Baby Chix R. I. Reds, Barred Rocks, Brown and White Leghorns from Hoganized stock, bred to lay. Reasonable prices and pleased customers our aim. Tobener Hatchery, Washington Avenue, San Jose.

Wanted—1000 Poultrymen to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Imschweiler, Box 70, Inglewood, California.

White Wyandotte setting 15 eggs, $2.00. Mission 281. G. O. Tetley, 190 Edgewood Place, Riverside.

WANTED

Wanted—Place as foreman. Advertiser is thorough in all lines of farming, fruit growing and the care of live stock. Experienced in working all kinds of labor both tenant and wage systems. Address Box 22, Care of Cultivator.

Wanted to Rent by American man, a good dairy farm with cows and equipment, cash or terms. Address Box W, Care Cultivator.

Duroc Jerseys Wanted—Bred and open gilts and young sows. State price, breeding and when bred. Jersey Queen Farm, San Jose, California.

Wanted to Lease good hay or grain land. State acreage, rent and full details. F. N. Dee, 2101 Julian Ave., San Diego, California.

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minnesota.

Wanted 1000 to 1200 feet of Hog fencing. R. D. 3, Box 607, Los Angeles.

GEESE

McNeely's Mammoth Geese. The kind that pay. Eggs 25c each, any amount. Fancy breeding stock ready to ship. Chas. McNeely, Alpaugh, California.

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Mammoth Pekin Ducks 10 days old, 30 cents, $25.00 per hundred. Eggs for setting $1.00 dozen, $7.00 a hundred. August Surtman, Merced, California.

RABBITS

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Krueger, Watsonville, California.

For Sale — Thoroughbred rabbits, all breeds. G. O. Tetley, 190 Edgwood Place, Riverside.

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SHEEP

Sheep for Sale—500 Ewes with lambs by side and fully wooled. Have rented my ranch and want to sell. A good buy for a small place. John M. Cox, R. F. D. No. 1, Box 160, Brawley, California.

CATTLE

HOLSTEINS AT AUCTION
On Saturday, May 3rd, Napa State Hospital, Napa, California, will sell from its noted herd of grade Holsteins 20 fresh and springing cows; 50 bred heifers, about 20 of them springers; 30 unbred heifers. The 117 milking females in the herd, including many 2 year-olds with first calf, average 11,503.6 pounds milk last year. Some of these cows, and daughters of the best cows in the herd, bred to the great Napa State Hospital herd bulls, including a son of the world's record cow, Raphaella Johanna Aaggie 3d, will be sold. Registered sires used in the herd for the past 14 years; herd tuberculin tested for ten years. Eight choice registered Holstein bulls will also be sold, out of dams with official records up to over 29 pounds butter in seven days. Everything over six months of age tuberculin tested. Sales manager, C. L. Hughes, Sacramento; auctioneer, Col. Ben A. Rhoades, Los Angeles.

For Sale—35 Head high grade Holstein cows fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch. Hannon Bros., Third Street, Lankershim. Care of Chas. Irwin.

Special Notice—Second farm sale—Shorthorns, Shropshires, Berkshires, Ponies SATURDAY, AUGUST 2, 1919. SHORTHORN CATTLE, SHROPSHIRE SHEEP. Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch. Box C, Butte City, Glenn County, California. W. P. Dwyer and W. S. Guilford, Owners.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery St., San Francisco, California.

Keep on Herd Jerseys make the money and win the ribbons. Come and see them or write. Dr. H. W. Hand, Orland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

Ayrshires — Pure bred bull calves ready for service. Redwoods Ayrshire Farm, La Honda.

For Sale—Registered Holstein Friesian Bull, 4 years old, mostly white. Todos Santos Rancho, Daggett, California.

FARM LANDS FOR SALE

ALBERTA THE WHEAT GRANARY OF THE WORLD AS CALIFORNIA IS THE FRUIT-BASKET.

We own and control several thousand acres in the choice farming districts of Alberta. Our improved lands are in farms of from 500 to 1600 acres and each farm has considerable acreage ready for spring crop. Our raw lands are in proved districts, surrounded by improved farms. Prices range from $15 up. Small cash payments, balance long time yearly and crop payment. The F. W. Anderson Mtge. & Investment Co., 501-5 Hutton Bldg., Spokane, Washington.

For Sale—Alfalfa or Stock Ranch—240 Acres—This ranch is now in grain and under the best gravity water system in California. Also one flowing well on ranch. Bottom land and is worth $150 per acre, but owner can't use it and has made the price $75. Terms one-fourth cash, balance 6 per cent. Information, see M. S. ROBERTSON, 313 Story Bldg., Los Angeles, California. 63724.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

For Sale—20 Acres 2½ miles southwest of Orland, under government irrigation project, 7 acres planted to a mixed orchard of carefully chosen lemons, deciduous fruit, grapes and berries. Balance farmed. Planned for a home place. Price $4,000, terms to suit purchaser. Address T. F. Fotheringhame, Orland, Glenn County, California.

For Sale—Thirty-eight Acres of the finest San Fernando Valley land out of doors. Excellent walnut proposition, been cropped to beans the past three seasons. Close to school, stores, railroad, boulevard. Priced for quick sale, cash or terms. H. L. Allard, 410 Security Bldg., Los Angeles, California.

For Sale, Rent or Exchange—Tulare County 480 acres, cotton and alfalfa land. North of Delano, 4 wells shallow water, 40 acres fenced, 4-room house, good stable. $50 per acre, terms. See owner. P. H. Manchester, 1480 West 23rd street, Los Angeles, California.

Sale or Exchange—160 acres Colorado; 40 miles east Colorado Springs. On Railroad and Lincoln Highway. Nearly all tillable. Rain belt, shallow water. Also 8-room modern house, Kansas City. Want small improved farm. A. B. Smith, Manhattan, Kansas.

BELKNAP SALE

Continued from Page 524

A. L. Emery, San Juan. Lucy Orion, $1100; Lady Monarch, $375; Orion Model Jr., $1000; two sow pigs, $115.

R. N. Jennings, San Jose. Mabel D., $500; boar, $50.

G. M. Cobb, Woodland. Gilt, $250.

W. M. Woy, Modesto. Gilt, $140; boar, $80.

Rosendale Ranch Co., Sacramento. Six gilts, $125, $175, $135, $150, $135, $97.50; boar, $135.

H. C. Dovey, San Jose. Two gilts, $2.10 each.

Henry Eckles, Woodland. Boar, $130.

J. L. Stubbs, San Jose. Boar, $75.

G. C. Aydlott, Hanford. Boar, $80.

L. R. Lenfest, San Jose. Boar, $25.

O. V. Tuttle, Watsonville. Boar, $80.

J. W. Richardson, Gilroy. Boar, $25.

E. H. Beans, Hollister. Gilt, $65.

FARM LANDS FOR SALE

For Sale—40 Acres Young Alfalfa—One-fourth mile from Chino city limits, fine location, electric pumping plant, 2 barns, modern 7-room bungalow, fruit trees, palms, roses, $600 per acre. One-fourth cash. OWNER, W. N. COOLEY, Chino, California.

For Sale—12½ Acres garden or alfalfa land near Corona. Has pumping plant with abundance of water. Price $450 per acre. Could add 2 acres adjoining with house or a larger house in Corona. For particulars address: Owner, Box 106, Arlington, California.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator, Box B. A. J.

For Sale in Klamath County, Oregon, 600 acres good level land, unimproved, good for alfalfa, grain or stock. Price $10.00 per acre easy terms. W. H. Johnson, 22 Maple Ave., Watsonville, California.

For Sale—320 Acres Alfalfa Land, including water, located in Kings Co. Price, $100 per acre. Will divide, terms. J. A. Elliott, owner, 130 E. 25th street, Los Angeles. Phone 63247.

$10 to $25 an acre, good land, 160 acres and up, some improved, oak timber, watered by streams and springs, fine climate. W .W. Baldy, Raymond, California, Madera County.

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These casings know no bounds of mileage but are known by their mileage.

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ELECTRIC IRON, weight 6 lbs., rubberoid finish black enameled wood handle, round edge ironing face, smooth as a mirror. Dimensions 3⅝x6¼ in. Special resistance wire imbedded in a composition which is a perfect electric insulator and readily conducts heat. Blued steel case, othtr exposed metal parts nickel plated. Complete with cord and plug. Each $4.75.

ELECTRIC IRON, weight 6 lbs., heavy nickel plated with heavy copper base, refined gray iron shell, Ruby India mica and best "Nichrome" wire heating unit connecting plugs, terminals of superior material and construction and are nearly "arcproof" rubberoid finish hardwood handle. Complete with reversible heat proof spring stand and 6 ft. cord. Hubbell attachment plug. Each in a fibre board carton, only $7.99.



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GASOLINE IRON, weight 6½ lbs., both ends are front ends, qnick lighting, quick removable, self cleaning generator, capacity ¾ pint, operates 5 hours at one filling; 18½ square inches of iron space, handle protected from heat by asbestos pads and air space. Complete in a box including a pump, only $5.99.

These Irons are sold by others at $10.00 and more, while we on account of our clearing sale are selling them at reduced pfices.

Take advantage then of this rare opportunity, and order today one of these most practical Irons.

In ordering you need not send us the money in advance; it is enough to send only $1.00 as a sign that you wish to purchase the iron, and the rest you will pay when the iron is delivered to your home.

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Many farms paid for from a single year's crop. Raising cattle, sheep and hogs brings equal success. The Government encourages farming and stock raising. Railway and Land Co's. offer unusual inducements to Home Seekers. Farms may be stocked by loans at moderate interest. Western Canada offers low taxation, good markets and shipping; free schools, churches and healthful climate.

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Should return from $1,000 to $1,500 per acre first year. If interested in Rhubarb or Berries, write for special prices. J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, California.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Household Department

HE WORRIED

He was one of the worrying kind—
Born with, I fancy, a worrying mind;
Worried whenever it threatened to rain,
Worried whenever the sun came again,
Because he was sure when the sunshine was o'er
He'd wake up to find it was raining once more.
He had a worrying look in his eye
And a worrying smile and a worrying sigh.
Never was he in too much of a hurry
To think of his trouble and sit down and worry.

The children, they worried him sorely, indeed;
He couldn't afford to supply every need;
It gave him a horrible fit of the blues
To look at the holes in their stockings and shoes.
But all of the worrying this fellow did
Never purchased new shoes for the feet of a kid;
They struggled along and they got on without
The garments he fretted and worried about,
And none of his worrying, early and late,
Ever put any pie on a little girl's plate.

He worried because he was falling behind.
Good jobs were scarcer and harder to find.
Worried himself so he scarcely could sleep,
Because he'd a job he perhaps couldn't keep.
The longer he worried the worse matters grew—
Each worry seemed to be followed by two.
Mountains of trouble loomed up in his way,
Bills kept on growing that he couldn't pay;
Got in a corner and couldn't get out,
Blocked by the things that he worried about.

Don't be a man of the worrying kind.
Don't be a slave to a worrying mind.
When you're in trouble (and none lives without it),
Don't sit and worry. Do something about it.
Get out and hustle and keep in the race,
Battle your cares with a grin on your face.
Worrying never has paid up a bill
Or lifted a mortgage, and it never will.
Life and its joys travel by, in a hurry,
The chap who does nothing but stand still and worry.

—By Edgar A. Guest.

LIVE STOCK FARMING IN NEBRASKA

By H. J. McLaughlin

A BEAUTIFUL picture was formed in my mind one Sunday evening this winter, when I promised my two boys that I would do the chores for them.

As I leaned up against the south side of the barn, out of the wind, the hired man scattered out a load of corn fodder across the meadow. That was the hay for 60 odd head of Percherons that night. Then I took a sack of oats and went to feed the calves, all Herefords and all alike. A farmer friend visiting us said that he never saw such an impressive sight in a cattle lot before. As we went from lot to lot feeding the Herefords of different ages, I could see plainly why this man was so pleased. As the calves just weaned came running up over the hill, bucking and shaking their wintry coats and tossing their saucy heads all as white as snow, my heart was moved and I gave them a little more oats than I ever did before, because I knew that even though feed was high and scarce, every bushel of oats these calves ate was going into money making cattle. The cows, the young heifers, and the sire of these calves, all fared extra well that Sunday evening for I like to see them eat, go away, and lie down contented as it were at the end of a Perfect Day.

No sooner had I finished the cattle part of my chores than I heard old Sidonia nickering at the barn door. There were all the Percheron mares with foals wanting in for a bite of grain. That told me that the boys had been in the habit of feeding these faithful matrons and their colts just as I like to feed the calves. I let them all in and gave them a washpan of oats in each box, mother and foal alike. When they had finished, I turned them back to the pasture. This friend watching the mares and colts go off said: "Where is your tractor?" I said, "Let's go into the house and I'll tell you why I don't use a tractor. This is my reason. Twelve years ago, I bought the old Percheron mare Sidonia, in foal, her yearling filly and a weanling. She was then 11 years old. From that start I have produced 39 head of living Percherons, 15 head of which have been sold at a total of $7350. There are now on the farm 24 more descendants of this old mare that I value at a little over $6000 at present values for Percherons. I sold one stallion out of this old mare for $1300. I don't farm with a tractor because I can't afford it. More dollars worth of Percherons are sold off my farm every year now than my total feed bill, and the mares do the work of tilling a section of land. Besides last spring my attention was called to the fact that we were plowing for corn with three 14-inch two bottom gang plows and that the power we were using was 15 pure bred mares and every one of them heavy in foal. We hitched three to the rear team and a pair in the lead. I have said to every tractor salesman who has talked to me: "Whenever you can put a tractor on my farm that will do my work as cheaply as my Percherons, I am ready to buy a tractor." I mean it, too, for I am in the business of farming as a money making proposition, and whenever mechanical power can be so perfected that it can compete successfully with good Percheron mares in working my land and doing it cheaply, I am ready to buy a tractor and sell off some Percherons. This friend who was visiting me has a tractor and 12,00-pound horses. These are usually found working together on Nebraska farms, but one seldom ever finds good draft horses and a tractor owned by the same man.

After my friend left that evening, my wife was curious to know why it took me so long to do the chores. She said: "You think the boys waste a lot of time chewing." Well I had to admit that it took longer than I had anticipated because I like to stand and watch the calves and the colts eat. She said: "Our boys take after their father in some things and I expect that is one of them." That set me to thinking and I wondered if the fact that we were breeding Percheron horses, Hereford cattle, and Duroc Jersey hogs was largely responsible for my boys staying on the farm instead of seeking the city. Young men are usually progressive and want to get ahead and there is no way that they can accomplish so much on the land as by breeding good pure bred live stock. Then every bushel of grain or ton of hay that is raised and fed into such animals, goes much farther and makes more money than if fed into common scrub stock. I have been a cattle feeder and breeder ever since I came to this farm in Nebraska 28 years ago and although I have been in the Hereford business only a few years, I can see plainly that our farm will net $5.00 now every year from our white-faced cattle, where it would not make $1.00 before when we raised and fed common stock cattle. Whenever a father can go to his son and present such encouraging figures it makes a splendid argument why the boys should stay on the farm and



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raise good live stock. Then the doing of the chores becomes a pleasure instead of a burden and more often than not successful farmers are made out of men who otherwise would be failures.

GRANDMA BROWN'S HOMELY HINTS

By Minnie Embree Parker

"Good morning, Grandma Brown," said young Mrs. Smith, "I am in need of advice, and as you have been a housekeeper for so many years, I believe you can help me."

"Come in, Neighbor," was the cordial invitation, "and I will gladly give you any assistance in my power, for I have been in trouble myself, and know how good it is to be helped out. Is it a new dress for the girl or how to help Johnny have better table manners?"

"Neither. It is simply this: the doctor has told me that I must rest, but how can I, with a family to take care of? I have read of a mother who took her baby and lunch and stayed all day in the park every day through the summer, growing well and strong. But I cannot do that as my children are in school and must be kept clean and fed, and I am the only one to do it."

"What you need," said Grandma, "is to learn how to rest while you work. We read a great deal, these days, about the conservation of food, but I have seen very little about conserving strength, and yet it is a very important thing. How many unnecessary steps do you suppose you took this morning? 'Make your head save your heels,' my mother used to say. Did you carry something upstairs or down cellar and come back empty-handed, making another trip later after something you might have brought back with you the first time?"

"The old adage, 'Have a place for everything and everything in its place,' is a wonderful help in making housework easier," continued Grandma Brown. "I used to think I was too tired to carry something into another room to put it away, but I found out that when I wanted that article at some other time and had to ransack the whole house to find it, that I was 'penny wise and pound foolish,' as the old saying goes. Also it tires one more to work in a room that is 'all cluttered up' than where everything is in order."

"It is strange I never thought of those little things making so much difference," Mrs. Smith said. "Since you have called my attention to it I do remember having made a number of extra trips this morning. I thought you would tell me to buy an electric washer and other labor-saving inventions."

"Yes, those things are good, if one can get them," Grandma replied, "but let me tell you how to make things as easy as you can without them. My mother used to have a recipe for a washing fluid which helped to take the dirt out of the clothes, but when I have been without that I have used a little common kerosene oil in the suds in which I boiled my clothes before rubbing, after they have soaked, or not, just as you choose, though I think if you wet them and rub soap on the dirtiest spots, then roll each garment up tight, letting them stand all night, they will wash easier."

"Would you mind telling me how to make that washing fluid?" asked Mrs. Smith.

"I will gladly tell you. Empty a can of lye into an old galvanized tub, or something the lye will not spoil, and pour onto it one gallon of boiling water, then add one ounce each of salts of tartar, borax and salts of ammonia, which you can buy at the drug store for a small price, and when cool, bottle it up tight. Add one-half cup to the suds in which you boil your clothes. Keep them well stirred and punched and you will be surprised at the small amount of rubbing required. You have often seen a woman pick up a tub of water and empty it, but it never pays a weak woman to do that. Just take a piece of hose and siphon it off, busying yourself with something else while it runs, if you are not tired enough to rest. And right here let me say, it is economy to rest before you get too tired, for a rest at the right time is the 'stitch in time that saves nine.' You will find it a help, also, to plan for dinner on wash day those dishes which are the easiest to prepare."

"Please tell me how to siphon water out of a tub," said Mrs. Smith.

"You are not the only one who doesn't know how to make water run uphill. I take it for granted that you always use a hose to bring the water from a faucet to your tub. Just place the free end of it in the dirty water which is to be emptied, and turn on the faucet long enough to fill the hose, leaving no air bubbles in it. Keeping the free end under water unscrew the faucet end of the hose, covering end of hose with your hand so water cannot run out, and quickly place it lower than your tub. If you wash out-of-doors that will be an easy matter; if in the house, your hose needs to be long enough to carry the water out-of-doors or to some drain lower than your tub. You may have to try more than once at first, for if the air gets into your hose the water will not siphon off. Now don't be shocked, Mrs. Smith, when I advise you to sit down to wash dishes."

"No, Grandma, I came to hear anything you might say. But I tried that once and turned the dishpan of water into my lap. How do you do it?"

"I have a tall stool which is the most important piece of furniture in my kitchen. It is just the right height for my sink. I would as soon think of standing while doing my mending as while preparing vegetables and doing many other things most women stand up to do. The war taught us that our families can live without pie and cake, and, in fact, a great deal more simply than we had thought possible; why not continue the simple life and allow the housekeeper to grow young again? And, last but not least, do not worry. Learn to have your mind at rest even when your body isn't. 'Worry kills more than work.' 'Care, to your coffin adds a nail, no doubt, and every smile so merry draws one out.' 'A merry heart doeth good like a medicine.' Try it."

"Thank you," said Mrs. Smith, as she rose to go, "I confess that I have been like Martha of old, 'cumbered about much serving,' but I mean to take your advice and conserve my strength for my own good and the good of my family."

EXTERMINATING COCKROACHES

If cockroaches are troublesome in the house the following simple remedy will unquestionably destroy great quantities of the pest and keep them in check as effectively as troublesome insect powders and dangerous poisons:

Mix one part of plaster of Paris and three or four parts of flour. Place this dry mixture in a saucer or on a flat piece of wood or tin where roaches are numerous. Nearby place another flat plate containing pure water. Supply a few inclines of wood or cardboard from the floor to the edge of the plate or saucer to give easy access. Float one or two thin pieces of wood on the water so that they will touch the edge of the dish. The insects readily eat the plaster mixture, become thirsty and drink. The water makes the plaster set in the intestines and kills the roach.



Call on it when friends call on you

The next time friends call on you—call on Ghirardelli's! You'll find it equal to *any* occasion. And you'll be apt to say—as many another wise hostess has said:

"It's wonderful—isn't it?—how a cup of Ghirardelli's puts people at ease—helps to make them feel 'comfy' and sociable."

Ghirardelli's—the *original* Ground Chocolate—is not sold in bulk but *in cans only*. In ½ lb., 1 lb. and 3 lb. cans—wherever you do your trading. Look for the Ghirardelli label!

Say "Gear-ar-delly"

Since 1852 D. GHIRARDELLI CO. San Francisco



Ghirardelli's Ground Chocolate

If You Buy GOOD Farm Implements, Why Buy a "Cheap" Piano?

Successful farmers have long ago learned that it pays to buy good tools, implements, machinery, tractors—yes, and good automobiles. In the end they are less expensive than the "cheap" trash which did poor work and which would have had to have been replaced. The same is true with Pianos—a good, dependable Piano which will give satisfactory life-time service cannot be made today to sell now under $300. Anything offered for less is a "near" piano, made to catch the unwary *once*. It has no musical quality of tone—it gives out within a few months—it sounds tinny—the woodwork warps—the keys stick—it won't stay in tune—it is worse than no piano at all.

A good, reliable dealer carries Pianos only of true musical worth—his prices are consistent and his terms of payment are so reasonable that you can buy a good piano just as easily as you can a poor one.

We invite you to call at any of our stores—or write us asking for illustrated catalog and prices.

We are dealers in Steinway and other Pianos, Pianola Pianos, Aeolean Player Pianos, Player Music, etc.

Sherman, Clay & Co.

Kearny and Sutter Streets, San Francisco
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325 E. Main Street, Stockton
J and Merced Streets, Fresno
190-192 S. First Street, San Jose
Stores also at Portland, Seattle, Tacoma, Spokane.

Los Angeles Market

Los Angeles, April 9, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 55 lb.; prices to retail merchants in 1-lb. squares, 58-59.

Dairy exchange prices last week on extras:

Apr.	2	3	4	5	7	8
'19	55½	56	56	56	56	55

CHEESE

Brokers' prices:
California fresh, lb. 30

EGGS

Fresh extras, Produce Exchange closing price; 45 doz.; price to retail merchants, 48@50 doz.; case count, Produce Exchange closing price, 44 doz.; price to retail merchants, 47@49 doz.; pullets, Produce Exchange closing price, 43 doz., price to retail merchants, 46-48.

Dairy exchange prices last week on extras:

Apr.	2	3	4	5	7	8
'19 ...	46	45	45½	45	45	45

POULTRY

Prices to producers: Hens, 38@39; broilers, 38@42; fryers, 45; roasters, 40; old roosters, 14; capons, 42; ducks, 35; ducklings, 36@37; geese, 32; turkeys, 35@40; squabs, 50.

Belgian hares 15.

LIVE STOCK

By F. P. Allen, Bureau of Markets, Los Angeles

Strictly No. 1 steers and cows are steady. Very few straight cars of either good steers or cows reach this market. The medium and common grades of beef cattle are weak. Quite a number of cars of hay and grain fed steers from Southern California are being shipped to Kansas City where good prices are obtainable. Daily quotations from that market indicate that steers weighing over 1150 pounds live weight are very scarce and in active demand.

It does not seem advisable from present indications, to hold either steers or cows for higher prices than the present on this market. Local consumers curtail their purchases of beef when the prices advance.

Hogs continue scarce and especially strictly No. 1 hogs. Some cases exist where prices higher than published quotations are being paid for hogs. The demand for dressed pork, while not active, seems to be sufficient to absorb the entire supply.

Spring lamb receipts are increasing in volume and slight declines are noted in prices being paid the producer.

Fall lambs that are light weight hold firm. Heavier lambs that must be sold in the yearling class are lower.

Ewes are strong to $1.00 cwt., higher under very good demand.

Live stock prices April 9:

Good steers	13.00@13.50
Medium steers	11.00@12.00
Common steers	9.00@10.00
Good cows	11.00@12.00
Medium cows	9.00@10.00
Common cows	6.00@7.50
Hogs No. 1, 175-225 lbs.	17.50@18.00
Hogs No. 2, 250-400 lbs.	16.00@16.50
Hogs, feeders	13.50@14.00

Above prices are for grain fed hogs in carload lots f. o. b. Los Angeles.

Spring lambs, per head	7.50@8.50
Fall Lambs No. 1 55 to 70, cwt.	16.50@17.00
Fall Lambs No. 2, 65 to 80, cwt.	16.00@16.50
Wethers No. 1, cwt.	11.00@12.00
Ewes No. 1, cwt.	9.50@11.00

POTATOES AND ONIONS

These are the actual prices obtained April 8 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.

Demand and movement good. Little change in prices. Stockton, Burbanks, quality generally good; sacked per 100 pounds, extra fancy 3.75@4.00; Idaho Russets, quality and condition fair, 2.85@3.00; rurals, 2.60@2.85; Oregon Burbanks, fy., 3.25@3.50. New stock, homegrown, Red Rose and White Rose, 2.25@2.50 per lug box. Seed stock, White Rose, sacked per 100 lbs., best mostly 2.75@3.00.

Carlots: Demand and movement good, little change in prices. Closing prices Monday—carlot sales to jobbers—Stockton Burbanks sacked per 100 lbs., extra fy., 3.75. Idaho Russets sacked per 100 lbs., 3.00. Rurals sacked per 100 lbs., 2.60. Oregon Burbanks sacked per 100 lbs., 3.00. Washington Netted Gems sacked per 100 lbs., 2.90.

Sweet Potatoes: Lug box best 1.50; sacked 4.50@5.00 per cwt.

Onions: Demand and movement moderate. Little change in prices. Stockton, sacked per 100 lb.; Browns, best from cold storage, 4.25@4.50; White Globes, 11.00@12.00; Homegrown green onions 15 bunch.

VEGETABLES

These are the actual prices obtained April 8 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz. .....75@85

Asparagus: Imperial Valley, Green, 10@15 per lb.; Northern, green, fy., 11@12; extra choice, 7½@9 per lb.; local 15 per lb.

Cabbage: Sales to retailers, best cabbage, 3.50@4.00.

Carlots: Supplies scarce. Demand good, little change in prices. Market firm. Carloads f. o. b. cash track—Early Winningstadt, Calif. crates 90.00@100, mostly 90@95 per ton, crates extra.

Southern California Winningstadts were firm at shipping points and California cabbage held at 5.00@5.50 per crate in consuming markets.

Carrots, doz. 50

Cauliflower: Best in cabbage crates, 2.50@2.75; poorer, 2.00.

Celery: Homegrowns, best, 8.00@8.50; 2.15; poorer, 2.00.

Lettuce: Sales to retailers, best lettuce in cabbage crates 1.40@1.50, poorer 1.25.

Carlots: Demand good, little change in prices, quality and condition fair, carloads f. o. b. cash track, Imperial Valley, supplies cleaning up, 3.40@4.00, mostly 3.75. Los Angeles district quality and condition improving, 2.00@2.40, best mostly 2.25@2.40.

Best Imperial Valley stock was higher at $3.75@4.00 per crate f. o. b. and best California stock continued about steady in consuming markets mostly 4.50@5.50.

Parsley, doz. .....20@25

Peas, Imperial Valley 7½ lb.; local (San Pedro) best 8; poorer 6@7 lb.

Peppers, Chili, lb., best 25

Bell, lb., best 40

Radishes 20

Rhubarb: Local Giant Strawberry, 1.50@1.65 per packed box. Crimson, 1.80@1.90 per box. Northern Strawberry, extra choice 2.25 per box; fy., 2.50 per box.

Spinach, doz. .....15@20

Tomatoes: Quality and condition generally good. Mexico, best 3.25@3.50 per lug box. Poorer and small, 75@1.50 per lug box.

Turnips, doz. 25

FRUITS

These are the actual prices obtained April 8 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtowns, fy. medium size 3.00@3.50; loose 7 lb. Oak Glen, Rome Beauties and Pearmains, 3.50@3.75; Winesaps, 3.75@4.00; Yucaipa, Delicious, fy. large size, 3.00@3.50.

Pears, Winter Nellis, lb., 6@7.

Pineapple, lb., 20.

Lemons: Fy. packed, 4.00@4.25; local pack, 3.00; loose, some tree ripe, 1.75@2.00. 1.75@2.00.

Oranges: Navels, medium and large size, fy., 5.25@5.75; local packed, 3.00@4.00; Tangerines, 6@7 lb.

Grapefruit: Local fy., 2.50@3.00 bx.

HONEY

Supplies very light and practically all held by exchange. Demand slow, no sales reported.

BEANS

Demand improving, prices slightly higher, market firm on all varieties. Carloads f. o. b. usual terms, choice recleaned, sacked per 100 lbs., Limas 6.75; Henderson Bush 6.50; warehouse cash to growers choice recleaned, Small whites, best undamaged, 6.50; large whites, quality and condition ordinary, 5.50@6.50; Black Eyes, 3.00@3.25. Tepary, no sales reported. Shipment from Southern California about 15 cars per day.

GRAIN AND FEEDS

Carlot prices on local grain exchange. For government prices on grain see S. F. market.

Corn, sacked No. 3 Yellow	3.07½
No. 3 White	3.00
Wheat	35.00@36.50
Milo	2.00@2.15¼
Barley	2.40@2.50
Egyptian	3.00
Eastern Kafir	2.85
Feterita	2.90

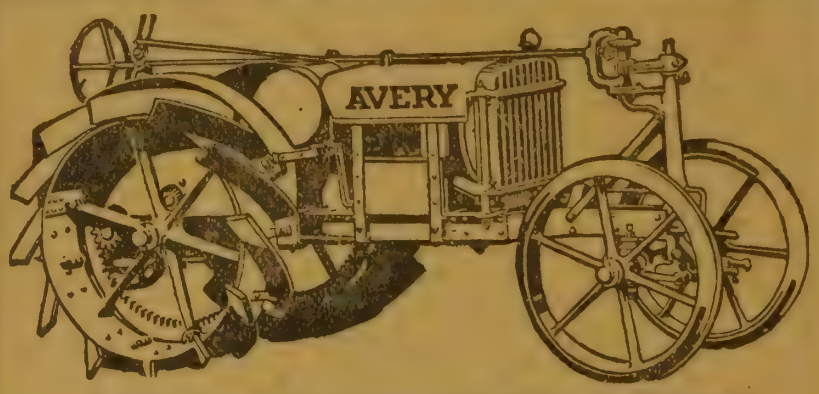
HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat	19@24
Barley	18@22
Alfalfa	18.00@20.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles:

No. 1 dairy	24.00@25.00
Standard dairy	21.00@22.00
Standard Alfalfa	18.00@19.00



Avery 5-10 H.P. Special Orchard Tractor

Avery Tractors

(Made in Seven Sizes)

An Appeal to Reason

If you have a certain piece of work that can be done by four men in a year's time would you hire eight men and keep them the year around to do this same work? You would not? Then—

If You Own

40 acres or less,—Why invest in a tractor that costs from two to three times as much as the small AVERY to do the same work that you can do with it especially when,—

No Tractor Made

Has a better traction in any kind of soil; Is any easier to handle in operating; Will get any closer under the trees; Has any better material or workmanship in its construction, or has as many real boosters among its users.

Avery Tractors

Are in use in every state in the U. S. and sixty-one foreign countries: Over 700 being in use in California. They are built, sold and guaranteed by the oldest and now the largest manufacturer of tractors in the world—The Avery Co. of Peoria, Ill.

If you will investigate

The AVERY tractor, versus all makes of tractors from a practical dollars and cents standpoint as a user, your own judgment will make you decide to be another of the fast growing large number of satisfied AVERY owners.

Avery Company of the Pacific Coast

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MOLINE HAY TOOLS

The Moline Line of Implements

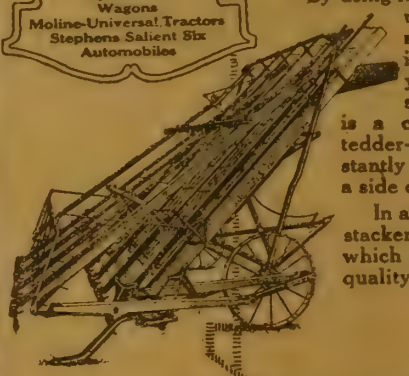
Plows (steel and chilled)
Harrows
Planters
Cultivators
Grain Drills
Lime Sowers
Mowers
Hay Rakes
Hay Loaders
Hay Stackers
Grain Binders
Corn Binders
Pitless Scales
Spreaders
Wagons
Moline-Universal Tractors
Stephens Salient Six Automobiles

Use Moline Hay Tools this year and you will accomplish two things—obtain a better grade of hay and save a great deal of time.

Regardless of your hay tool requirements, there is a Moline Haying Tool to give you better and quicker results under all conditions.

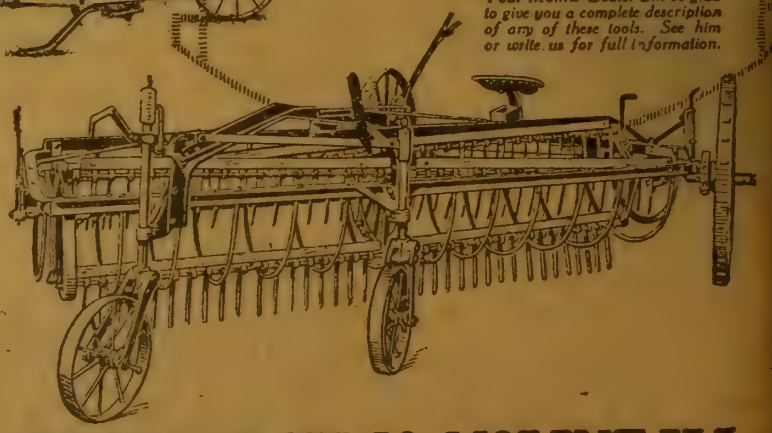
Moline Gearless Hay Loader operates entirely without the use of gears, sprockets, chains, rope webs, etc. It gives you less trouble than any loader made, and because of its long, easy 5-ft. stroke, loads hay without breaking or shattering. Loads light swaths or heavy windrows without adjustment. We also build a double cylinder loader known as Moline Loader No. 5, which is preferred in some localities.

By using Moline Side Delivery Rake you can rake your hay into long fluffy windrows where it will cure quickly and in best condition. It will also save your time in loading—we build two styles of side delivery rakes. No. 14 is a combined side delivery rake and tedder—simply shift a lever and it is instantly converted into a tedder. No. 12 is a side delivery rake only.



In addition we build a complete line of stackers, sweep rakes and mowers—all of which uphold the Moline reputation for quality, long life and convenience.

Your Moline Dealer will be glad to give you a complete description of any of these tools. See him or write us for full information.



MOLINE PLOW CO., MOLINE, ILL.

MANUFACTURERS OF QUALITY FARM IMPLEMENTS SINCE 1865

The California Cultivator

Weekly—24 to 36 Pages One Dollar per Yea

San Francisco Markets

San Francisco, April 8, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale dairy produce exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extra 62½
Prime Firsts .....Nominal

Prices extras past week and year ago:

Apr.	1	2	3	4	5	7
'19	58½	58½	61½	62	62	62
'18	..	42	38½	41	39½	..

Rcts. wk. ending April 7, 578,700 lbs.

CHEESE

Dairy excn. quotations:

Cal. Flats .....29½@32
Ore. Triplets 38½
Jack, full cream .....25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras 46½
Extra Pullets 44

Prices extras past week and year ago:

Apr.	1	2	3	4	5	7
'19	47½	46½	46	46½	46½	Nom.
'18	..	38½	38½	38	37½	..

Rcts. wk. ending April 7, 15,828 cases.

POULTRY

We quote to producers, lb.:

Hens, 38-42; broilers, 45-60; fryers, 45@50; old roosters, 23@25; young roosters, 45@50.

Ducks, 38@40; geese, 38@40.

Belgian hares, live, 16@17.

Jack Rabbits, 3.00@3.50.

Squabs, 60@65.

LIVE STOCK

Cattle—Grass fed, on foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. alive, 12@12½; 1200 to 1400 lbs., 12@12½; second quality, 11@11½; thin steers, 9@10.

Cows and Heifers—No. 1, 9@10; second quality, 8@9; common to thin, 4@6.

Calves — Light weight, per lb., 11½@12½; medium, 10½@11½; heavy, 8@10.

Sheep—Lb., gross weight: Wethers, unshorn, 11@11½; ewes, unshorn, 8½@9½; lambs, yearlings, 12@12½; milk, 13@14½.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 17½; 150 to 250 lbs., 18; 250 to 300 lbs., 17½; 300 to 400 lbs., 17.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers: Choice, 1050 to 1200 lbs., 12@12½; medium to good, 950 to 1050 lbs., 11@11½; good grass steers, 1000 to 1200 lbs., 11½@12; other steers, 950 and over, 10@11. Cows, 950 lbs. and up, 9½@10; medium to good cows, 8@9; canners, 5@6.

Hogs — Hard. grain fed, well finished, 175 to 250 lbs., 19; 150 to 175 lbs., 18¼; under 150 lbs., 17½; 250 to 300 lbs., 18½; 300 lbs. and up, 18.

POTATOES

Supplies heavy. Demand and movement good, market firm, quality and condition generally good, little change in prices. Sales to jobbers — California Burbanks sacked per 100 lbs., fy. 3.00; U. S. grade No. 1, 2.50@2.75. Oregon Burbanks sacked per 100 lbs., U. S. grade No. 1, 2.35@2.60. Washington and Idaho Netted Gems, 2.25@2.50.

ONIONS

Storage, cwt. .....3.75@4.00
Garlic, lb. .....40@75

VEGETABLES

Wholesale selling price:

Artichokes, doz. .....50@90
Asparagus, lb. .....4@9
Beans, string, L. A. lb. .....40@50
Beets .....2.00@2.25
Brussels Sprouts, lb. .....6@8

Cabbage, Early Flat Dutch, 1.00@1.75.

Carlots: Demand and movement moderate, little change in prices. Quality and condition wide range. Street sales—Early Flat Dutch, bulk per 100 lbs., 1.75@2.75.

Carrots, sk. .....2.25@3.25
Celery, cr. .....4.00@6.00
Cauliflower, doz. .....50@1.00
Cucumbers, hothouse, bx. of 30..3.00@3.50
Egg Plant, lb., local, ...5@10

Lettuce: Supplies liberal. Demand and movement good, quality and condition generally good. Little change in prices. Street sales, Imperial Valley Iceberg in California crates, mostly 4.50. Los Angelees district, Iceberg in California crates, 2.50@2.75.

Mushrooms, bx. .....15@50
Peppers, Southern .....12@15
Peas .....5@9
Pumpkins, sk. .....1.00@1.10
Rhubarb, Strawberry, bx.....1.25@2.00
Strawberry, bx. .....1.75@2.25
Squash—Cream .....90@1.00
Summer, cr. .....2.25@2.75
Spinach, lb .....5@1[illegible]
Tomatoes, Mex., cr. .....3.25@4.50
Turnips, bag .....1.75@2.00

FRESH FRUITS

Wholesale selling price:

Apples: Newtowns, 3.00@3.25; Winesaps, ex. ice, 3.50@4.00.

Bananas .....6½@8
Loquats, lb. .....15@17½
Pears—Winter Nellis .....3.00@4.00
Strawberries, Imperial Valley, cr.3.50@4.00
L. A. .....3.00@3.50

BEANS

Demand and movement moderate, little change in prices. Carloads f. o. b. usual terms, choice recleaned sacked per 100 lbs. Small Whites 6.75; Large Whites season's average 5.75@6.00; Pinks, season's average 5.50@5.60. Red Mexicans, season's average 5.25@5.50. Cranberry beans, demand slow; season's average 4.75@5.10. Black Eyes, seasons average 3.50@3.90.

GRAIN AND FEEDS

Barley: Feed, 2.30@2.35 cental; shipping, 2.45@2.50.

Oats: Red feed, 2.15@2.25 cental; seed, do, 2.50@2.75; recleaned, 3.00@3.10.

Corn: California yellow, 2.20@2.50 cental; Egyptian, 3.00@3.10 for dry and 2.50@3.00 for rain damaged; Milo maize, 2.75@2.85 for dry and 2.30@2.50 for rain damaged.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.62 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58½
No .3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran, 42.00; shorts, 42.00; middlings, 42.00; rolled barley, 48.00@50.00; alfalfa, 32.00@34.00; scratch feed, 3.75 per central.

Bran: 41.00@42.00; shorts, 42.00@43.00; middlings, 50.00@52.00. Rolled barley, 48.00@49.00; alfalfa, 30.00@34.00; scratch feed, 3.50 per cental.

HAY

Under date of April 5 Scott, Magner & Miller says:

Receipts past week 1612 tons. Market is extremely dull. There seems to be somewhat of a scarcity of choice wheat hay in light bales for retail purposes and a few carloads of this quality sold out of all comparison to other grades. The receipts consisted chiefly of the medium and poorer grades which drag along and are placed only with difficulty. There has been some demand for alfalfa from interior points which has caused firm prices to prevail on hay that has not been damaged.

If the present fair weather prevails it is predicted we will have first cutting of alfalfa from the new crop on this market by the end of the present month. Crop conditions are most favorable throughout the hay districts and the present outlook is for large crops.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market for prices to consumers. Charges of cartage, commission and handling expenses must be added according to conditions.

Fancy Wheat Hay (light 5-wire bl.) .....21.00@25.00
No. 1 Wheat or Wheat and Oat Hay .....17.00@19.00
No. 2 Wheat or Wheat and Oat Hay .....13.00@16.00
Choice Tame Oat Hay .....17.00@19.00
Other Tame Oat Hay.....13.00@16.00
Wild Oat Hay .....12.00@15.00
Barley Hay .....12.00@15.00
Alfalfa Hay .....16.00@20.00
Stock Hay .....12.00@14.00
No. 1 Barley straw, bale.....50@80

Citrus Fruit Market

Los Angeles, April 9, 1919.

The orange market is somewhat easier. This is especially notable in auctions. Some sales run as high as $6.00 but the greater bulk are running between $4.00 and $5.00.

The lemon market generally flat, quotations slightly higher. Supply of foreigns somewhat smaller than last year same date.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California, oranges 14,369 cars, lemons 3369, total 17,738; to same date last season, oranges 6823, lemons 1781, total 8604. Central California this season; oranges 3009, lemons 354, total 3363. Last season to same date; oranges 2164, lemons 113, total 2277. Northern California; oranges 244, lemons 2, last year same date 202.

AT THE AUCTIONS

April 2

St. Louis: 8 or. 1 lem. Nav. 3.80-4.80, Val. 5.10-5.60, lem. 3.45-3.50.

April 3

New York: 25 or. 4 lem. Nav. 4.00-5.95, lem. 3.10-3.95.

Boston: 14 or., 3 lem. Nav. 3.10-5.55,

April 4

New York: 13 Nav., 2 mixed, 3 lem. Nav. 3.45-6.00, lem. 3.20-4.25.

St. Louis: 8 or., 1 lem. Nav. 3.60-5.00, Val. 4.45-5.20, lem. 3.60-3.95.

April 7

New York: 34 or., 7 lem. Nav. 4.45-6.65, lem. 3.15-4.20.

Boston: 18 or., 4 lem. Nav. 4.45-6.15, Val. 4.95-5.30, Tang. 4.20-4.55, lem. 2.50-3.55.

April 8

New York: 27 or., 4 lem. Nav. 4.45-6.35, Val. 4.50-5.30, lem. 3.40-4.15.

Boston: 14 or., 2 lem. Nav. 4.45-5.80, lem. 3.10-3.45.

WRITE FOR BULLETIN

The live stock office of the Bureau of Markets now publishes in bulletin form closing market prices for live stock at both Kansas City and Chicago. Any one wishing this bulletin may secure it by writing Bureau of Markets, 501 International Bank Bldg., Los Angeles, California.

WEATHER CONDITIONS

San Francisco, April 5, 1919.

STATIONS	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	1.37	35.38	39.36	58	42
Red Bluff	.09	25.99	21.77	80	50
Sacramnto	.03	17.10	17.34	76	48
San Francisco	.08	25.62	19.84	67	48
San Jose	...	18.80	14.90	74	46
Fresno	...	6.74	8.36	82	46
San Luis Obispo	...	17.81	18.27	80	48
Los Angeles	...	8.22	14.19	72	50
San Diego	...	8.10	8.95	64	52

The Hour of the Tractor



is the Economy of Time

If you do not now own a tractor but do own land, you have thought of buying a tractor some day. See the various makes, kinds, styles and sizes actually at work in the ground.

There is no picture book equal to what you will see at the tractor demonstration by all these various machines plowing, harrowing, cultivating and doing other farm work.

Whatever anybody may have told you, whatever you may have read, or whatever conception you may have acquired about tractors, cannot equal seeing them actually doing the work you want them to do on your farm.

A day, three days, a week, spent at the tractor demonstration may save you hundreds or thousands of dollars in money and weeks or months of misunderstanding should you by any mistake buy the wrong kind of tractor for your particular purpose.

See these tractors in action. Consider your own needs, then purchase the tractor accordingly.

Tractor Demonstration

At Sacramento, California,

May 6-11, 1919

It will pay you to come

California Tractor and Implement Association,

Membership:
77 Tractor and Implement Manufacturers and Dealers

Hotel Land - - - Sacramento.



Take the Case of Milk for Instance

ONE glass may contain pure, sweet and clean milk—the other may be filled with milk that is impure. To all appearances both might contain the same milk.

It's the same with tires—the difference is comparatively slight, to the eye. Yet you can buy Fisk Tires with absolute confidence that you get exactly what you pay for, in mileage, safety and quality.

Why? Because your purchase is backed by the honor and integrity of one of the country's largest manufacturers, whose name has come to stand for quality of the certified Grade A kind. The happy and entirely satisfactory experiences of hundreds of thousands of users of Fisk Tires, in all parts of the world, and under all conceivable road conditions, are that many more reasons for the universal confidence in Fisk.

Fisk Cord Truck Tires fill a long-felt want on the farm. Their great resiliency absorbs the road shocks, keeps the load from shifting and makes faster delivery possible. They make a substantial reduction in fuel and repair bills. The tread is a most important feature—every Fisk Cord Truck Tire is built with the famous Fisk Non-Skid tread, insuring the greatest possible safety and a surer grip of the road for the pull forward. They are the ideal truck tire equipment for the quick, heavy haul.

"There is now a Fisk Tire for every motor vehicle that rolls"



FISK TRUCK TIRES

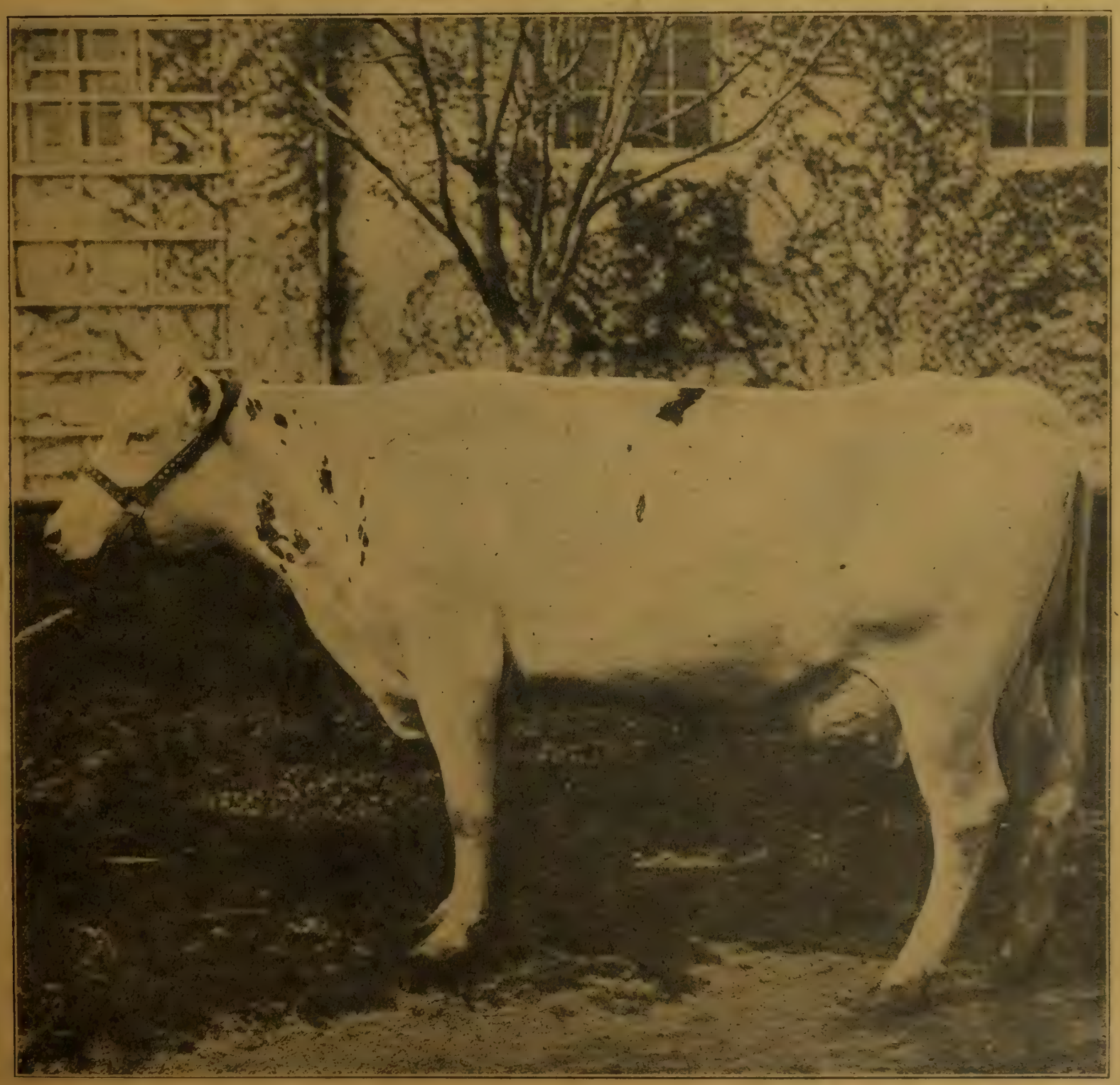
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and LIVESTOCK and DAIRY JOURNAL

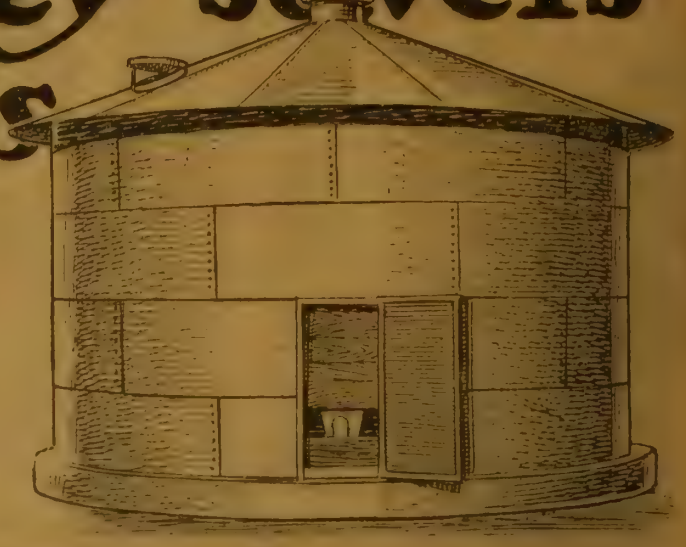
Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. VII — April 19, 1919 — No. 16



California's Highest Priced Cow, King Hengerveld Honriette

Metal money savers for Farmers



Calco Metal Grain Bin

Does away with the costly jute sack for handling grain. Saves loss of grain from rats, gophers, birds, rain, sun and thieves. Built of Armco galvanized rust-resisting iron. Capacities from 600 bushels to 5450 bushels. Strong and durable. Write for the free booklet, "Calco Grain Bins." It tells you how to save money by handling your grain in bulk.



Model 100

Calco Automatic Drainage Gate

A sensitive, reliable, water-tight Cast Iron Drainage Gate, automatically controlled. It will convert your flooded land into fertile fields. Diameters from 8 to 84 inches. Write for price lists.



Model 252

Calco Automatic Hog Watering Fountain

Constant fresh water, without overflow. Connects to water supply pipe—works automatically. Built of Armco galvanized iron and cast iron. Specifications and prices on price list. Write for one.



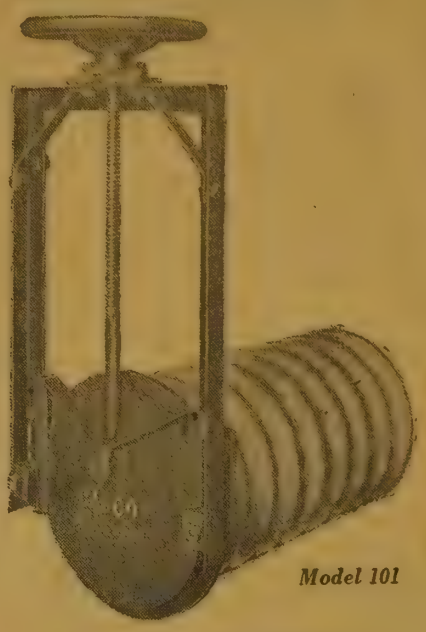
Model 150

Armco Iron Lateral Headgates

Easily operated, durable metal gates—diameters from 8 to 36 inches. Hand or screw lift provided with either type of bulkhead. For heads of water up to 6 feet.



Model 153



Model 101

Calco Slide Headgate

Water-tight, Cast Iron Gate for reservoir or levee work. For use under heads of water up to 20 feet. Diameters from 8 to 72 inches—gate frame any height required.



Model 161

Armco Iron Irrigation Gate

An inexpensive, reliable metal irrigation gate. Diameters from 8 to 15 inches. Furnished with or without bulkhead. Write for price list.



Model 244

Calco Hog Troughs

Calco Hog Troughs help you raise healthy hogs. They are sanitary, strong and durable. Built of Armco galvanized iron with cast iron ends. Lengths from 24 to 120 inches. Get our price list



Model 251

Calco Hog Watering Tank

Gives the same service as the Calco Automatic Watering Fountain, where water must be carried or hauled. Easily moved about for your convenience. Strong, durable, sanitary. Get capacities. weights and prices from our price list.



Model 250

Calco Automatic Grain Feeder

Gives plenty of feed—without waste. Clean and sanitary. Bin of galvanized iron, trough of cast iron. Capacities from 2 to 10 bushels. Write for price list.

We manufacture a complete line of irrigation gates and hog specialties. All gates are supplied with any length of Armco Corrugated pipe, when required.

California Corrugated Culvert Company

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California Cultivator

Vol. LII, No. 16 | Los Angeles, April 19, 1919 | One Dollar Yearly

Shorthorn Sale Establishes New Coast Record

THE second spring sale of Shorthorns held at the University Farm, Davis, April 8, under the auspices of the California Shorthorn Breeders' Association established a new record for the Pacific Coast. Forty-two head—21 bulls and 21 females—sold for $27,660, an average of $658.57, which at the time was the highest average ever registered in a sale of beef cattle on the Coast. Included in the sale was the senior yearling bull, California Model, bred, developed and sold by the University of California for the new Coast record of $5500. This youngster was expected to top the sale, but it had not been ventured just how high he might sell. In establishing this record price, he but lived up to the mark set by his two illustrious near relatives. California Favorite, from the same dam, was grand champion steer at Chicago in 1916, and California Marvel a full brother, was grand champion at Portland in 1917 and champion Shorthorn steer at Chicago in 1918. California Model was sired by Sultan Mayflower by Sultan Stamp by Whitehall Sultan and his dam is Glenbrook's Marvel by Glenbrook Marquis, who was a grandson of Whitehall Sultan. At $5500 he became the property of the Conway Ranch Company of Woodland after a spirited bidding contest between many of the leading breeders of the state and Washington. Edward Adrian of San Francisco, who recently purchased the famous Paicines herd of Shorthorns, in which was produced the dam, was the runner up to the final bid.



Well Fed and Good Natured

They were all present at the great live stock week at Davis. From left to right they are: Col. Ben A. Rhoades, ringman; Prof. Gordon H. True; R. J. Kinzer, secretary of the American Hereford Breeders' Association; Col. Fred Reppert, auctioneer; Howard Tilton, Madrone; Alex. McDonald, University Farm; W. R. Madden, secretary of the Pacific Coast Hereford Breeders' Association; John A. Bunting, Mission San Jose; H. H. Gable, president of the coast organization; Charles Rule, Jenner; W. J. Bemmerly, Woodland.

The top price recorded in the female division was paid by Senator Benj. F. Rush of Suisun for Village Pride 2d, a four year old daughter of Villager Omega and a Queen of Beauty dam, consigned by the London Estate. She sold with a bull calf at foot. Senator Rush, who is one of the veteran Shorthorn breeders of the West, made several selections among the choicer bred females, securing among others London's Secret, a daughter of the International champion, Selection, and out of a Secret dam, at $1300. Day & Rothrock, Spokane, Washington, bought Pine Grove Secret 8th, a Canadian bred cow, by Missie Champion out of a Secret dam and consigned by the London Estate for $1250. Wm. Bond of Newark made a top buy in the junior yearling heifer Ormondale Maid 2d, by Golden Goods Jr., consigned by the Ormondale Company of Redwood City, at $1175. J. R. Boyd, St. Helena, made an exceptionally good selection in the white junior yearling heifer, Lodestone Mayflower, a University bred female, at $1000.

Col. Fred Reppert of Decatur, Indiana, who is one of the best known auctioneers in the United States, sold the cattle and was assisted in the ring by Col. Ord L. Leachman of Sacramento.

The complete list of sales follows:

H. M. Elberg, Woodland

Cows

1. Roan Butterfly, calved Jan. 28, 1918, John Elmo Montgomery, Davis, $375.
3. Roan Beauty, calved Nov. 1, 1917, Ralph Todd, Monterey, $350.
6. Roan Belle, calved Jan. 27, 1918, J. W. Salz, Bloomfield, $300.
9. Roselawn Lassie, calved Feb. 10, 1918, Dr. T. T. Purkett, Willows, $325.
12. Peaceful Lady, calved Mar. 4, 1918, Dr. T. T. Purkett, $350.
16. Roan Mary, calved Sept. 16, 1917, J. W. Salz, $300.



Brought $5500

California Model, senior yearling bull, brother of champions and himself the highest priced bull ever sold on the Pacific Coast. Consigned by University of California and purchased by Conway Ranch, Woodland, for $5500.

18. Roselawn B., calved Aug. 11, 1917, E. W. Wiley, Soledad, $535.
20. Roselawn Flower 2d, calved Nov. 21, 1917, E. W. Wiley, $510.
23. Roan Lassie, calved Jan. 8, 1918, Ormondale Co., Redwood City, $440.

Continued on Page 556

Second Hereford Sale Big Success

ONE of the strongest proofs of the growing demand for better cattle in California was furnished in the sale of Hereford bulls and females held at the University Farm, Davis, April 9, under the auspices of the Pacific Coast Hereford Breeders' Association, when 79 head were cashed for an average of $463. That average does not tell the whole story. This was the second sale of Herefords ever held in California, and one does not need to go back many years to a time when it would have been difficult to sell a third that number at auction in this state. Neither does the average price make plain that at least a third of the offering was presented in just ordinary range condition. Neither does the figure show that there were no extremely high tops—the top price was only $2400. As a matter of fact, the sale was highly successful, and while it afforded many bargains, most of the consignors were pleased at the results as the offering was distributed among many new buyers at values that are most conservative and that will prove a benefit to the breed.

Another feature of the sale was the celerity with which the offering was disposed. It has often been remarked that California auction crowds are most deliberate in placing their bids and as a consequence sales often require unusual time, but buyers at this sale placed their appraisal on the offering in short order and bid with spirit from start to finish.

As noted above, the top price was $2400 at which figure the two year old closely bred Anxiety bull, Brave Lad, consigned by J. H. Cazier & Sons of Wells, Nevada, became the property of S. N. Cowell of San Francisco Cowell was the heaviest individual buyer, taking 16 head.



Mother and Daughter

Beneath, granddaughter of Generous, and heifer calf by Harris Standard 2d. Consigned by J. H. Cazier & Sons, Wells, Nevada, and purchased by John A. Bunting, Mission San Jose, for $1000, the top price of the sale.

John A. Bunting of Mission San Jose paid the top price for a female when he bid $1000 for the good Cazier cow Beneath with a heifer calf at foot by Harris Standard 2d. Bunting also got the junior yearling heifer Sonoma Girl 2d, from the Rule consignment, at $850, and the junior yearling Melba Cook, granddaughter of Cuba's Panama, consigned by W. J. Bemmerly, at $470. Benj. Quigley of Linne selected four of the choicer bulls at conservative prices. G. F. Silliman of Watsonville bought 11 head that will be used as a foundation.

A. R. Cutler of Visalia was a heavy buyer of the thinner bulls.

One of the rare bargains of the sale was the five year old bull, Hopeful Prince 2d, consigned by the University of California and purchased by the University of Idaho for $600. This bull was not only a splendid individual, a prize winner himself, but a sire of proven worth. Because of his age he was handicapped by the buyers. Another bull bargain was the Cazier

Continued on Page 557

Agricultural News Notes of the Pacific Coast

Northern California

Butte County will plant 2000 acres of cotton in 1919.

Some of Alameda County's prune orchards are now selling around $1000 an acre.

Glenn County is fighting for an avenue across the valley from Willows to Oroville.

Siskiyou County farmers have been buying tractors. This is made necessary because of shortage of help.

Eldorado County's farm bureau will conduct its fat stock auction at Placerville, April 25. Brass band music and picnic lunch will be featured.

Rice growers of the Sacramento Valley have been enjoined from draining waste water into irrigation ditches.

Eldorado County farm bureau meetings: High School, Monday, April 21; Union, 22; Summit, 24; Oak Hill, 25; Pleasant Valley, 28.

Messrs. Teagarden and Bean of Mt. Vernon, Placer County, report serious injury to fruit buds because of linnets.

Butte County almond growers successfully smudged orchards in time of frost. Present prospects indicate bumper crop.

Modoc County high school boys have organized agricultural clubs, and they are now working for liberal prizes offered for fat pigs.

Napa County farm bureau meetings: Center at Soda Canyon, April 19; Chiles Valley, 22; Union, 23; Rutherford, 24; Pope Valley, 25; Mt. George, 26.

Paradise, Butte County, has been making a strenuous fight against pear blight, and County Commissioner Mills reports practically all blight cleaned up.

Sacramento County's cow testing association's high herd for the month of February is that of A. E. Greene with an average monthly fat of 49.5, 20 cows in a herd.

The Sacramento County farm bureau auction sales makes a charge to each consignor of ten per cent on the first hundred dollars and five per cent on balance of sale.

Glenn County farm bureau meetings: Center at Plaza, Friday, April 18; Willows, 21; Elk Creek, 23; Grapevine, 23; Larkin, 25; directors meeting at Willows, 26.

Alameda district peas are unfavorably affected by cold spring weather and from the earlier pickings there were practically no fancys secured. Later bloom is developing satisfactorily and higher quality shipments will soon be going.

The General Motors Corporation has announced that it will move its Pacific Coast branch to Sacramento. We are not informed whether the Stockton branch which was formerly known as the Samson Sieve-Grip Tractor Company, will maintain its shops there or not.

Glenn County rice growers have asked the state railway commission as to whether water for irrigation of rice lands is vested in land owner or in the land itself. The real question at issue is as to whether the land owner can transfer his water from parcel to parcel and not lose the water right to the original parcel after resting his land.

Central California

Raisin Day April 30.

Terra Bella, Tulare County, has begun its season's irrigation.

Tulare County's olive orchards are proving among her most profitable.

Tulare is hoping for the early location of a large milk condensing plant.

Tulare is discussing live stock and agricultural fair to be held next fall.

Fred Ross of Kings County recently lost his $2000 champion Poland-China boar.

Turlock, Stanislaus County, is to have a $60,000 plant for canning sweet potatoes.

Watsonville, Santa Cruz County, fishermen are now catching three whales a day.

San Joaquin Valley farmers are generally in favor of a large state good roads bond issue.

The Tulare Live Stock Association is building a cattle barn which will accommodate 120 head.

One grower of Calimyrna figs in Fresno County received a return of $50.000 from 40 acres.

A large apiary has been established by the Western Bee Farms Corporation in Santa Cruz County.

Richgrove, Tulare County, plans the construction of a packing house to be ready for next fall's citrus pack.

Farm bureau at Ducor, Tulare County, is considering the organization of a citrus grokers marketing association.

At the farm bureau fat hog auction at Tegner, Merced County, two and a half cars were sold bringing a total of $7237.

The Bomberger dairy auction resulted in good grade milch cows selling as high as $175 and registered Berkshires $110.

Merced County farm bureau meetings: Center at Livingston, April 21; El Nido, 23; Eschscholtzia, 25; Merced Colony, 28; directors meeting, 20.

The Kern Delta irrigation district directors recently met at Bakersfield with farm bureau members and discussed formation of irrigation district.

Fresno pear growers have found winter pears grown in that section exceptionally profitable. They are to a large degree immune from blight in that section.

Bean growers of Stanislaus County are canvassing the bean storage situation and reporting to the bean pool, which has established headquarters at San Francisco.

Fresno reports Raisin Day celebration preparations as nearly perfected; liberal awards will be made for floats and features of the parade which will be held in Fresno City.

The Tulare County Duroc-Jersey Hog Breeders Association has been formed and recently held a meeting and banquet addressed by one of the larger Duroc breeders of the Middle West.

Late rains seriously injured the apricot bloom which was fully opened at time of the storm in Santa Clara Valley. In the warmer foothill sections where buds were fully out there may be almost 100 per cent loss.

The 1919 Kings County fair is to be a hummer according to the resolution of the board of directors at its recent meeting. The dates fixed are September 21-27. Mark Bassett is president of the board of directors and Frank C. Russell is secretary.

Southern California

Riverside County farm bureau membership is 1768.

The new bean pool sold 215 cars of beans in three days last week.

The first planting of Lima beans in Ventura County was on April 10.

A marmalade factory is being built at Sierra Madre, Los Angeles County.

The Coachella Valley, Riverside County, has finished its date harvest.

Weather conditions have been favorable to a serious attack of brown rot.

Southern California lemon storage houses now contain over 2300 carloads of fruit.

Live stock shipments out of the Imperial Valley are showing material increase.

The Citrus Protective League is appealing for revision of freight rates on citrus fruits.

Sales of the lemon property known as the Leffingwell Ranch began on Saturday, the 12th.

Owners of young orange orchards are planning for intercropping so far as possible this year.

Orange County expects to produce two and a half million dollars worth of walnuts this year.

Government Expert Luce is informing Imperial Valley people as to feeding and marketing of poultry.

Imperial Valley asparagus is still selling at 15 to 20 cents a pound in the Los Angeles retail market.

Game wardens have installed a fish ladder in the Sespe Creek at the intake of the Fillmore Irrigation Company's dam.

Imperial Valley's castor bean crop aggregated 68,892 pounds. Government inspector pronounced beans of exceptionally fine quality.

The Alfalfa Growers of California now has a membership of 1250 and an acreage of 43,000. It has members in every alfalfa district of the state.

Bean growers are perfecting their pool and have made a number of sales at prices which will lessen the loss, but which will not cover cost of production.

The San Dimas marmalade plant is now putting up 18,000 pounds of marmalade every day. The plant at Anaheim, Orange County, will soon reach similar capacity.

Imperial Valley is growing a new fodder plant which it calls hegari. The fodder is said to be more satisfactory than milo and the grain more satisfactory than feterita.

California is now growing around 4000 acres of strawberries, a slight increase over the acreage of last year. One thousand of these acres are in Los Angeles County.

Riverside is to have another big cannery, strictly modern and up to date and with capacity for 4000 tons fruit per season. Apricots will be the principal fruit canned.

The San Dimas Lemon Association still has over 200 cars of high grade lemons stored for early summer shipment. The total shipment for the year will total around 1750 cars.

The lettuce shipping season for most of Southern California points has been closed. The Imperial Valley shipped nearly 900 carloads, sent to nearly every state in the Union.

The Coast and General

Utah's winter wheat and range grass are taking on wonderful growth under favorable seasonal conditions.

Eastern quail, known as Bob Whites, have been introduced into several parts of Arizona by the state game warden.

Idaho: Fall grain and fruit wintered well, much spraying and pruning of fruit trees done, buds swelling in all sections, apricots in full bloom.

Nevada reports for the season: Snowfall moderate, water content normal, much plowing done. Alfalfa and spring wheat both growing fine.

The bureau of markets reports Arizona's and California's truck crops as generally in excellent condition with asparagus and peas going forward in large quantities.

The Hay Congress for Arizona met in Phoenix, April 7. A banquet consisting of such viands as alfalfa coffee, alfalfa muffins and other articles of food made of alfalfa, was one of the features.

In spite of the high cost of building material and the anticipated reduction of these costs, building permits for Phoenix, Arizona, were larger in the month of March, 1919, than in the month of March, 1918.

Convicts who have been used in road work throughout Arizona have been returned to the state penitentary and free white labor will be employed in their place until labor conditions will warrant again using convicts.

The receipts of the Arizona state land office for February were $60,000 and for March, approximately $100,000. This revenue is largely from lands that are leased for grazing purposes and for mining and oil development.

Maricopa County, Arizona, will soon vote on a proposition to bond the county for $4,000,000 for the building of hard surfaced roads covering the most important sections of the county. The roads proposed are to total 272½ miles.

The value of farm lands in Canada, both improved and unimproved, with all dwellings and improvements averages $46 per acre. This is as compared with 1917, $44; 1916, $41; 1915, $40, and $1814, $38. British Columbia shows the highestvaluation, $149.

A number of Eastern mills are now trying out American long staple cotton grown in Arizona, and it is reported that several are likely to use it in place of the Sea Island cotton. The last quotations are 55 and 57 cents for first grade Pima and 53 and 54 for fancy Sea Island.

Plans for the proposed bridge across the Colorado at Parker, Arizona, are being completed, and now that the Arizona legislature has appropriated one-third of the cost it is expected that by cooperative agreement between the state of California and the office of federal roads that the bridge will be constructed.

Snow continued to fall in the White Mountains of Arizona up until the last week of March and is reported to be about three feet deep on the average. At an elevation of 9000 feet higher in the mountains, it is still deeper and of course, drifted in many places. High waters in the Black and White Rivers are expected when this snow melts.

Rhode Island Whites

By M. E. Bemis,
Secretary R. I. White Club of America



A Rhode Island
A fine specimen of Rose Comb Rhode Island White Cockerel.

SINCE the publication of the 1919 officials of the Rhode Island White Club in the Cultivator a few weeks ago, I have received several inquiries from California people, asking about the breed which is so many a new one. No doubt readers of the Cultivator who have followed closely the reports of the leading egg laying contests have noticed that the R. I. Whites are usually close to the top in these reports. Reasoning from the evident interest in the breed, I presume that a brief description, together with the history and some of the achievements may be of interest to a goodly number of Cultivator readers.

In January 1888 Alonzo Jacoy of Rhode Island was in the business of producing broilers and used largely Cochins for his producing stock. At this time he picked up two good White Wyandotte cockerels and mated with some of his Cochin females. A few pullets were rather accidentally retained and began laying so early that Mr. Jacoy decided to keep them. They were mated with Cochin males. A few pullets from this mating were kept and proved also remarkable layers, and believing that he had the foundation for a worth while breed, he decided to mate these pullets with a Rose Comb White Leghorn. The resulting progeny were the foundation of the Rhode Island Whites—not a mongrel breed, not a mutation or sport, and not as some have insinuated the culls from White Wyandottes or White Rocks.

The breed as it stands today is the product of a carefully studied blending of well known breeds; not an accident but planned for a purpose, to produce a rapid maturing bird for market and heavy layer, especially in winter. Their blood lines carry three-eighths Cochin; one-eighth White Wyandotte and one-half Rose Comb White Leghorn. In size and shape they resemble the R. I. Reds. They are bred in both single and double or rose comb, and the number of breeders is gradually extending each season. As they originated in 1888, the special matings used to complete the breed being ended in 1890, it will seem that the breed is by no means "new."

The breed has never been boomed. Their entrance into the favor of the poultry public has, like that of the R. I. Reds, been steady, and now breeders may be found in nearly every state in the Union and in Canada and Australia, possibly in other countries.

Breeders of R. I. Whites are not attempting to belittle the merits of any other breed, simply claiming for them quick maturity, excellence as table fowls, splendid laying quality, with the added advantage of pure white plumage. In the show room they attract attention and the admiration of not only practical poultry folk but of poultry fanciers. At the California Poultry Breeders Association Show held in Los Angeles, January 8 to 14, there were 66 R. I. Whites on exhibition, nearly half as many birds as were exhibited by the R. I. Red breeders.

In the egg laying contests the Whites, as we are in the habit of calling them, are making some splendid records; to mention just a few: At the Seventh National Contest at Mountain Grove, Missouri, a pen of R. I. Whites finished second with an average of 245 eggs each. On straight awards at the All Northwest Contest last year R. I. Whites ranked third in pens with an average of 238 eggs each. A R. I. White hen was third in individual production with a record of 280 eggs, but two R. I. Whites-that were trapnested as alternates in one of the pens laid 291 and 282 eggs respectively. The average of all birds in the contest was 171.08 eggs each; the average of the R. I. Whites in the contest was 225.17 eggs each, the best average made by any breed.

Among the records made by the breed so far this season I glean the following facts: At the All Northwest Contest the highest average production for February was made by the R. I. Whites with 19.3 for each bird. Mrs. Koethen in the Cultivator of March 22 comments on the difference between the cost of feeding Leghorns and the other breeds. The cost for February is somewhat less, the feed for Leghorns costing 26.6 and that for the Whites, 31.8. The Leghorns returned 32 cents above feed cost and the Whites 38.8. I am glad that she called attention to this matter of costs for it is a vital one. I presume that five cents a month would just about represent the difference in cost of a White over a Leghorn. This would amount to about 60 cents for the year. We have seen that the average of Whites at this contest last year was higher than for any other breed. If this holds true with the majority of flocks, and I have no reason to doubt that it does, then the only question is whether the advantage of heavier fryers and heavier hens for the market is worth the extra 60 cents a year that it costs to feed a White. Since we must raise some cockerels and some cull pullets in order to raise the necessary pullets to keep up the flock, and must discard some of the old layers, the question of having a bird that brings considerably more on the market is worth considering. At this (the All Northwest) contest for February a R. I. White laid 27 eggs, the highest number laid by any hen during the 28 days of the month; another White tied for third place with 25 eggs. There are 20 birds in the contest that from November 5 to February 28 have laid 84 eggs or more each and two Whites have laid 93 and 86 eggs respectively.

At the egg laying contest, Texas Agricultural College, the average of all pens of five birds each for the month, February 7 to March 6, was 58¼, the average of R. I. White pens in contest was 84. At Storrs, Connecticut, contest the average production of all birds up to March 20 was 26.4, the average of R. I. Whites was 30.4. Those who follow the published reports of this contest notice that the Whites are mentioned nearly every week, in some way, though it is hardly to be expected that among 500 White Leghorns, the 20 R. I. Whites are likely to rank first.



Proving Great Producers
The Rhode Island has proved an attractive American breed. Typical S. C. R. I. White hen.

R. I. Whites started off first at the National Egg Laying Contest at Mountain Grove, Missouri. The November record was 106 eggs for one pen. Only three hens in the contest laid 25 eggs or more and two of these were Whites. For December the Whites laid the highest average for the month, 18.55, the average for all birds in the contest being 12.54. I haven't the figures for January, but the average for February was 18.04 eggs for each bird in the contest and for the Whites 19.15. The leading pen for the four months is the pen of R. I. Whites with a record of 433 eggs, a pen of Buff Orpingtons is second with 416 eggs and another pen of Whites is third with 376 eggs. Of 13 hens that laid 25 or more eggs in the 28 days of February, three were Whites.

The above do not represent all the achievements of the breed by any means, but serve I think to prove that the Whites as a breed have merit. I am making no prophecies as to the future of the breed, but will leave that to the reader's own conclusion.

Breeders of R. I. Whites do not advertise much—they say they don't have to, that the birds sell on their own merits. There are many breeders though, a good number in California. I believe it would pay them to ask more for stock and eggs and advertise more. I am not a poultry fancier, and have no stock or eggs to sell. I keep chickens to furnish the table—and I keep R. I. Whites.

Turkeys From the Shell to the Table

By Mrs. E. G. Anderson

RAISING turkeys is not easy work nor is it apt to be a profitable undertaking unless they can be grown in a locality where grasshoppers and bugs abound or near an alfalfa field, to reduce the cost of food.

The larger range you have the better. If you have a good range, with plenty of green feed, the young turkeys will not require extra feed, after they are three weeks old until time to market them, when they should be fed on corn for two weeks, to fatten and harden the flesh.

Select large, thrifty birds that have not been inbred to breed from. Those hatched in February are preferable, as they are usually stronger and larger than those hatched later in the sea-

I prefer White Holland turkeys where the range is limited, as they stand confinement better than other varieties, and when dressed for market there are no dark spots where the pin feathers have been drawn, as is the case in birds of dark plumage.



A Bunch of White Hollands
The White Holland turkey is not so generally grown as the Bronze but proves a most profitable bird, and California conditions are entirely favorable for it.

The White Holland turkey is a snowy white bird, often weighing from 18 to 20 pounds when eight or nine months old, and from 26 to 30 pounds when a year old.

The tom turkey is apt to be a little quarrelsome, but if he comes after you in a very belligerent manner, remember that he, like all cowards, is only bluffing; face him and he will run.

House your turkeys, allowing them fresh air, without being in a draft. Feed grain and plenty of grit. If liver trouble develops the turkey will sit around and refuse to eat. The head will become pale, the droopings will be watery, and white in color. Sometimes the bird will limp on the right leg. For this trouble, give a liver pill for two successive days, followed each time by a teaspoon of castor oil. Al-

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Established 1877 Forty-first Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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Saturday, April 19, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The highest priced cow yet sold in California has her photograph on the cover of this issue. Her name is King Hengerveld Honriette. She was consigned to the history making Guaranty Sale held recently at Sacramento at which the prices not only made state records but Coast records. This particular cow was consigned by the Morrises and was purchased for $4000 by E. M. Barry, Jr., of Daggett. This cow has a record of over 30 pounds butter as a senior four year old. The number of dairy cows in California may be decreasing but the high quality of those that are left means ultimately greater production.

TRACTOR DEMONSTRATION

Arrangements are practically completed for the great Sacramento tractor demonstration. Manager O'Neil writes of details being considered which show preparation for a great event. Tractor farming in particular and the use of implements and power on the farm generally will be advanced by this great demonstration.

PHOEBE APPERSON HEARST

One of California's pioneers and most noble of women, Phoebe Apperson Hearst, has passed. She was the widow of the late Senator Hearst, one of California's earliest pioneers and a great factor in the upbuilding and betterment of California. In her passing our state university and other educational and uplifting institutions have lost their best friend.

CHERRIES RIPE

Millard Sharpe of Vacaville writing to the Cultivator under date of April 12 says. "I now have cherries ripe on my ranch." "Back East" they are still wondering as to whether the early bloom of their cherries will be caught by the late frost.

DAIRY COUNCIL

One of the most recent of organizations formed in the hope of benefiting the dairy industry is the California Dairy Council, organized in February and now maintaining permanent offices at 268 Market Street, San Francisco. Its secretary and manager, S. H. Greene, is now engaged in extending the influence of this organization and addressed a number of the larger dairymen and milk handlers and milk distributors in Los Angeles in the produce exchange of that city. This organization has nothing to do with marketing of dairy products but more with the larger affairs of the industry such as legislation and an educational campaign which shall place before all the people facts showing the necessity for liberal support of the dairy industry, also facts showing the importance of milk products in developing a virile, efficient people. This may be accomplished in part through direct display advertising or in part through distribution of McCullom's book which shows the influence for ill of a diet in which dairy products are not a liberal portion. Especially does the association make it its duty to inform the public concerning homogenized or synthetic milk or milk from which 60 or 70 cent butterfat has been extracted and into which to replace the butterfat has been incorporated 15 cent cocoanut oil. The propaganda for the extended use of this "pure vegetable oil" has been most insistent, and while the makers of the product have taken a name in no way indicating that it is a milk counterfeit, neither calling attention to it as a baby food, yet owing to the greater profit to the retailer it is left to him to see that it is introduced to all the homes possible.

DO IT NOW

It is believed that the peace conference will have the terms of peace ready for signatures before the 25th of April. This day has seemed long in coming, especially to mothers and fathers whose boys are still over there, but the boys are coming home more rapidly than ever, and it seems with the nearing of the end of the discussion that a basis which is fairly satisfactory to all the allies has been found. It can hardly prove entirely satisfactory to central powers as it seems they are still maintaining the position of the injured innocents, but so far as announcements have been made of the terms, it seems that even Germany should be entirely content because she is to be called upon to pay an infinitely small proportion of the real damage of the war.

But with American business people, including the farmers, the question still arises how soon will the affairs of the world return to normal conditions. If by "normal" reference is made to conditions as they were before 1919, the best thinkers seem to feel that such a normal condition can never be restored. "Everything must be on a higher cost basis" and with railway employes' wages still advancing it appears that there is some reason for such a claim, but there must ultimately be some shrinking or reduction of prices according to many, and this feeling has been the cause of much hesitancy in large business transactions, but as peace approaches this hesitancy is disappearing.

The farmer who has real need for a tractor or labor saving implements or a new barn or residence should not indefinitely delay the meeting of those needs. The loss from the delay may be far more than the small amount, if any, which may be gained.

The farmer who sells his products as soon as they are ready for the market, the farmer who does things when they need to be done, is generally the most successful.

A bushel of wheat today will buy a much larger proportion of a tractor than it would four years ago. Nearly every other farm product is likewise higher in proportion. If a $2000 tractor may be purchased a year from today for $100 or even $500 less than the same tractor is being purchased today it is probable that the bushel of wheat and other farm products will show an even greater proportionate reduction. For those who are figuring on price reduction must figure on greatest reduction in staple foods, for this is where the strongest attack will be made.

In any case the work that needs to be done, needs to be done. Do it now.

FIRST CROP REPORT

The Cultivator is sending out this week to practically every fruit producing section of the state requests as to condition of fruit trees and outlook so far as may be judged this early for the coming season's crop. It is too early in the season for any very definite estimates but such will be the case for many weeks yet, as we are reminded by the estimates of the last orange crop. Some made investigations of the past season's orange crop as early as June of 1918. Others, and supposedly more careful, delayed making any definite estimate of the season's crop until harvesting was well started, in fact early in January 1919. After these more careful estimates were made a streak of cold made more material changes in those late date prophecies. True, the shorter the time the fewer the emergencies, but meantime contracts are being made.

Everyone having goods to market is benefited by even these early estimates from various sections, so the Cultivator asks every grower of apricots, almonds, apples, cherries, peaches, prunes, pears, or even grapes and smaller fruit, to join other Cultivator readers during the next few weeks and give estimates of crop production and probable output.

NEVER DEFAULTS

"Agriculture taken as a whole is the one unfailing vocation of man because it is a process of nature aided by man's endeavor, and nature never defaults or goes into bankruptcy. Panics may disrupt commerce and popular uprisings may destroy governments, but the earth never fails to produce."

Perhaps, but there is an occasional farmer who looks at the dry season or the cold snap or the grasshopper and remarks: "But sometimes it's done." In fact, he is something like the friend of Charles Dudley Warner who, after Warner had enthusiastically proclaimed: "Blessed be agriculture," remarked: "If you don't get too much of it."

Agriculture is the foundation of practically all manufacturing and all commerce and it should be understood, not overrated.

SWINE BREEDERS HOLD SUCCESSFUL MEETING

ONE of the most successful meetings ever held by the California Swine Breeders' Association was held at the University Farm, Davis, April 10. The meeting convened at 10 o'clock a. m. but before noon it was evident that the afternoon session would require a larger room. In this respect the swine breeders had the same experience as the Shorthorn and Hereford breeders at their sales—the attendance in each case exceeding all expectations.

Dean H. E. Van Norman welcomed the members of the association and after briefly commenting on the work of the University Farm, extended an invitation to the association to make the farm their annual meeting place.

Professor Gordon H. True, head of the animal husbandry division, discussed some of the larger problems of live stock production and pointed out the opportunity that faced the California breeder. True stated that he frankly believed that the natural resources and conditions obtaining in this state were such as to indicate that, if the most was made of the opportunity, California would become a powerful factor in the pure bred live stock world.

In citing instances on which he based his belief True referred to a few of the well known examples of Pacific Coast accomplishment. He recalled the wonderful showing made at the St. Louis World's Fair by Shorthorns exhibited by the Ladd Estate of Washington, the splendid record of the John L. Smith Holsteins at the National Dairy Show. He also referred to the success the University of California had registered at the 1916 and 1918 Internationals, the record of Bullard Bros. sheep at Salt Lake last year, the wonderful dairy production records made in Coast herds, particularly the fact the highest Holstein and Jersey records were now held by Coast cows, the former by California's great cow, Tilly Alcartra, and the latter by the Oregon cow Vive la France. He also recounted the fact that Day & Rothrock of Spokane had the champion Shorthorn bull at the recent Shorthorn Congress Show and sale. In closing, True reminded the breeders that the fact that a Shorthorn bull bred and developed in this state sold for the new Coast record of $5500 was but added proof of what could be done, but he cautioned the breeders that whatever success attended the pure bred live stock business would be dependent upon confidence, integrity and clean methods.

President C. B. Cunningham told of the work the association had accomplished during the past year and outlined the work that should be undertaken this year. Cunningham stated that the time was here when the hog producers needed a big strong organization that could represent their interests with a force, and he pleaded for more active cooperation from the members.

Roy M. Filcher of Corcoran, who has been responsible for much of the success of the various hog marketing associations in the lower San Joaquin, told of the development of the auction plan of selling finished hogs. Filcher stated that the plan had resulted in the producers securing uniformly better prices and had also served to stimulate the production of better hogs. He said that at the present time the California Farm Bureau Marketing Association was holding three sales a week in the San Joaquin Valley, and that during January they marketed $160.000 worth of hogs, and in February $185.000. Filcher declared that a $2,000.000 business was contemplated for 1919.

F. L. Washburn, president of the Western Meat Company, spoke from the packers' side. Washburn stated that the packing interests realized that there must be a closer understanding developed between the producer and the packer and pointed out that the interests of one were dependent on the other. He stated that he had about reached the conclusion that union stock yards at the principal killing centers were needed and would go far toward bringing about a more satisfactory marketing system. He called attention to the recent action of Eastern producers and packers to estab-

Continued on Page 549

Codling Moth Control

STATE Horticultural Commissioner Hecke is sending out the following hints to apple and pear growers regarding control of that pest of apple and pear trees, the codling moth:

Wormy apples and pears cannot be sold legally, except for by-product uses. No grower therefore should allow the codling moth pest to multiply in his orchard. The codling moth can be controlled and heavy losses can be prevented by spraying at the right time, with the right material and in the right way. Observance of the following points will bring about the desired results: Drench the trees with arsenate of lead spray as the petals are falling. In the case of apples, the first application must be made before the calyx lobes have closed, thus preventing the placing of poison in the little cups on the end of the apple. Closing usually takes place within one week or ten days at most, after the blossoms have dropped. Most varieties of pears have open calyces and the same haste is not necessary as in the case of the apple. If spraying is neglected at this time, no amount of spraying later can be made to give anything like as good results.

If the codling moth is a serious pest and occurs in great abundance, more than one application will be necessary. As a rule, three will suffice. The second should be applied from two to three weeks after the first, and the third about nine weeks after the first. In orchards where the infestation is exceptionally bad, still other applications may be necessary.

There are two forms of arsenate of lead, namely a paste and a powdered form. The paste form should be used at the strength of from four to five pounds to one hundred gallons of water when used in making the first application and six pounds to one hundred gallons of water for the second, third and later applications. If powdered arsenate of lead is used, just one-half of the amount of material is necessary, or two to two and one-half pounds to one hundred gallons of water for calyx application and three pounds to one hundred gallons of water for the second, third and later applications.

Spraying at the right time, with the right material and with proper equipment will not be effective unless the work is done thoroughly. Examine the calyx cups when making first application and see if the spray is being placed in 99 per cent of them. It will be surprising how carefully the spray man must operate, if he is to attain a high degree of efficiency. The small fruits point in every direction and, in order to treat all of the calyx cups, the spray must be directed from a great many different angles. If there is any tendency to economize in spraying, it should never be done by sparing the liquid. Four pounds of paste lead arsenate to one hundred gallons of water will do as well for the calyx application as double this amount, which is often used. Reduce the amount of lead arsenate to the minimum, but do not spare the liquid which is applied to the trees and results will be satisfactory.

Culture of the Date

The United States department of agriculture is issuing a 24 page bulletin, "Propagation and Culture of the Date Palm." It is written by Bruce Drummond, Assistant in Arboriculture, Crop Physiology and Breeding Investigations, and well known to Californians because of his thorough study of the date palm and the practical help which he has given to date growers.

This bulletin is intended to furnish growers with definite instructions for the rooting of date offshoots and for their subsequent care in the orchard.

The only thoroughly satisfactory method yet devised for rooting young date offshoots consists in the use of a heavily manured nursery bed covered by a frame or shed so constructed as to give maximum heat and humidity. Water must be applied in ample and regular quantities.

Frequent irrigation and the maintenance of a high degree of soil fertility by the use of manure, mulches, and cover crops are essential to healthy growth and to the production of fruit in paying quantities.

First class dates suitable for market can be produced only on soils in a high condition of fertility and tilth. This condition is most readily maintained on a well drained sandy loam. Heavy soils need special attention to insure the proper penetration of the roots and distribution of water.

Localities where the settling of cold air causes the formation of dew during the ripening period may prove fatal to the more susceptible varieties of fruit.

The pruning of bearing palms should consist merely in the removal of old leaves, up to the fruit stems of the former crop.

Young palms should not be allowed to produce heavy crops of fruit, as this would be done at the expense of offshoot growth.

At the present stage of the industry the production of offshoots of proved varieties is of paramount importance.

Farm Accounting Taught in One-Day Extension Schools

An effective one-day farm-management extension plan has been developed in the corn belt. The farm advisers advertise this work by requesting the men who wish to register for the day to write them immediately. The attendance for any single day is restricted to less than 30 men. The men are kept busy reviewing their farm business records for five or six hours. Those who register come for the purpose of getting all they can from the work. The day's work includes:

A discussion of the principles of farm management and farm accounting to indicate what the day's work will cover; then each man is given a blank account book. A typical record is given to be worked out by the same steps a man must take in keeping a record. The first step is to enter the inventory at the beginning of the year; the next, to enter all cash expenses and receipts. Usual errors found in farm bookkeeping are illustrated, and entries made to show how they may be corrected. The inventory is later entered for the end of the year, taking into account the methods of handling depreciations. The farm account is summarized. The taxable income is determined. The farm account is analyzed to show at what points the organization of the farm can be strengthened. The leader devotes considerable time to an analysis of the farm business and the value of farm records and of cost accounting. Finally each man is assisted in starting his own record book for the new year.

There is evidence that farmers in this area are beginning to appreciate the value of a farm record. Several farmers in Minnesota have written to the extension department commenting upon the work for the past year. The following is a typical letter:

"I got an account book at the short course two years ago and am surprised to find out how much a farmer can learn about his own business by keeping such a simple and easy system of records."

D. A. Gilchrist, representing the United States geological survey, will poison prairie dogs over about a million Arizona acres during this month.

The banks of the Salt River Valley of Arizona have increased their resources more than $3,000,000 since December 31.

Sacramento

Tractor Demonstration May 6 to 11, 1919

Bring the Wife!

Do you realize what a tractor on the farm means to the wife?

It means saving her drudgery. It means fewer men to cook for, shorter hours, less household care.

It means more freedom to give to her children, more time to enjoy life, more relaxation.

To you the tractor on the farm means economy of money, time and effort. It means plowing and cultivating when the soil is in the right condition.

It means solving the labor problem. It means fewer chores, because one tractor saves many horses.

Bring the Wife!

She will be interested in seeing the half a hundred tractors of all makes actually doing the same work they would do on your farm.

There will be many thousands of men, and hundreds who will bring their wives to see the great

Tractor Demonstration

Sacramento, May 6-11, 1919

Free Admission. Free Auto Parking. Free Camping Grounds Nearby. Excellent Restaurant Fully Equipped.

Additional Information Upon Request

California Tractor and Implement Association

Membership: 77 Tractor and Implement Manufacturers and Dealers

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With the Return of
Peace and Prosperity
Plant
Teague Quality
Citrus Trees

With the present demand for food stuffs, the return of peace and normal economic conditions there will be a growing demand for all orchard crops and a corresponding larger demand for nursery trees. Already this return is finding expression in an increased demand for Teague Quality Citrus trees, which leads us to advise intending planters to book their orders early, as the available supply of really good, bud-selected (pedigreed) trees is rather limited. For this reason we invite correspondence. Prices cheerfully furnished.

The R. M. Teague Citrus Nurseries
San Dimas, California
FOUNDED IN 1889



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All loans made on an amortization plan whereby the borrower repays the principal gradually with each interest payment.
Over three thousand satisfied borrowers in this district.
It will pay you to investigate.
For information apply to the nearest NATIONAL FARM LOAN ASSOCIATION or write direct to
Federal Land Bank of Berkeley
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Control of Wild Morning Glory

By Geo. P. Gray

The early rains of last month followed by warm weather has created a situation in some sections of the state which may prevent the successful application of the spray method for the control of wild morning glory this season. Examination of the condition of the weed has recently been made in sections where the rainfall was five to six inches early in September. Here the rest period of the plant had been broken and the vines are now actively growing. The conditions are much the same as commonly occur in the spring, when the arsenical spray has been found to be ineffective in destroying the roots more than an inch or so below the surface of the ground.

These conditions have not been e countered before in the experiment work and it is impossible to predi whether or not the plants will aga become dormant so that the spra may be effectively applied before t vines have been killed by the frost or before the land has to be plowe First ascertain whether or not t morning glory vines are growing, are dormant. If found to be growin it is thought best not to spray.

It is strongly emphasized that t successful application of the arsenic spray is intimately associated wi the rest period of the wild mornin glory and appears to be dependen upon damp weather during and aft the application.

Trapping Insects With Light

Reviewing the work of Norman Griddle with light traps, A. A. Brock, county horticultural commissioner of Ventura, furnishes the following interesting note concerning similar operations in his county as reported in State Commissioner Hecke's News Letter:

"I remember last summer a Santa Paula man followed up the work at Camarillo and was very much pleased with the results. He put out light traps and kept them going for several nights, but the catches were very small till one morning a heavy fog came in. He was up that morning about four o'clock as he had planned to go away on a vacation trip. On this morning the catch was so great that he decided to postpone his trip. You understand that during the summer months we have these heavy fogs almost nightly. They drift in from the ocean and last till the middle of the forenoon and sometimes longer. So this may account for the number of moths captured by these light traps.

As to the percentage of male and f male captured, I have no check, but believe Mr. Campbell of the Unite States department of agriculture Alhambra made some counts of th moths captured at Camarillo. I a sure there is some very valuable i formation to be had of the number gravid females captured with thes light traps. I, of course, have onl followed the work from a practic standpoint and it seems that the were captured in such numbers as benefit the producer."

In connection with the foregoing, is recalled that Geo. P. Weldon r ports "catches" of as many as 70 moths in a single night at Oxnard wit acetylene light traps. These wer identified by J. E. Graf as largely bein the common cutworm moth, Peridr ma saucia Hubn.

The traps in question were inge ious affairs, the light occupying a pos tion in the raised center of a circul pan containing oil. The abdomens many of the trapped females were di tended with eggs.

Successful Orange Growers Fertiliz Liberally

"The question of fertilization of citrus groves," says J. L. Matthews in the Covina Argus, "is one of vital import to the growers of the state, as there is no fruit tree that gives better returns for liberal fertilization than the orange and the lemon. The rancher must squarely face the fact. If he does not fertilize and fumigate his orchard he cannot grow citrus fruits at a profit.

"The idea that California soils are virgin, of inexhaustible fertility, might be good real estate talk, but not safe to bank on in making oranges pay. The nature of the citrus tree seems to be to overfeed itself in the surrounding soils for a few years when first planted. Especially is this true when there is plenty of expanding room for new roots. After this brief period the tree practically stands still if not fertilized, and its fruit is all of small sizes.

"All record breaking returns of heavy crops have been made on well fertilized orchards. There are many cases where old trees ceased to bear fruit after going a few years without fertilizer. This is more nearly true of old trees than of young trees, and as the orchards grow older they need more fertilizer each year.

"There are some remarkable examples in this valley of good returns from various systems of fertilizing, many of which would pay growers to investigate and put into practice.

"There are within a few miles of Covina some of the most productive orchards in the state of California, due principally to consistent, regular and systematic fertilization and fumigation, covering a period of years. It would be well to watch from year to year the yield and tree conditions in some of the best orchards. A good demonstration is worth a whole lot of theory. On the other hand, there are many orchards that are giving unnecessarily low returns for lack of fertilization or incomplete systems employed.

"Interest and taxes on a valuation of $3000 per acre means that it costing somebody about $4 per tr each year to keep a tree standing idl On the other hand, trees that ar properly fertilized and annually fum gated will net their owners handsom returns on this valuation. Fumigatio and fertilization go hand in hand t achieve financial success in the ci rus business. It is useless to spen large sums on fertilizer unless th grower consistently fumigates, for a one rancher said, 'There is no fertil zer that will successfully grow frui and feed scale at the same time.' It is a noticeable fact that successfu fertilizer salesmen never solicit rancher for business who neglects an of the great essentials in citrus cu ture."

ENTOMOLOGISTS TO MEET WITH CONVENTION

The Pacific Slope branch of th American Association of Economic En tomologists has announced its inten tion to hold the annual meeting a Riverside in connection with the Frui Growers and Farmers convention an the conference of Western Plant Quar antine Officials. This will be an adde attraction and the program will be o especial interest to all county horti cultural commissioners.

PLANT DISEASE AND PEST CONTROL

The University of California colleg of agriculture has issued handbook o plant disease and pest control. It i written by Professors Ralph E. Smith E. O. Essig and Geo. P. Gray. It con tains in condensed form a fund of in formation as to pests infesting prac tically all crops growing in California with information as to application o spray or treatment to give, time o application, etc. The last half of the bulletin is given up to formulas and description of materials.

OLIVE GROWERS WANT OLIVE EXPERIMENTS

The olive growers are asking why ey may not have an experiment sta- on for working out their problems d suggest that the 100 acre orchard wned by the state university at earney is the logical place. The Fig d Olive Journal says:

"Why would it not be logical and acticable to have experimental work rried on at this point, where the cilities for work, together with a ove of olive trees of from two to 20 ars of age, are already available? course, there may be reasons why is could not be done, but we do not ow of these reasons at this writing. "In addition to the Fresno location, ere should be experiments made in number of other sections in the rthern and southern parts of the ate, since the soil and climatic con- tions vary very considerably and us make it necessary to consider ch section by itself. The work of l these substations could be corre- ted, of course, and the whole of the vestigations would combine to make measure of the greatest possible lue to the present and prospective ower of olives."

HOW DATES ARE GROWN

Date palms are propagated either seed or by offshoots. Seed may be anted from the best varieties, but ere is no assurance to the grower at he will get a large percentage commercial dates. The offshoot of e date palm is a bud at the axil of e leaf; hence it is a direct product the growing stem and in variety e same as the parent plant.

The only thoroughly satisfactory ethod yet devised for rooting young te offshoots consists in the use of heavily manured nursery bed with cloth covered frame or shed so con- ructed as to give maximum heat d humidity. Water must be ap- ied in ample and regular quantities. Frequent irrigation and the main- nance of a high degree of soil fer- ity by the use of manure, mulches, d cover crops are essential to althy growth and to the production fruit in paying quantities. First- ass dates suitable for market can produced only on soils in a high ndition of fertility and tilth. This ndition is most readily maintained a well drained sandy loam. Heavy ils need special attention to insure e proper penetration of the roots d distribution of water. Localities here the settling of cold air causes e formation of dew during the rip- ing period may prove fatal to the ore susceptible varieties of fruit.

The pruning of bearing palms ould consist merely in the removal old leaves, up to the fruit stem of e former crop. Young palms should t be allowed to produce heavy ops of fruit, as this would be done the expense of offshoot growth. At e present stage of the industry the oduction of offshoots of proved va- ies is of paramount importance.

FRUIT FLIES RAVAGE GREECE

Two pests which through the efforts California inspection service have en excluded from the state are re- rted as working serious damage in e Mediterranean regions.

In Greece the Mediterranean fruit (Ceratitis capitata Wied) is re- rted by the United States consul Patras as attacking apricots, cit- us, mandarins, nectarines, oranges, ars, peaches and plums among or- ard crops, and eggplant, vegetable rrows, melons and tomatoes among getable crops. Even the lemon, ich in Greece has been immune in past, is attacked. While losses some places ran to 80 per cent of crop, it averaged about 60 per nt for the entire infested district. e olive also has been attacked by olive fly (Dacus oleae Risso) and to December last a loss of 50 per nt was suffered.

n Italy Dr. F. Silvestri is rearing line parasites of the olive fly to set damage in olive groves.

George H. Maxwell, the well known gation engineer, in a recent talk to Rotary Club of Phoenix, declared t the prevention of water waste uld furnish water for more than 00,000 acres of land in Arizona.



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such as these are grown only on our foot-hill locations.—Note the good roots—for hardiness they have no equal.

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We have also a complete assortment of Shipping Plums, Cherries, Prunes, Bartlett Pears, Fall Pears, Peaches, Almonds, Apricots, Walnuts, etc.

Our foot-hill grown trees are free from root diseases common to other localities. Our trees insure your future profits in fruit growing.

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Newcastle-Cal.
"Behind each tree is our guarantee"

Production of Truck Crops in Los Angeles County

By R. G. Risser, Bureau of Crop Estimates

AMONG the important truck crop counties in California, there are a number, each of which leads in the output of a special crop. Los Angeles County, however, not only leads in the production of certain of these crops, but also in the production of truck crops as a whole. It grows and ships a wider variety and a more continuous supply of truck crops than any other county in the state. Its output of vegetables during the winter season exceeds that of any other California county, yet it is the leading all year round truck crop county of the state as well. It ships the majority of the cars of mixed vegetables rolled from the state and it rolls a larger number of straight cars of green vegetables per year than any of the other counties. It is important as a producer of celery, spinach, peas, root crops, and miscellaneous products, and it leads as a producer of spring potatoes, shipping tomatoes, cauliflower, lettuce, cucumbers, and sometimes cabbage.

Output for 1918

Shipping records for the year 1918 show that the number of cars of vegetables rolled from Los Angeles County during the calendar year were as follows: Mixed vegetables, 3417; potatoes (spring crop), 1857; cauliflower, 1252; lettuce, 1004; celery, 528; tomatoes, 383; cabbage, 340; turnips, 48; carrots, 47; green beans, 18; cucumbers, 9; casabas, 2; squash, 1; total, 8906.

Growing Districts

There are about 100 points in Los Angeles County from which carlots of vegetables originate, potatoes coming from a larger number of loading places than any other truck crop. The many growing districts which are not all entirely distinct are scattered over the county in all directions from the city of Los Angeles. Some of the more important districts are the El Monte district, San Fernando district, Newmark-Bandini district, Norwalk district, Cudahy district, Compton district, Gardena district, San Pedro district, Wilmington district, Lomita district, Sawtelle district, West Adams district, Tropico district, Fruitland district, Santa Fe Springs, and others too numerous to mention. These different districts have differences in climatic and soil conditions which often complicate the situation.

Shipping Seasons

Potatoes are shipped principally from May to August, shipments being heaviest in June and July. Cauliflower is shipped from October to April, shipments being heaviest from December to March. Cabbage is shipped from November to July, shipment being heaviest from March to June. Lettuce is shipped the year around, the heaviest shipments being from November to May. Tomatoes are shipped from June to December, the heaviest shipments being from August to November. Cucumbers are shipped from May to August, the heaviest shipments being in June. Celery is shipped from October to March, the heaviest shipments being from December to February. The shipping seasons for several of these crops are longer in Los Angeles County than in any other portion of the state.

Proposed Law to Regulate Tractor Business in California

By Clarence W. Fletcher

In order to educate, protect, and benefit the rancher and grower in California in the choice of his farm tractor, it is proposed to pass a law placing the handling, dealing in, or manufacture of farm or other power machinery on farm, orchard, grove or ranch under the examination and licensing of a tractor school which would become a part of the board of agriculture. Such a law, if adopted and passed, would prove of great benefit to more than the average farmer.

It is quite well conceded, we take it, that many an owner of land in this state is persuaded to buy a tractor that is shown by the tractor dealer or salesman as "just the thing", a "big saver of time, horsepower and manual labor", whereas the question of the responsibility of either the manufacturer and his so-called "guarantee" or the guarantee by the local dealer and his salesmen, all anxious for their commissions, is one that could and should be taken into serious consideration.

There are many honest, reliable and trustworthy manufacturers located in California and the East, who are offering tractors of reliability and whose representatives do not make statements unwarranted or at variance with the truth.

These statements can be credited, and the interest of such dealers does not stop when once a sale has been made. These efficient organizations have service men who follow up each sale as made; see that the owner of the tractor, or the operator of the tractor, is fully shown and instructed in the working parts of his machine, knows how to properly oil same, has the bearings adjusted where needed, and shows the proper hitch for the different implements the tractor is to draw and the complete understanding of the motor, its speed efficiency, valve and carburetor adjustments and a thorough knowledge of the track bearing principle so necessary to the longest life of the "machinery" horse.

A permanent tractor school for the education of the farmers and users of tractors in this state has been advocated by many. Such a school is of vast benefit, as is shown by the uniformly large attendance at the schools that have been held in Southern California during the past few months. An added appropriation for still further carrying out this work is asked by the state board of education. There has been much controversy over the action of the present tractor school direction in diffusing knowledge chiefly on tractors made in California.

This centering tractor knowledge on California made tractors only is an injustice to those reliable manufacturers of and dealers in efficient tractors made outside of our state. The law of the survival of the fittest should apply. The manufacturer or distributor giving the greatest value, having the most efficient service departments, where complete stock of parts can be had quickly, should in this land of the open door so generously fostered by the great state of California in other commercial lines be welcomed, and out of the state, American made tractors be given at least an equal share of recognition and public approval by our tractor schools and all public gatherings where tractors are being shown or demonstrated.

Glenn County recently held its first fat hog auction.

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There is no weaving or twisting of the radiator. The Essex remains rigid and firm under the hardest service. Every wearing part is adjustable as well as being well lubricated. The Essex retains its newness.

Just ask any of the tens of thousands who have ridden in the Essex and who are so enthusiastic in their praise of it to describe how substantially and quietly it rolls over even the roughest roads.

How often motorists, particularly those with light weight cars, have driven miles out of their way to avoid a stretch of bad road, because of the torture to themselves and to the car.

But the Essex is affected by no such abuse.

Its spring suspension is unusual and effective. Its construction is so solid that even the roughest cobblestone pavements are passed over with an ease that has created the greatest admiration.

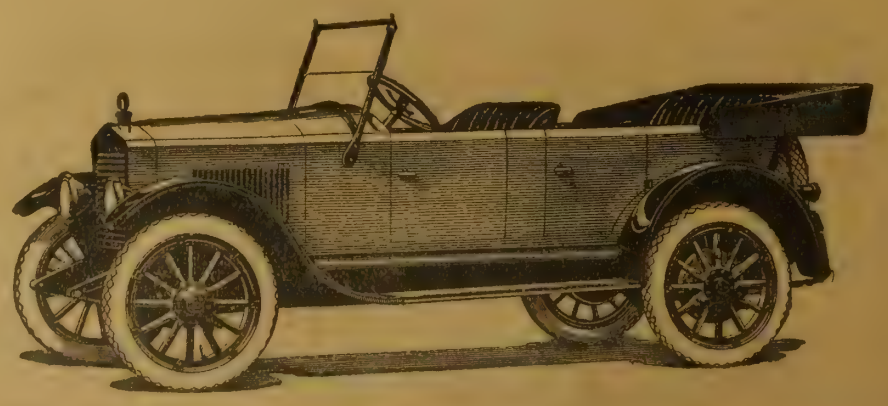
Its friends declare the Essex has no equal in easy riding quality regardless of the size, weight or cost of the car.

When will you take your ride in the Essex?

Any dealer will show you how and why the Essex rides so easily, performs so well and retains its quiet and rigid qualities.

And you will see also a performance of acceleration, speed and power that is comparable only to the highest powered costly cars.

Think how rare these qualities are, even in cars costing much more than the Essex, which in the five-passenger model sells at $1395 f. o. b. Detroit.



AGRICULTURAL CENSUS COMES JANUARY 1, 1920

Uncle Sam has decided to take the fourteenth census on farms January 1, 1920, instead of collecting this data as of April 15, as was done in 1910. The date was changed because farmers ordinarily are very busy with the rush of spring work about the middle of April, also because the April 15 date comes during the midst of the breeding season when the number of young stock is not comparable between northern and southern regions, and finally because the returns on the crops obtained during the winter are more accurate than those obtained later and comparable with the Decem

ber estimates of the bureau of crop estimates.

The United States department of agriculture is assisting the census bureau in making this coming agricultural census as accurate and valuable as possible. To a limited degree the character of the information to be secured will differ from previous enumerations, because of slight changes in the questions which the enumerators will ask farmers. The changes in schedule of questions have been made by a committee composed of L. M. Estabrook, C. W. Thompson, O. E. Baker, L. C. Corbett and F. W. Farley, representing the United States department of agriculture; H. C. Taylor of the University of Wisconsin, recently appointed chief of the office of farm management of the department of agriculture, and G. F. Warren of Cornell, in conference with officials of the census bureau.

The questions include information on the acreage and production of the crops, amount sold or to be sold, live stock classification both by sex and age, acreage of woodland, and the amount of land on farms drained and needing drainage. Special consideration will also be given to matters of land tenure, farm mortgages, land utilization, the amount of land and acreage of crops irrigated, numbers of young live stock sold, purchased, slaughtered, and died on the farms. and quantity of dairy products and wool produced. Owing to the fundamental importance of these statistics, which provide basic information relative to farms and farming in the United States, it is hoped that farmers throughout the country will assist the census enumerators in every way possible in securing accurate, reliable and complete information.

ALFALFA GROWERS ASSOCIATION

The Alfalfa Growers of California, Incorporated, are an association of alfalfa growers organized for the purpose of marketing their product cooperatively. They now have a membership of about 1250 growers representing about 43,000 acres of alfalfa, or an average of about 35 acres of alfalfa to the grower. The membership includes the majority of the growers in practically all the alfalfa growing districts in the state.

The association began marketing December 1, 1918, and since that date has marketed 838 cars of hay. It is going into all the available markets and has recently sold 165 cars for delivery outside of the state. In a number of outside markets they find an active demand for alfalfa at prices remunerative to the growers.

During February it appeared that there would be a considerable quantity of the 1918 crop left in the hands of the members when the new crop came on, but the development of outside markets opened up a new field and it now appears that very little, if any, hay will be in the hands of the growers when the new season opens. This means that the market for new hay will open up strong with a healthy demand and at prices remunerative to the grower.

SOUTHERN CALIFORNIA FAIR AT RIVERSIDE

The Southern California Fair Association has organized for its sixth annual fair to be held at Riversire, October 7-11 inclusive, with the following officers: John L. Bishop, president; F. P. Younglove, vice president; R. T. Sullivan, treasurer; W. W. Van Pelt, secretary-manager. The committees are arranging the premium list which will be ready for distribution at an early date.

CAREY ACT

The United States department of agriculture is issuing Circular 124, "Irrigation Under the Provisions of the Carey Act". California has but little interest in this act, this state never having accepted its terms. Ten other states of the West have, however, and those who are interested in the provisions of the act may get full information by securing this bulletin.

Out of the garden and over the fire. Sweet corn begins to deteriorate almost as soon as it is picked. No one knows its true flavor unless he has seen it come smoking hot to the table within an hour after being pulled from the stalk.



Mr. Farmer

If you grow Raisins, Prunes, Peaches, Pears, Apples, Apricots, Grapes, you need a

SAHARA DRIER.

Every year your losses run into thousands of dollars because of adverse weather conditions—over-ripe fruits, etc. The Sahara Drier guarantees you against such losses. It is the cheapest and best possible insurance for your crops. You cannot afford to take a chance on early rains such as came last Fall.

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Arcadian Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past. Especially kiln-dried and ground to make it fine and dry. Ammonia 25¼ per cent. Made in U. S. A. Arcadian is the great American Ammoniate.

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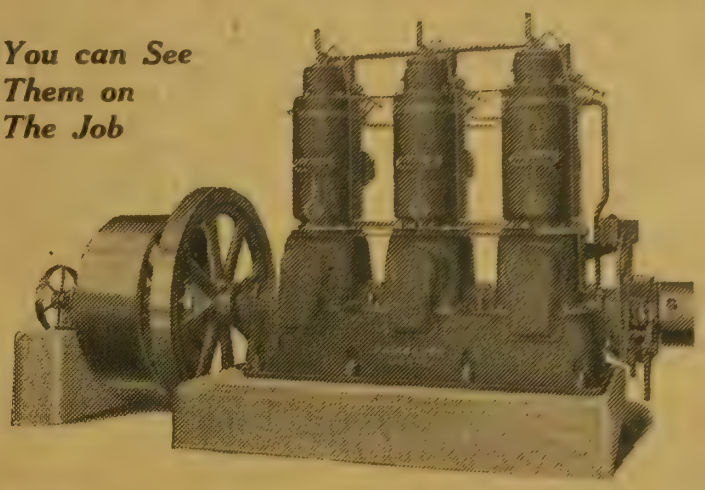


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EFFICIENCY PROVEN BY SUCCESSFUL SERVICE AT IRRIGATION PROJECTS. ECONOMICALLY USE LOW PRICED FUEL OIL. WRITE US FOR LIST OF OWNERS WHO WILL TELL YOU ABOUT THEM.

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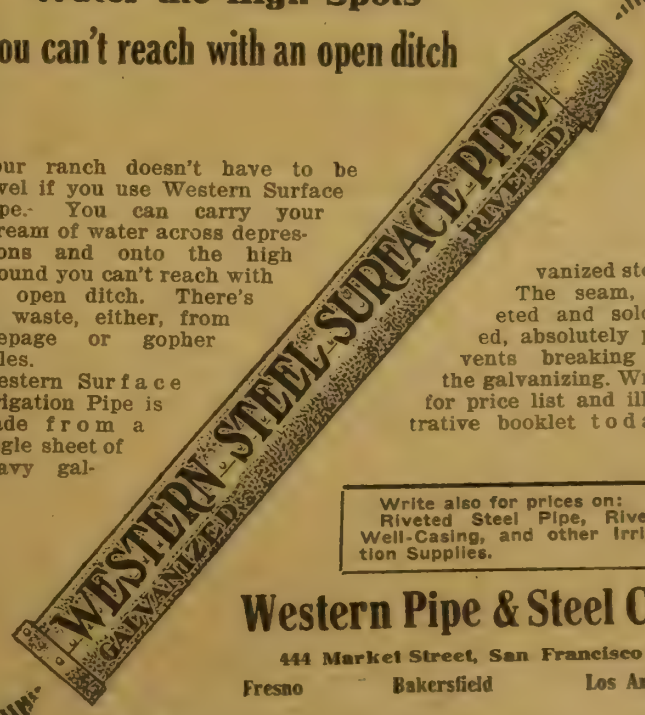
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Los Angeles San Francisco Portland Seattle Spokane

Irrigate through this pipe -

Water the High Spots

You can't reach with an open ditch



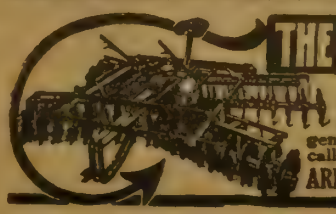
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The Tractor and the Law

By James De Camp

THE phenomenal increase in the use of tractors has developed a new variety of pest to compete with the automobile "road hog". The "highway ripper" is of comparatively recent vintage but in the minds of many Californians he is a close cousin to such other nuisances as the chicken thief and the professional pilferer of wayside fruit.

The "highway ripper" makes a practice of driving tractors roughshod over the expensive improved roads that are the very anatomy of our prosperity. When going from one field to another, driving to the repair shop or pulling a tandem of several heavy truckloads, he does not stop to remove studs, flanges, cleats or other devices which are provided to give traction when working in soil but are ruinous and entirely unnecessary on improved "good roads".

This negligence is costly in the extreme. If the operator of such a tractor is a taxpayer part of the burden of the damage will inevitably rebound for a flank attack on his pocketbook. No tractor is made which is not equipped so that a few minutes of work will make it harmless to the road. With some types this operation consists merely in removing the studs from the wheels or unbolting a flange, while others provide bands that can be bolted in place in from five to ten minutes. Laziness is without excuse. The agriculturist who finds one of his employees habitually shredding the highway when moving the machine should discountenance such shiftlessness with formal dismissal.

It has been reported that farmers who are co-owners of the same tractor permit damage done in passing the steel handy man back and forth between his several masters. Warm weather aggravates the nuisance, the softening of the roadbed causing deeper lacerations.

The California vehicle act is very explicit upon this subject and furthermore provides a penalty for those who cause damage to highways. In discussing this matter the vehicle act states, "No tire or any motor vehicle operated on or over any public highway or bridge shall have on its periphery any block, stud, flange, cleat, ridge, bead or any other protuberance of metal or wood which projects beyond the tread or traction surface of the tire."

The same section of the act goes on to except from this provision tractors of the flexible track type, stating, "Traction engines or tractors the propulsive power of which is exerted not through wheels resting upon the ground but by means of a flexible band or chain, known as a movable track, may be operated upon the public highways with transverse corrugations upon the periphery of such movable tracks, on condition that a permit shall first have been obtained . . ."

This matter of securing permits to move tractors over public highways seems to be rather obscure. According to the vehicle act a permit from the department of engineering is necessary before a tractor can sally forth from its own home lot, but no instance of arrest for the lack of such credentials has come to notice. Perhaps the situation is much the same as that regarding some automobile regulations—

However, the state authorities are especially positive regarding the responsibility for damage to highways, the ruling on this matter reading, "—the operator, driver or mover of any vehicle, object or contrivance over a public highway or bridge, shall be jointly and severally responsible for all damages which said highway or bridge may sustain as the result of so operating or driving such vehicle, and the amount of such damages may be recovered in an action at law by the authorities in control of such highway or bridge."

It should be a matter of community pride to admonish the tractor driver who is treating the roads unfairly. Continued abuse will result in a bumpy, rutty condition that will give the district a bad name among automobilists and cause the diversion of travel over other roads and through other towns, this resulting in a corresponding turning aside of trade and publicity.

GAME BIRDS OF CALIFORNIA

"The Game Birds of California" (Contribution from the University of California Museum of Vertebrate Zoology) by Joseph Grinnnell, Harold C. Bryant and Tracy I. Storer: Published by the University of California Press, Berkeley. $6.00 net.

"The Game Birds of California" is a book which adds to one's pride in his own state. Mechanically it is a perfect piece of work which the University Press may take great pride in, and as to the text, plates, and illustrations, they are works of art.

Every one of the 108 native game birds of the state is described in detail, these including the ducks, geese, swans, ibises, cranes, rails, snipes, sandpipers, curlew, plover, quail, grouse, pigeons and doves. The localities in which each is found, and the times of the year when it is found, are designated and its life history and habits are accurately described.

The extensive collections and field notes in the California Museum of Vertebrate Zoology, supplemented by previously published knowledge from the experience of ornithologists throughout the West, have formed the basis for the volume. To this groundwork has been added material obtained from interviews with numerous reliable sportsmen and directly from the fresh field experiences of the authors themselves. The whole is worked into what constitutes a practically complete summary of our knowledge of each of the species down to date. The authors do not claim that the book contains everything that ought to be known about each of the game birds of California; far from it, for more extended observations are certain to provide multitudes of new facts. This book should act as a stimulus for future observers, leading them to add to what is now made common knowledge regarding our game birds.

Introductory chapters are devoted to general subjects, as follows: Decrease of Game and its Causes; Natural Enemies of Game Birds; The Gun Club in California; History of Attempts to Introduce Non-native Game Birds; The Propagation of Game Birds; Legislation Relating to Game Birds in California. The sportsman and nature lover will find much of immediate utility in these general chapters.

The technical matter useful to the special student of birds is found condensed in small type at the head of each discussion. This makes reference to the finer characters of each species easy, and at the same time segregates this formal matter from the more readable text following.

As a sample of what may be expected in the treatment of each species, attention may be called to the chapter on valley quail. Twenty-three pages are utilized in describing the bird, its nest, eggs, distribution, field marks, habits and behavior. Here will be found interesting evidence to show that the male birds act as sentinels. A compilation of data on time of nesting and size of clutch occupies over four pages. It is demonstrated that the valley quail lays more eggs than any other game bird, and under normal conditions suffers corresponding mortality. Means of controlling this mortality are suggested. A discussion of the agricultural bearing, early hunting for the market, and present and probable status of this upland game bird concludes the chapter.

Every school and library in the Western states should contain a copy of this work for reference use. For more and more is the natural history of bird life assuming importance as a subject of general popular culture. Individuals interested in the fascinating field treated in this work should waste no time in securing copies.

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Slippery Pavements

When you drive on wet, slippery pavement, you want tires that will do their share in holding your car safe—that will carry you where you're going and bring you back safely, without trouble. Mohawks *will*.

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The point is, many tires will stand up well under *favorable* conditions—city pavements, for example. But Mohawk tires yield big mileage—*always*—on good roads or bad.

And the reason is the plain, logical reason that makes any product superior—more and better quality.

In the first place, we don't claim any secret or mysterious processes. We don't find these necessary. We have found, however, that by using only the finest rubber, the toughest Sea Island Cotton for fabric and more generous quantities of material, we can produce a stronger, longer wearing tire.

We believe in expert workmanship—so each Mohawk builder is a veteran and experienced tire maker.

One other important factor—and you have the reason complete. Without watered stock or bonded encumbrance of any kind we are able to operate a healthy plant on a reasonable return, without worry about extra large profits, at the expense of quality.

Think it over. And remember that Mohawk tires actually represent more value for your money.

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FORMALDEHYDE VS. BLUESTONE IN SEED TREATMENT

"In certain communities there seems to be some question as to the advisability of using formaldehyde in preference to bluestone in the treatment of small grains to prevent smut", says James Godkin, of the Colorado Agricultural College. "Before continuing this discussion further we would like to have it understood that it is not the intention of the state agricultural college or the United States department of agriculture to create a prejudice against bluestone in favor of formaldehyde in our smut control work. However, we do wish to emphasize some points which we now know to be facts. Formaldehyde has several distinct advantages which would seem to offer sufficient proof to warrant its use in preference to bluestone.

"It is simpler in its application, because it does not need to be dissolved, and the treatment does not need to be followed by an application of lime water to the treated seed to prevent seed injury.

"It is not nearly so apt to injure the grain. On the other hand, bluestone causes injury to the germination and development of seedlings of barley, oats and wheat..

"Any grain treated with formaldehyde which happens to be left over after the treatment may be safely fed to stock after the grain has dried. Grain treated with bluestone is poisonous to stock.

"Formaledhyde is cheaper than bluestone. It is true that formaldehyde costs more per pound than bluestone, but one pound of formaldehyde is equivalent to about eight pounds of bluestone in the treatment of the same amount of grain.

Amounts of formaldehyde to use: 16 ounces (one pint) sufficient for 40 bushels; eight ounces sufficient for 20 bushels; four ounces sufficient for 10 bushels; two ounces sufficient for five bushels.

"Whether you favor formaldehyde or bluestone be sure you treat and use recommended methods in your treatment.

"Treat every season—it pays."

ANNUAL TRACTOR DEMONSTRATION

The second annual tractor demonstration of the California Tractor and Implement Association will be held in Sacramento May 6 to 11.

According to Manager R. M. O'Neill of the association this demonstration without question will be the most successful in point of number and types of tractors, tractor drawn implements and accessories exhibited, and in attendance, of any previously held on the Pacific Coast. Applications for space have been received from leading manufacturers of the East and Canada, and consular representatives of many South American countries have expressed their intention of being present during the week.

These annual demonstrations are now regarded as permanent educational features of the farming industry, affording as they do unusual opportunities for farmer, rancher and orchardist to judge the comparative merits of the different types of tractors and power farming machinery.

On Arden Acres, a tract of 650 acres, will be seen daily in actual demonstration, tractors plowing, harrowing, subsoiling, leveling, checking and pulling various kinds of tractor drawn implements, doing exactly those things that aid in successful and economical farming.

There will also be daily lectures by Professor J. B. Davidson of the University of California and a corps of experts on such vital subjects as More Wheat, Better Wheat, Deep Tillage, Humus in the Soil, Ignition, Lubrication and Care and Upkeep of Tractors.

No admission will be charged, free auto parking space and camping grounds will be provided and an excellent restaurant will be located within the enclosure.

Round trip tickets at one and one-half fare, good to return May 12, will be placed on sale by the Oakland, Antioch and Eastern and Northern Electric Railways.



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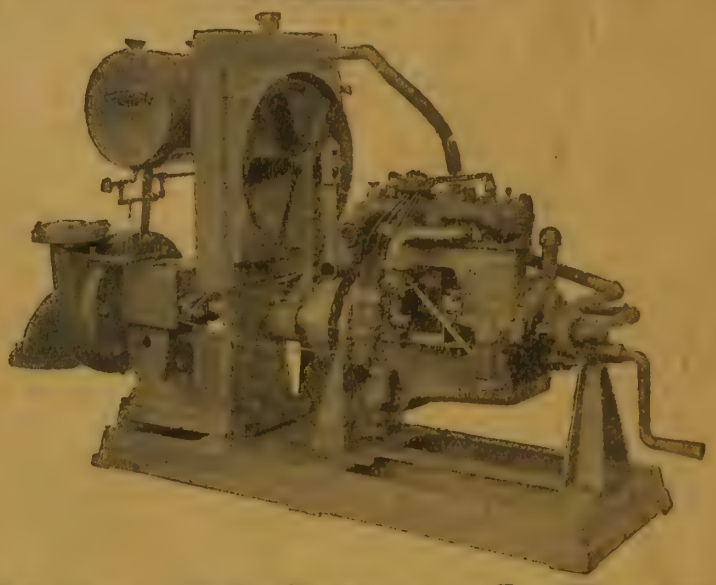
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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Blasting Under Tree

Will you kindly tell me whether it is possible to blast under growing trees without injury to the trees? This of course should have been done when the trees were planted had the orchardist been acquainted with the condition of the deeper soil. If this can be done now will you describe the process in the Cultivator or tell me where I can get correct information?—Subscriber, Chula Vista.

If the question is as to whether it is possible to blast directly under the trees so as to make an opening for deep roots, such procedure would be impracticable. However, trees have often been greatly benefited by placing a charge partly through hardpan layer, say four or five feet from the tree, blasting through the hardpan on one side of the tree, another side the next year, and so on. If the good soil on top of the hardpan is very shallow probably the only safe course would be replanting the orchard, first blasting holes which thoroughly shatter the hardpan some distance from the tree.

Killing Trees

Can you tell me how to kill good sized trees without chopping them down or cutting the bark around in a ring shape at bottom? I have been told to bore a hole into the tree and put arsenic in it. Is this successful? —Subscriber, Los Angeles.

The cheapest and most effective way of killing these trees would be by raking the dirt away from the roots, piling brush around and burning. The boring of holes in the tree and plugging with chemicals probably would not affect the tree very seriously, at least those who have maintained that insect control might possibly be effected by poisoning the sap of the tree by boring hole into the heart and filling with cyanide, have set up the claim that the trees are not injured by this procedure. Of course, one could place about the roots a large quantity of arsenates or caustics or corrosive acids, but this would be extremely expensive and not as effective as the ax.

Slobbers

C. A. MacDonald recommends as a surecure for slobbers in rabbits permanganate of potash. First make a stock solution, one teaspoon of the permanganate to a pint of water, then use a teaspoon of this stock solution to a quart of the drinking water. He assures us it is harmless, cheap, and effective.

Peach Leaf Curl

What is the trouble with the nectarine leaves which I am sending? I have several plum and peach trees that will be blossoming soon and they are situated near the infected tree. Is there danger of them becoming infected through it? If so, how can I prevent it from attacking them? Is there any spray I can use? If so please give me the formula. — Subscriber, Long Beach.

This appears to be only an extreme case of peach leaf curl. It is too late this season to handle it although spraying with weak Bordeaux mixture might prevent, to a small degree, its further spread. Next year in order to prevent occurrence of this trouble spray early in March, or rather before blossom buds begin to swell, with strong Bordeaux: copper sulphate six pounds, quick lime four pounds, water 50 gallons. After the petals have fallen spray with a weak Bordeaux, say two pounds of copper sulphate, two of lime and 50 gallons of water.

Air Puff

I have a hen that fills up with air all over the right side, tight as a drum. I've stuck a knife in her twice, the last two weeks to let the air out. What can be done for her, and where does all that air come from?—J. H. R., Cucamonga.

Your hen has what is called air puff, a trouble due to a wound or abrasion of the lung tissue. Probably she has at some time received a bruise which was not noticed and has developed into this condition. You were right in puncturing the skin, but I hope you were careful not to make much of a wound. The only treatment for these cases is a good nourishing diet, including milk, if possible, a little fresh meat once or twice a week, and a mash rich in protein. Give her all she will eat of the things she likes best.—J. A. K.

The Buckeye Valley west of the Salt River Valley in Arizona is to have a bond election April 29 for the purpose of establishing a drainage system to reclaim about 16,000 acres of land.



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The result of ten years' selection. Produces six times as much as common corn. First prize winner at San Francisco Land Show. Quick and big returns from a small investment. All seed produced from corn bearing 5 to 12 ears per stalk. Grows 10 to 16 feet in height, producing enormous crops of very rich ensilage. Choice selected seed for sale at reasonable prices, shelled, on the ear and stalks with all the ears on them. Our illustrated booklet, giving full history and details of this wonderful money-maker, sent free on request.

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SWINE BREEDERS MEETING

Continued from Page 540

lish a better understanding between the various interests by the formation of a conference committee of the live stock industry, and he expressed the hope that a similar committee could be organized on the Coast.

One of the most informative addresses heard during the Live Stock Week was delivered by Dean Thomas F. Hunt of the college of agriculture. University of California. Dean Hunt discussed the trend of prices in general and prices affecting the farmers' business in particular.

Hunt declared that prices for farm products were not relatively high at the present time compared to commodity prices in general and he gave it as his opinion that agricultural interests could engage in no more profitable propaganda at the present time than to attempt to keep the consuming public informed as to the actual facts. As a basis for the statement that prices were not high at present Dean Hunt used the Bradstreet price index that is based on the wholesale prices of 96 commodities. Taking prices during the five year prewar period as a basis and giving the index figures a value of 100. the index for 1918 was 210. somewhat below the extreme high point of 215 reached July 1, 1918. In other words the index indicates that compared to the five year prewar period. 1918 prices should have been 210 compared to 100 in order to be on the same basis and register no increase. As a matter of fact land values in 1914 were 111 and in 1918 167; farm wages were 104 in 1914 and 172 in 1918; crops and livestock in 1914 were 106 as compared to 209 in 1918 and articles that farmers commonly buy were 103 in 1914 and 202 in 1918.

The Bradstreet index on March 1. 1919, was given as 193, and Dean Hunt presented a table to show the comparative relationship between March 1 prices on farm products and the index of 193. Wheat was 234, barley 133 (265 in 1918), beans 207, beef cattle 190, hogs 210, sheep 208, wool 273, horses 85, dairy cows 176, butter 161 and poultry 194.

From the above figures it is clear that on March 1, 1919, wheat, beans, hogs, sheep and wool were high; barley really cheap, beef cattle normal, horses very cheap, dairy cows cheap, butter cheap and poultry practically normal—cotton was about normal also.

Dean Hunt would make no prophecy as to what the future held in store—he simply gave the figures quoted for what they were worth. He did however, point out that the Civil War and the world war lasted practically the same period of time, that in each war the inflation of prices was almost identical. He further added that following the close of the Civil War commodities receded two-thirds of their war value during the first six years of peace, and that it took 13 years to reach a normal level. Dean Hunt did not venture to predict that the same trend would occur now. But knowing past movements there may be a basis on which to order one's operations.

Dean Hunt did caution against extending one's credit too far at a period when values were inflated as in many cases this credit would have to be taken up with commodities of much lower value.

In closing Dean Hunt gave it as his opinion that the commodities most in demand by England, France, Italy and Belgium would be wheat, sugar, meats, cotton and wool, and in the case of wheat estimated that those countries would require 500,000,000 bushels more in 1919 than in prewar times. So far as meat is concerned he thought the four countries will be large buyers of packing house products until such a time as their live stock population is rehabilitated.

Dean Hunt remarked that it was generally thought that new countries were the great live stock countries—but Holland had more cattle per 100 acres than any country, Denmark more hogs and Great Britain more sheep—facts that should be remembered by live stock men.

O. M. Plummer, general manager of the Portland International Live Stock Show, spoke on the advantages of live stock shows and the importance of stock yards in the general scheme of marketing.

Dr. F. M. Hayes of the University of California discussed some of the more recent developments made relative to swine diseases.

Professor J. I. Thompson gave the results of a recent hog feeding experiment.

The following officers were elected: President, C. B. Cunningham, Mills; vice president, A. B. Humphrey, Escalon; secretary-treasurer, J. I. Thompson, Davis. The directors are: Wm. Bernstein, Hanford; M. Bassett. Hanford; H. H. Braly, Newbury Park; Frank B. Anderson, Sacramento; Fred M. Johnson, Napa; W. S. Guilford, Willows.

Following the election, short talks were given by A. B. Humphrey, Wm. Bernstein and Fred De Vore of the Duroc Bulletin.

CORNERED THE POLLED HEREFORD MARKET

ONE of the most unusual sales of beef cattle ever held in the West occurred at Sacramento April 9, when 16 head of Polled Herefords were sold for the reported Coast record of $813.

The sale was scheduled as a "Breed Promotion" sale and was sponsored by the American Polled Hereford Association of Des Moines, Iowa. The sale was advertised to be held at the State Fair grounds April 10, but the promoters decided to shove the date ahead and immediately after the Davis sale was over the crowd was taken to Sacramento and the offering sold by lamp light.

A most unusual feature of the sale was the fact that one man, G. W. Emmons of Oakland, took all the females and three of the six bulls sold, at prices that represented the most liberal values. The top of the sale was a heifer calf selling to Emmons at $1500.

W. J. Fulgham of Visalia secured one bull, as did John Morrs of Alamo, M. C. McWhorter and M. B. Church of Grass Valley.

This was the first sale of Polled Herefords ever held in the West and it had been hoped that it would result in a wider distribution of the cattle. Several of the bull buyers wanted heifers but apparently there was no chance unless one paid even more unreasonable prices than prevailed. There is a wide field for the Polled Hereford in California, but the promoters must exercise care in the character of cattle offered and the values placed on them.

The sale was cried by Fred Reppert and B. O. Gammon managed the event.

It is reported that the wool clip for Arizona this season is in better condition and that the yield of wool will be heavier than for many seasons. Shearing is now practically completed in the desert country around the Salt River Valley.

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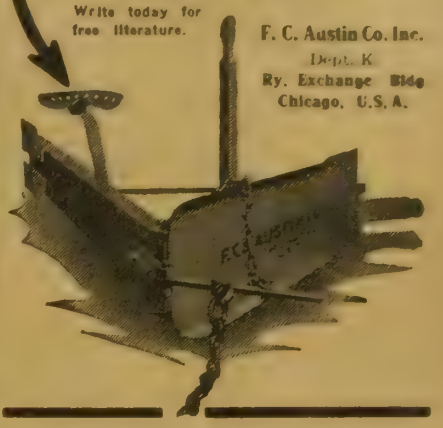
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is the most highly efficient, self-contained, dependable electrical unit that the Big Bosch Plant at Springfield can build. Every part is designed and built with your needs in mind. It has the strength of a locomotive and is produced with the same care as a high-grade watch.

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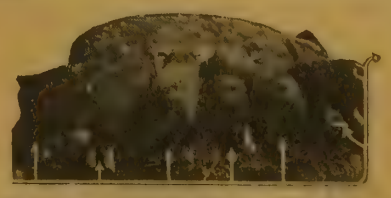
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Is There Money in Cattle?

By A. L. Spellmeyer

IS THERE money in cattle? With Western beef steers bringing 13 cents and with fat cows bringing ten, with top Eastern steers climbing to 20 cents, cattle profits should not be doubtful, and the average citizen believes all cattlemen are making vast returns. The men in the business think differently and our bankers do not believe the stock business a mint. There are elements of uncertainty and loss, and most of the large cowmen and beef raisers are men who made their success in earlier days under different conditions.

The majority of these men are hard to convince, and when a graduate from an agricultural college or a university stock man puts forth claims of new range methods, they scout it as theory. When an experiment does prove out they lay it to luck. They laugh at the forest service for their estimates of range by competent grazing experts and call it bunk, forgetting that the forest man estimates a specified number from actual experiements on specified acreage and that a lot of permits are not being grazed on the estimates so made in actual fact, and therefore the range does not improve.

When an extra good year comes and a forest chief takes unto himself and the service credit for range improvement these old fellows smile again, as they know things are not quite on a fact basis and reject all the theories because one man is fallible.

But there is a new system of grazing and handling cattle and there is a way to prevent most of the loss and stabilize production, and it is being appreciated by men in parts of the country who are making a financial success of their outfits and improving their grade of stock.

In the West today the feature which has been operating against better methods and better cattle is lack of permanency. In many of our Western states land is grazed by government permits for one year or longer, subject to cancellation for many reasons and subject to the whims and fancies of individual rangers, inspectors or superintendents. If these men are good men there is a measure of security for the man who does right; if they are not there is irritation and possible loss.

In California the permit question is not so much in evidence as there are many land grants and owned ranches which are fenced and which, with our climate and variation of altitude, give in normal feed years the best grazing all year in the United States for cattle and the greatest possibilities for applying intensive grazing and building up fine herds. But here in California the lack of permanency again enters into the situation. Most of the ranches are not operated by owners but are leased for terms of one to ten years subject to sale.

Many of these leased ranches are held at prices prohibitive to cattle growing, with the mirage in view that they will grow beans, beets or apples. The owner leases for enough to pay taxes and a few cents an acre over, waiting for the time when he will get the big cash. Many of them will never be good for anything but stock, and the sooner the fact is accepted the better, and if they strike oil it won't hurt the grazing.

A few years ago when attending a Middle West cattle convention one of the serious conditions was the rental of farms, operating towards lack of improvement and breeding up of stock. In the West the condition is not much different, except being newer, on a larger scale and without the financial banking support the Middle West man has to help him.

A man who owns a California ranch and rents it because he hasn't the money or don't know how to run cattle, is overlooking a great profit. The range hog, who thinks because he can run 1000 cows on 12,000 acres for ten dollars a head a year that he should run 2000 cows on the same acreage for five dollars a head, is with us in California and in Arizona. He is the kind of man who tries to run three times his government permit number and thinks it smart to cut out cattle, pass them by, and still make it. He is the man who ruins his range, has cattle he can't handle, loses many every winter, and who can never make his steer shipments conform to his calf tallies. In this wonderful West of ours some of these range hogs have left a trail anyone can follow and which will take years of good range supervision to obliterate. It is this kind of man who claims the fancy dividends but can't show it to his banker, who prates against calf stealing but don't return his neighbor's stock, and who thinks a grade bull at $100 good enough, and that five pounds of salt per head per year is plenty for a cow.

This species of man will jeer at the efforts of a neighbor who has made a success and minimize the importance of close control and giving grass a chance to reseed, separation of winter and summer range, cement troughs and clean water at springs, more and better bulls, and all such essentials, which bring calf crops and more flesh. Yet men who own ranches will lease them to this kind of grazing if the bid is a dollar higher.

We have with us also the large owners who have much money and so many holdings they cannot give them consideration and attention. If one ranch proves successful they lay it to chance, nature and kindred causes, rather than to the essentials underlying, not lack of desire to do right, but because their interests are too many to allow them to give close study to the details. Great holdings do not spare grass and build up herds as the smaller ones will.

Without permanency there is no desire to put years of effort into improving cattle and range, as the incentive is lacking. Our packers in their beef prices do not make it worth while, as the fat animal brings the same price if fancy or common. The only gain is greater weight, which hardly compensates for expense in one or two years although it will in time. Our bankers do not accept cattle loans as a recognized staple, and many men cannot get the money for the fine bulls and to make these improvements. Our markets are uncertain and fluctuating, and we have to ship thousands of miles to the nearest open market to meet an uncertain fate at the finish.

There are men in California who are making a big success from cattle and men who run ranches along efficient lines. There are new pure bred ranches starting in great numbers and a growing appreciation of good bulls. Roland Hill is thoroughly modern and runs a fine ranch, breeding and feeding cattle. It is stated that he claims most of his ideas from reading stock journals and he is a practical cow man also and respected when he goes to the ranges to buy. Mayo Newhall runs a fine ranch and makes it pay. The Kern County people under Mr. Jastro produce good cattle and many of them and are getting in fine bulls. Jerome O'Neill during the recent drouth has proven what reserving hay for feed will do to bring a measure of safety and is putting in good bulls, as is being done by that old time cowman, Louis Molten, also. Lewis, the Norwalk tire man, is establishing a model ranch and bringing in registered stock. Many of these men are going into $500 and $1000 bulls and it won't be long before the results will be noticeable.

Cattle ranches are profitable if properly run, and two elements do the talking, one being number of steers shipped and the other production cost. It has been proven and is being shown on some ranches run in districts where drouth loss has been practically eliminated by close control and reserved feed and water development, that 90 per cent calf crops from cows three years and up can be secured and can be raised to yearlings and shipped. It has been proven that with the proper methods and facilities and a fairly safe fenced range that yearlings can be produced at a total cost, interest included, under $18 per head. It has been proven that a few men stood the drouth and bad markets and made good profits on $35 to $40 yearlings when others not operating with such methods lost money. A ranch or two I know of could sell yearlings at $25 per head and make money; the loss is not three per cent on yearlings up, and on some stock one per cent a year. The calf loss is



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Doing good service for 34 years, positively guaranteed to satisfy, known all over the world wherever horses are, the name that springs to millions of minds whenever Gall Cure is mentioned—that is what Bickmore's Gall Cure stands for. Successfully used on over one million horses on every continent each year. Satisfaction or money back *guaranteed* everyone. Wonderful for collar and saddle galls, broken skin, rope burns, sore shoulder, mange and other skin diseases, bruises, cuts, chafes, mud scalds, grease heel, chapped teats on cows, and other wounds on horses, cattle, pigs, and poultry. No need to lay the horse up while curing him. Cure the horse while he works. Bickmore's works better if you work the horse. Lawrence Garnett, of Spartansburg, Pa., says, "I have used your Gall Cure and it is certainly good. We used the horse all the time the sore was healing." If your druggist, harness dealer, hardware or general store has not Bickmore's, get it direct from us. Or send 10c for liberal trial sample and very useful Farm Account Book giving helpful pointers to farmers and showing how to keep track of all expenses and receipts. Bickmore's is also now being refined and put out for human use. It is called "Bickmore's XYZ Skin Ointment" and is proving as wonderful for human beings as Bickmore's Gall Cure is for animals. At your dealer's or direct from us. The Bickmore Company, Dept 344 Old Town, Maine.

Ord L. Leachman
AUCTIONEER
Sacramento
(1004 5th Street)

My services are available to all who plan to sell live stock, farm equipment or real estate, and who want the high dollar. Pure bred live stock sales a specialty. Terms reasonable. Write or wire for dates.

Attention Buyers

For sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.

Hannon Bros.,
Care Geo. Irwin,
Third St. - Lankershim

Col. W. C. Lookingbill
Auctioneer
"Specialist" in Pure Bred Stock, Dairy Cattle and Real Estate
Will Appreciate Your Work
Address: Riverside, Calif.
P.S.—Will buy any good Dairy Herd or Beef Cattle

six per cent between branding and yearlings, something not calculated by all stockmen. These men could have sold in last year's bad market under the prevalent prices at a wholesome profit, but as a matter of fact secured through having better cattle about $5 bonus on a yearling.

Why is it that California ranch owners do not realize possibilities now in the cattle business? It is true we have drouths every few years, but if hay is reserved on most ranches for one year the danger is practically cancelled. If steers are run entirely drouth loss is not to be figured, as they can always be removed and sold or shipped to market with only the possibility of a few dollars per head loss. It must be because these men don't know the cow business and have had very inefficient management, without cow judgment, which is equivalent to horse sense.

The average yearling steer is underpriced on the range today, considering the average expense and ratio of feeder and beef advances. The $40 yearling on any fair fenced California range, properly looked after, and right cattle bought, will weigh exceeding 1000 pounds in two years. Steer loss from anything but anthrax is negligible. One thousand pound feeders are today worth $100 up. A proportion would be fat and bring more weight and more money per pound. The cost of running this steer for two years, interest and all, would probably not be over $30 at the most, perhaps less, $30 profit or $15 to the head per year. What more does any man want on an investment he can cash and get his money out of any time on a month's notice on these California fenced ranges?

Everyone who is figuring on making big money soon is going into steers. They figure they are sure, safe and quick. The high beef price has stimulated cow sale, and with grass the price of ten cents for fat cows is too tempting to pass by, and men are selling these $100 cows all over the country. It can bring but one result and that is breeding stock shortage. It will probably mean replacement to some extent by registered cattle later. We see men all over the country in the mountain districts getting rid of cows and going into steers, yet the cow has advanced since last fall fully $20 per head on most ranges. These men figuring steers are not intending to look more than two years ahead. Then men who are going into breeding stock must look five years or more ahead. Lack of cattle money throughout the country has tended to cause this curtailed production. It is of national interest and conveys a menace for the people who already experience high food cost. The men directing the control of range, cattle and money should bestir themselves to appreciation of existing facts which are becoming more evident daily.

Range can only be fenced through government and state authority, better bulls and improvements can be made only through permanency and with term loans available. Grass must be conserved and allowed rest to reseed. Ranch owners can only be induced to run their own herds instead of leasing by education and proven possibilities. Beef is what we need and must have, and it comes from a cow. The cheapest and most practical way of improving cattle is through good bulls, but it can't be done in a day. The extra hundred pounds on a yearling may be the margin between profit and loss, and the $500 bull will bring that extra weight. There is money in cattle run right, and it takes more brains than brawn to do it. California should have the best cattle in the United States, and when the people awake to the importance of this stock trade we will have markets and money, as we will get them when we demand them, and not before.

The American Association of Importers and Breeders of Belgian Draft Horses has secured Roy E. Graham of Wabash, Indiana, as field man. Secretary Conner of the association writes: "Mr. Graham is a farmer and has been engaged for many years in importing and breeding Belgian draft horses and has had many years' practical experience in all departments of agriculture and live stock breeding, and is thoroughly qualified to aid and advise our Belgian breeders on all questions that may arise in the care and breeding of Belgian draft horses."

Santa Anita Rancho
Anoakia Breeding Farm
REGISTERED HOLSTEINS

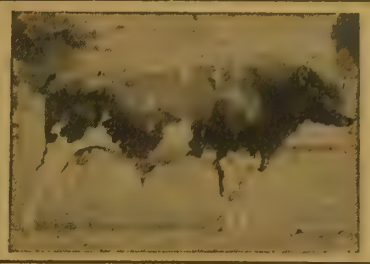
A herd of fine individuals, strongly bred in the lines of great production as evidenced by both short and long time records, handled in a manner to produce sound, healthy breeding stock.



Merci Lad Korndyke Burke

Son of De Kol Hengerveld Burke who has a long list of A R O. daughters with records up to over 35 pounds butter in seven days, and out of Winnie Korndyke Cornucopia De Kol who made 31,034.1 pounds milk in one year and was the first cow in California to make over 1200 pounds butter in one year. A few of his good sons out of excellent dams for sale.

SANTA ANITA RANCHO *Santa Anita, Cal.*
Anita M. Baldwin, Owner - - *W. H. Taylor Supt.*



Prince Hiske Walker

He is by Prince Gelsche Walker and out of Hiske of Riverside, being therefore full brother to Lady Hiske Walker, 34.25 pounds butter in seven days as a junior four year old, former state record in class.

His offspring are uniformly straight, vigorous, and well marked. A few of his young sons for sale.

Packwood Farm
W. F. Mitchell, Owner *Visalia, Cal.*

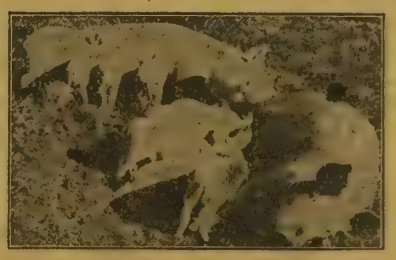
Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average:
Milk one year....24,089.88 pounds
Butter ..... 1,105.07 pounds

This butter average is equalled by only one other bull of service age in the world. Buy your next bull from

Eldorado Herd
Alex. Whaley, Owner Tulare, Cal.



Raising the Standard of California Bacon

MONTELENA HERD

Large Yorkshires

Have large litters. Service boars of exceptional quality, in best breeding condition. They are strong, active, long, deep fellows, with big bone and splendid heart girth. Come and see them, or write to

A. L. TUBBS CO.
Calistoga - California

Uneeda Glenn County Herd
The Key Herd of Duroc-Jerseys

This herd produced more champions at the 1918 California and Oregon state fairs than any herd on the coast.

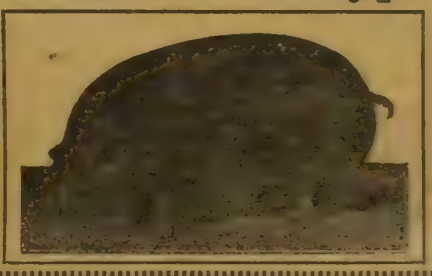
For sale now: Boars; gilts, bred or open; bred sows and a few weanling pigs of either sex.

Glenn County for Durocs

H. P. Slocum and Son
Willows, California

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



M. Bassett
Hanford, Kings County, Cal.



Raise Your Hogs and Cattle at a Profit
Assist Nature by Feeding
Economy Stock Powder

A general conditioner, a worm expeller and a disease preventive.

Send for FREE SAMPLE and our BOOK on LIVE STOCK.

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ECONOMY HOG & CATTLE POWDER CO.
Hearst Bldg. San Francisco, Cal.

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This Great Dispersion Sale

McAlister & Sons Famous Herd

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REGISTERED

Holstein Friesian Cattle?

It means that you, the prospective buyer, can buy cattle at this sale that other breeders refuse to sell at any price.

You can buy cows that have made as high as 35 pounds butter in seven days and 140 pounds in 30 days—that have milked as high as 110 pounds in one day and over 3000 pounds for 30 consecutive days.

You can buy daughters and sons of these great cows sired by the great bull It. At your own price!

You can even buy **IT** at your own price!

Remember the dates, May 21-22 at McAlister & Sons Farm—five miles south of Chino.

On these dates the greatest bargain sale ever in Holstein cattle will be held!

200 Head to be Sold! 200

Guaranteed to be breeders Not tuberculin tested

Write for catalog now

CHAS. L. HUGHES, Sacramento, Cal., Sales Manager.

COL. B. A. RHOADES, HAROLD B. RHOADES, Los Angeles, Auctioneers.

The Proof of the Pudding



KING KORNDYKE PONTIAC 20TH as a calf looked like the real bull to head our herd, adding to his great individuality the backing of a pedigree with an unbroken line of great producing dams and type of the highest character. The price of $6500.00 which we paid for him was really a minor consideration.

Better get in touch with us for one of his young sons for YOUR herd. We already have requests for reservations of unborn calves if they are bulls.

Our Entire Herd is Tuberculin Tested

Tulare Holstein Farm

W. J. Higdon, Owner TULARE, CAL. H. L. Redd, Herdsman



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Your success with pure bred swine depends to a great extent on your foundation animals. **Anchorage Farm** has for immediate shipment young pigs, both sexes, in prime condition to be grown out into large, profitable **Berkshires.** These pigs are priced extremely reasonable and carry the blood of the best there is in Berkshires.

Remember they come from the home of the World's Famous Sire—

Star Leader

Write for prices and complete description.

Anchorage Farm, Orland Cal.

Wakeen Herd

Big Type Poland Chinas

King Big Bone Leader herd sire. The Grand Champion boar of the state. More sons at the head of good herds than any other boar in California.

One or two for sale.

Les McCracken, **Ripon, Cal., R. 1.**

Hauser's Digester Tankage

GIVES GREATEST VALUE FOR LEAST MONEY IT MAKES THEM FAT

Hauser Packing Co. **Los Angeles**

NOTES ON THE HEREFORD SALE

R. J. Kinzer, secretary of the American Hereford Breeders' Association, attended the sale. Kinzer has been one of the biggest factors in putting the Hereford to the front and he was very enthusiastic over the outlook for the breed in this section. Kinzer remarked that all California needed was many more herds of top Herefords—especially more top bulls—and with our natural conditions he saw no reason why the state could not become a leading cource of supply for the best the breed could produce.

Kinzer, Reppert and Moxley, who is president of the parent association, were much impressed with the wonderful abundance of grass that is going to waste here—as Reppert put it: Thousands of acres of the cheapest feed going to waste while breeders in the corn belt are feeding high priced feed, chopping ice from water troughs and digging paths through snow banks. If you can't produce the best cattle here and cheaper than any other place, I don't know where to go."

One lot of females were sold in a bunch, the buyer to take one or all. S. N. Cowell made the high bid and when asked which one he wanted said he would take them all. He made a good buy too. The stuff was thin but feed will bring them out and a nice profit is sure to be registered. A. R. Cutler of Visalia bought bulls on the same wholesale plan.

H. M. Barngrover of Santa Clara made a very attractive consignment from his Veramont herd. It was Barngrover's first sale and while his contributions could have fetched more money he expressed himself as satisfied and served notice on the other breeders to watch his smoke next year! That is the spirit that counts. Barngrover has two of the best bred bulls in California in Patrician 5th, a grandson of Paragon 12th, and Don Woodford 4th.

Charles Rule of Jenner sent a splendid lot of young things that were not only good individuals, but were especially well bred, and his consignment should have fetched more money—almost without exception.

W. J. Bemmerly of Woodland sold a particularly nice lot and was always a bidder on the better things—he was the runner up on the top bull. Bemmerly is a good man for the business. He breeds good cattle, sells good cattle, buys good stuff and furnishes the auctioneer plenty of good natured fun!

H. N. Gable of Esparto, retiring president of the Pacific Coast Hereford Breeders' Association, was not among the consignors but was a good bidder on the top offerings and secured a good cow in Penelope by McCord, a grandson of Beau Brummel, consigned by the Caziers. She calved to the service of Harris Standard 2d the night of the sale.

The Cazier consignment, consisting of 28 head, sold for $17,185, an average of $614. This was not only the largest individual consignment but made the highest average and included the top bull and the top female. The Caziers are building one of the top herds of the West and have recently added Beau Blanchard 76th, counted one of the greatest sons of the noted Beau Blanchard, to their herd at the long price of $10,000.

Clifford B. Harris, Western representative of the noted Hereford firm O. Harris & Sons, Harris, Missouri, attended the sale. Harris says that their May sale will in many respects be the best offering they have ever assembled. They are putting in some of their famous 1918 show string.

M. E. Musgrave, predatory animal inspector for Arizona, recently sold a lot of furs taken from animals killed by his hunters. The lot brought nearly $1000. Among these were the hides of 150 coyotes, 59 bobcats, 39 grey foxes, 18 swifts, 33 skunks, 15 badgers, 3 raccoons, 2 wild dogs and 2 wolves.

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As a Human Liniment and Antiseptic for external use it is invaluable.

Every bottle of **Caustic Balsam** sold is warranted to give satisfaction. Price $1.75 per bottle. Sold by druggists, or sent by parcel post, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.



Contagious Abortion

Don't sell the aborters. Clean out the infection. Breeding animals are worth more than ever before. Control of Abortion is doubly necessary.

The Abortion infection causes Barrenness, Retention of Afterbirth and Calf Scours in addition to Abortion. Unless checked it is likely to run through your entire herd.

B-K is a powerful non-poisonous antiseptic—scientifically correct for this work. Used as a douche, it dissolves the slimy albuminous matter in the vagina and uterus, kills the germs, stops discharges and controls the infection. B-K is much more effective than lysol, carbolic acid, Lugol's solution, bichloride of mercury and coal tar disinfectants, all of which tend to coagulate or thicken the albumins.

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FREE BULLETINS: Send for our valuable bulletin No. 52 on "Contagious Abortion," also "145 Farm Uses" and our "Trial Offer." If your dealer does not have B-K send us his name.

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Some of the finest

GUERNSEYS

In the West are at

Hollow-Hill Farm

Colton, Cal.

Only Bull Calves For Sale

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

Live Stock News Notes

Shorthorn Heifers

H. L. Murphy of the Brighton Farm herds writes of a bunch of especially fine Shorthorn heifers 16 months old, also of mature cows which he is offering to help build up the herds of Shorthorn lovers. The Murphys have introduced some exceptionaly fine stock from the Middle West during the past two years.

Reds Are Selling

The Ireland Ranch, Owensmouth, reports sales of Ireland's Cherry Defender, fall boar, to E. R. Harris of Van Nuys; Voltaire's Cherry, a herd boar prospect, to W. H. Macomber of Voltaire; Ireland's Lady Jane, a beautiful fall gilt, to J. B. McGee of Whittier.

Will Sell Polands in October

Les McCracken, owner of Wakeen herd of Poland-Chinas, Ripon, announces that he, associated with Hale I. Marsh, Modesto, will hold a sale of bred sows at Modesto during October.

It was McCracken who purchased King's Big Bone Leader at $700 early in the year and these sows will all be bred to this boar.

McCracken is fitting a show herd for this fall and has entered in the Poland-China futurity. Recent sales include a boar to Logan Bros., Paskenta, California; a boar to Geo. Bay, Ojai; boar to Fred Finne, Ukiah, and another to Albert R. Barker, Lathrop.

In addition to his Polands he will also show some Percheron horses.

Buys High Class Poland Boar

Lendorris Ranch, Hanford, property of W. L. Haag & Son, has recently received a young boar from Moore Farms, Gardner, Kansas. The boar was sired by Liberty Bond, owned jointly by Moore Farms and Lester Glover, Grand View, Missouri.

In a letter to Haag, Moore states that they have recently refused a cash offer of $10,000 for Liberty Bond and that Mr. Glover refused $2000 for Hercules Lady, dam of the young boar purchased.

At a recent sale held by Glover sows bred to Liberty Bond averaged $823.

High Prices for Grade Holsteins

In the dispersion sale of grade and pure bred Holsteins held by C. L. Kenestrie at Reedley, April 4, grade cows sold as high as $263.50, and at least two touched the $260 mark. Values ranged from $130 to $263.50.

When grade cows command $263.50 there is ample reason why California dairymen should begin a systematic improvement of their herds, for be it known, the high priced grades are high bred grades—such as only well bred bulls can sire.

Plans a Shorthorn Sale In June

W. M. Carruthers, Shorthorn and Berkshire breeder of Live Oak, has announced that he will probably make a draft sale of select Shorthorns the latter part of June.

In case the sale is made, Carruthers says that he will get together an offering that in point of breeding and individuality will be of a character to attract the best buyers of the West, and will surpass any of his former offerings.

Glide Bid On Top Villager Bull

Thornton S. Glide, Davis, proprietor of the Hillcrest herd of Shorthorns, was, through his agent, Alex McDonald, one of the bidders on several of the best bulls offered in the Weaver and Garden sale at Wapello, Iowa.

Glide was particularly anxious to secure a son of Villager, and had selected the bull that finally topped the sale at $6500. His bidding instructions did not contemplate such a high figure and McDonald could not land him. The Glide herd is one of the pioneer collections of Shorthorns west of the Rocky Mountains, and for a long stretch of years has exerted a powerful influence on the cattle stock of California. Among the herd bulls that have been used are the names of some that have made Shorthorn history on the Coast, and the effort made to purchase the bull referred to was but an effort to place at the head of the herd a bull that would measure up to the Glide standard.

Slocum Arrives With Eastern Durocs

Clayton N. Slocum of the Duroc-Jersey breeding firm, H. P. Slocum & Son, Willows, writes that he has succeeded in purchasing his quota of Eastern Durocs and that he expects to arrive home about April 10. Included in his selections were many boars and gilts representing the best blood lines of the breed that have been selected with particular reference to the needs of this state.

Dolcini Reports Duroc Sales

V. F. Dolcini, Davis, owner of the June Acres herd of Duroc-Jerseys has recently sold a number of bred gilts and boars to Col. Ord L. Leachman of Sacramento. Included in the sale were several daughters of the University boar, Model Col., counted by many to be one of the best boars of the breed.

Dolcini has been one of the heavy winners in the annual futurity shows held at the state fair and he is planning to develop several choice prospects for the coming show. He says that he believes the futurity is one of the best methods for encouraging breeders to properly grow out their young stuff.

Berkshire Breeder Moves to Salida

Homer Hewins, Jr., who for the past few years has been manager of the Maplewoode herds of Berkshires and Holsteins, Calistoga, has recently purchased a farm near Salida and contemplates transferring his operations to that place in the very near future. Hewins served two terms as secretary of the Western Berkshire Congress and at present is a director of that organization.

Barrows To Farm Near Orland

C. E. Barrows, veteran Berkshire breeder and exhibitor, who has been managing the swine department of Meadow View Farm, owned by H. C. Muddux & Son, Sacramento, has but recently resigned to enter business for himself.

Barrows has taken over a place near Orland, where he plans to establish a small herd of high class Berkshires and Jerseys.

Buys Hogs For Philippines

Professor J. I. Thompson, of the animal husbandry division, University Farm, has just completed the purchase of a number of Duroc and Berkshire boars and gilts for shipment to the Philippine Islands. Thompson says that judging from the difficulty he had in locating the required number, California breeders must have experienced a decidedly good year.

The shipment is being assembled at the University Farm and will be started on the 37-day trip about April 30.

McDonald Back From Cattle Buying Trip

Alex. McDonald, in charge of herds of beef cattle maintained at the University Farm, Davis, has just returned from an extended trip through Iowa and Missouri.

McDonald went East to select an Angus herd bull for the university, and while in the East executed a buying commission for a Hawaiian Island Angus breeder.

McDonald states that all live stock values are on very high levels throughout the corn belt, and that live stock observers do not anticipate a lower range of values for some time to come. According to McDonald the stimulus back of the demand is furnished for the most part, by men just entering the pure bred business in a small way, but who insist on buying the better sorts. He reports that the weather was extremely disagreeable and that in many sections feed is scarce and very high—hay selling for as much as $50 per ton.

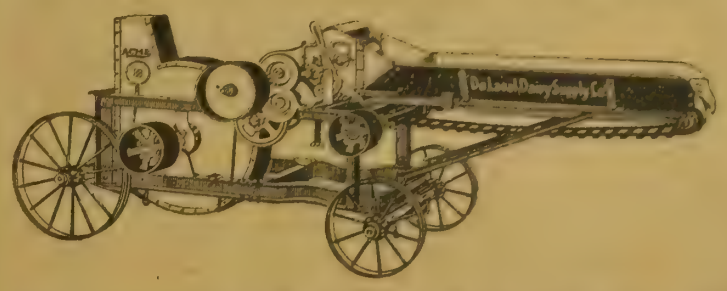
TUBBS IN SOUTHERN CALIFORNIA

C. F. Tubbs, manager of the A. L. Tubbs Co., breeders of Yorkshires, Calistoga, is in Southern California recuperating from a severe attack of influenza.

Mr. Tubbs' herd of Yorkshires ranks among the best in the west.

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The Combined Silo Filler, Feed Chopper and Alfalfa Meal Machine.

The Cylinder Cutter with the durable ALL-STEEL FRAME

A Size for Every Dairy.

WHEN you have finished the work of silo filling you don't have to store the Acme Cutter away until next season.

There is big work for it to do throughout the year—work that is just as important from the standpoint of feed economy as silo filling, and that is the work of chopping your dry hay and making your own alfalfa meal. The Acme will do it all and do it cheaply and well.

The steel frame insures durability and light running. The spiral knives give larger capacity and produce a superior quality of clean-cut ensilage and chopped feed.

Write for complete catalog, circular on economy of chopping dry feed and sample of alfalfa meal.

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Breeding Date Book—FREE

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R. L. Holmes Modesto, Cal.

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Registered young bulls from best families.

Registered Berkshire Pigs

Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.

Careful attention given to mail orders.

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Whittier, California

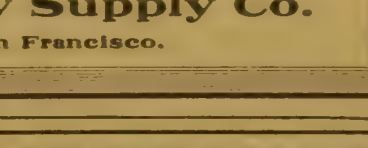
Carruther's Shorthorns and Berkshires

Choice collection of breeding cows—mostly Scotch—and representing the leading families, headed by Count Glory, grand champion at the last three state fairs, and Hallwood Villager. Bulls for sale at reasonable prices. Berkshire herd headed by the noted boar Ames' Rival 100. Correspondence invited.

W. M. CARRUTHERS, Live Oak, Cal.

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Only Two Men to Run Easy on Men and Team—



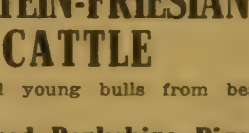
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RACINE Country Road Tires are rapidly and logically coming to be a part of the modern farm's necessary equipment.

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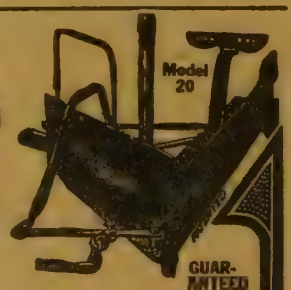
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Butter and Cheese Scoring Contest

By S. L. Denning

THE first scoring of the 1919 California Educational Butter and Cheese Scoring Contest was held on April 3 at the Gustine Creamery in Gustine. In connection with the scoring there was held a buttermakers' judging contest and meeting. On the day following the scoring a dairymen's meeting was held, at which talks were given upon dairy production and the care of milk and cream upon the farm.

Seventeen cubes of butter and two cheese were entered for scoring. T. J. Harris, official inspector of the San Francisco Wholesale Dairy Products Exchange, and Dr. C. L. Roadhouse and S. L. Denning of the University Farm were the judges. Hans Bino of the Petaluma Cooperative Creamery won first place in the butter class with a score of 93¾. John Reber of the Watson Cheese Factory at Bieber was given a score of 92 on his entry of Cheddar cheese and Rufus Steele received a score of 90 on his entry of Jack cheese.

W. R. Underhill of the Globe Dairy Products Company at Newman won first place in the Buttermakers' Judging Contest with a score of 416¾. He will be awarded a butter trier by the California Butter, Cheese and Ice Cream Makers' Association. Mr. Ferry of the Gustine Creamery was second with a score of 378¼ and T. C. Moran of the Oakdale Creamery was third with a score of 367¾.

Butter

The entries which had commercial score of 91 or above are as follows:

Hans Bino, Petaluma Coop., 93¾; A. Wirz, Hollister, 93½; V. Simonsen, San Joaquin Valley Milk Prod. Assn., 93; M. Ferry, Gustine, 92½; C. A. Holm, Moss Rose, 92½; M. Hansen, Western Refrigerator Co., 92; C. A. Johnson, Bodega Coop., 92; Ed Hooper, Hooper Cry., 92; W. A. Peterson, Lucerne Cream and Butter Co., 91½; John Gracia, Northern California Milk Prod. Assn., 91½; A. Madsen, Salinas, 91½; H. Dons, University Farm, 91½.

Cheddar Cheese

John Reber, Watson Cheese Factory, Bieber, 92 per cent.

Jack Cheese

Rufus Steele, Swanton, 90 per cent.

Butter Shows Spring Defects

Among the entries of butter in this scoring contest there were many with a weak, leaky body. At this season of the year the cows are receiving a large amount of green feed, which together with the presence of a large number of fresh cows in the herd gives a very soft fat. If this butterfat is not handled with considerable care during the making process, a poor body will result. Things which cause weak bodies are high churning temperature, warm wash water, butter warming up during working and excessive working. In the spring of the year, moisture is incorporated in butter much easier than during the winter months. Things which tend to increase the moisture content of butter are large churnings, soft fat and working in the presence of free water. Two of these factors are normally present at this time of the year, that is, soft fat and large churnings. The amount of working therefore may be reduced and still secure the proper amount of moisture. Butter should be worked until it has a firm, close, compact body and until the moisture and salt are incorporated and distributed. If the moisture is first worked in, the churn then drained and the butter salted, and the working continued, uniform results may be obtained. When loose moisture is present in the churn during the final working a leaky body often results. The churning temperature should be regulated so that the butter will come in from 45 to 50 minutes and in a firm condition.

An unclean flavor was noticed in several entries. Probably these makers have not yet adjusted themselves to the spring conditions. Very likely some cream which was not of first quality was allowed in the churning. The buttermakers should keep a close check upon the quality of his cream for the dairymen may neglect to properly care for the cream during the first warm days and allow it to spoil. Unclean flavors very often come from cream which is slightly sour. The market is coming more and more to prefer a mild flavored butter made from sweet cream.

Number of Cheese Entries Small

The entries of cheese in the various classes were limited in number although those entered were of good quality. The butter and cheese makers are taking considerable interest in the judging contests and meetings. It is well worth the extra effort on the part of the makers to attend these scorings.

The next scoring will be held during July at the creamery of the Lucerne Cream and Butter Company in Hanford.

Cooperative Marketing of Stock

By Dr. Elwood Mead

Professor Mead prepared the following paper to be read before the California Swine Breeders' Association at their annual meeting at Davis, April 10. Professor Mead has made a careful study of the live stock markets of the world, and in view of the keen interest in better markets for California, his remarks should prove of interest.—Editor.

THE cooperative auctions started in Kern County are a good institution and should be continued and extended. They have a definite educational value. The farmers who gather at these auctions see the difference between well graded, properly prepared stock and irregular lots poorly prepared. It has one feature in other countries that is lacking here and that is some means of extending credit where one farmer buys stock of another. In Australia and I think in most European countries, the auctioneer furnishes the credit. He pays the cash to the seller, takes a part payment from the buyer and his notes for the rest. In Australia he does this by having an understanding with the bank who knows he is responsible and will look after the stock sold until they are paid for. It might be done here by the farm bureaus guaranteeing the paper of their members who buy stock. Where there is free and fair competition in buying, the local or county auction is one of the cheapest methods of selling stock and is a valuable neighborhood institution.

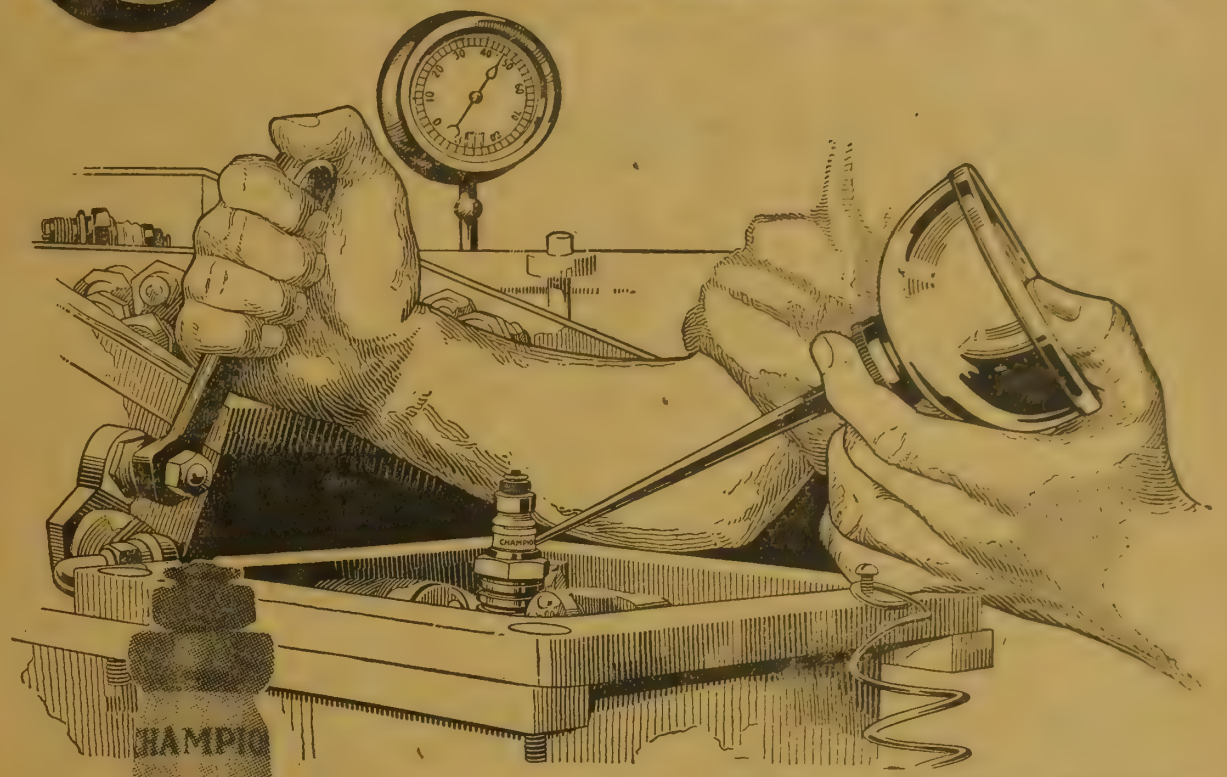
The trouble which confronts stock raisers in this country is the fact that there is not free competition between buyers. Five meat packing firms have steadily extended their domination over the meat industry until they now control the marketing of meat in all great cities. This enables them, where the government does not interfere, to control prices. They have absorbed or are able to dictate to small packers and independent butchers. They own all the important stock yards, the refrigerator car lines, the cold storage warehouses, the cattle loan banks, the trade papers and the canneries. Some of the packers are establishing trade chain stores, butter and cheese factories, tanneries, and other marketing facilities. They not only control markets, but the means by which marketing is carried on. Stock raisers have come to believe that having this monopoly control they used it to manipulate prices in such a way as to bring profit to the buyer and serious or disastrous losses to the seller because live stock once shipped or ready for market must be quickly sold to stop the mounting costs of care and keep.

When the war brought a need for more food and especially for more meat, the stock raiser had to be pro-

tected against these arbitrary changes in price and the remedy used by the government was price fixing. The President gave as a reason for this action "that unjustifiable fluctuations in prices are not merely demoralizing; they inevitably deter adequate production". Price fixing cannot, however, be considered a permanent solution. Its value depends too largely on the fairness and wisdom of the office holder who fixes the price. The fixing of the price of fish in California does not seem to have satisfied either the producer or the consumer. The report of the federal trade commission and the hearings of the senate committee on agriculture last winter both show the gravity of the present situation and have led to the introduction of what is known as the Kendrick bill. It aims to restore competition in buying by taking away from the five big packers the right to own car lines, stock yards and other related industries which makes the competition of small packers impossible. This legislation has one defect. It is not constructive. It does not create of itself any road between the producer and the consumer. This is being done in other countries by a cooperation between the producer and the government under which cooperative associations of stock raisers are loaned money on favorable terms to build and own their own packing plants or the government builds and owns and operates warehouses, stockyards and packing plants, as a means of securing free and fair opportunity for both producer and consumer and to help make the road between them straighter and shorter. These government owned stock yards and slaughter houses at terminal points have been tried long enough to show their value. The one in Edinburgh, Scotland, is nearly 60 years old. It is owned and operated by the city. All fresh meat sold there has to be killed in the city abattoir or pay a tax equal to the killing charge. To that abattoir comes, therefore, all the live stock sold in Edinburgh from the surrounding districts in Scotland. It is not the largest, but is the best equipped slaughter house I was ever in. It is as efficient as a privately owned plan and it does more. It makes competition fair and free and eliminates price fixing. The owner of a carload of hogs will find at the Edinburgh yards buyers for two large meat dealers. They are the Swift and Armour of Scotland. If they offer a satisfactory price, they get the hogs. If they don't the hog raiser has a safe and satisfactory alternative. He turns them over to the municipal authorities to be slaughtered. He pays for this slaughter the same charge per animal as the big dealers do. The rate is the same for one hog as for 10,000 hogs. He gets the same alowance per animal for the offal. After slaughtering his animals are tagged and put in a cold storage warehouse; held there for a given time without charge. He has now the carcasses of a carload of hogs which he can sell to the retail stores. The barrier between the producer and consumer which exists here is removed. It enables the independent butcher to live. He goes into the country and buys stock, has it slaughtered at the municipal abattoir. The big meat companies have to compete with him on fair terms. At the end of 50 years trial of the municipally owned slaughter house, Edinburgh built a new plant intended to meet the needs of the next quarter of a century, as they had no intention of abandoning this system.

I speak of the Edinburgh example because of having visited it, but there are scores of similar plants in England and Scotland. Two-thirds of the slaughter houses in Denmark are owned by cooperative associations of farmers. In Germany, which before the war was the best organized business country in the world, out of 1500 slaughter houses 1000 were municipally owned. Australia is younger than this country, but its stock raisers have had to confront the same menace of monoply control of the meat business that confronts ours. As a result, two of the states, New South Wales and South Australia, have built at their chief seaports state owned slaughter houses and all animals intended for retail sale or for export must be killed at those houses. In Victoria, another Australian state, the state government owns and operates at its two principal seaports cold storage warehouses and it has loaned to cooperative associations of farmers the money with which to build slaughter houses at three different points in the state. This gives to the farmer a square deal. He controls the slaughtering or can sell to slaughter houses controlled by farmers and the government fixes the prices and allots the space at the warehouses where the ships load. Before these cooperative warehouses were built, practically all the hogs slaughtered in Victoria were bought by two private firms and prices went up and down without any regard to the prices in the world's markets, but the grower lost so much from these manipulations that the government had to intervene to protect the live stock industry. In the same way the cold storage warehouses were built

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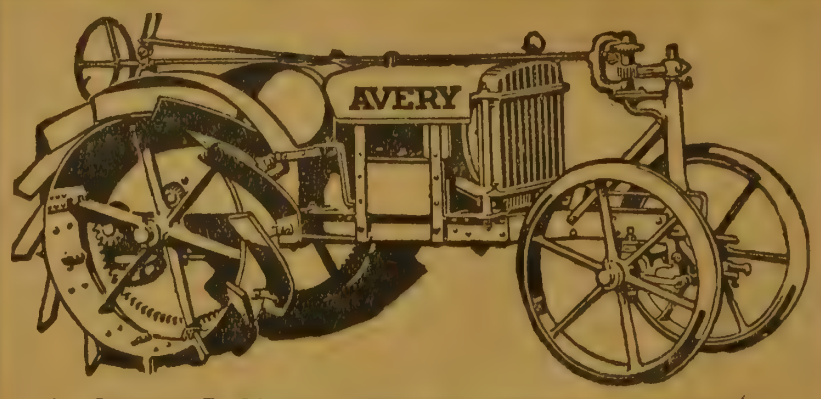
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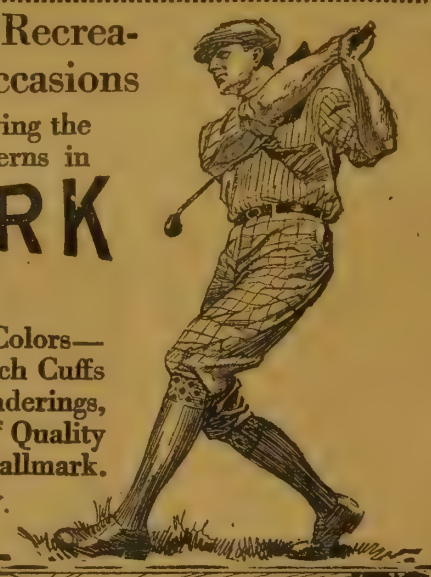
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up by the government to protect the independent dairyman from being robbed and ruined by bringing the control of privately owned warehouses which had to be used in shipping the surplus abroad.

I believe the remedy for monopoly control and for removing the barriers between producer and consumer which have proven successful elsewhere ought to be seriously studied here, not because they are more efficient but because they are more democratic. An autocratic government may be efficient and not desirable. The same is true of an autocratic control of any industry or business.

SHORTHORN SALE

Continued from Page 537

24. Jennie's Last, calved Nov. 7, 1917, F. A. Edinger, Hood, $400.

Bulls

26. Roan Goods, calved Aug. 21, 1917, J. L. Inman, Livermore, $550.
29. Ringleader's Model, calved Mar. 2, 1917, W. E. Short, Reno, Nev., $450.
33. Good Sort, calved Dec. 8, 1917, Geo. Merritt, Woodland, $425.
36. Ringleader's Star 3d, calved May 12, 1918, Louis Tarke, West Butte, $410.

Pacheco Cattle Co., Hollister

Bulls

25. Pacheco Lad 113th, calved Jan. 14, 1914 F. A. Edinger, $425.
28. Pacheco Lad 92d, calved April 1, 1916, Miss Lillian Julian, Montague, $700.
32. Pacheco Dale, calved Sept. 25, 1917, Miller & Lux, Dos Palos, $270.
46. Pacheco Lad 137th, calved Sept. 30, 1917, M. Tichenor, Palo Alto, $340.

Ormondale Co., Redwood City

Cows

10. Ormondale Lassie 2d, calved Nov. 12, 1917, M. Tichenor, $380.
15. Choice Orange 2d, calved May 18, 1918, B. F. Rush, Suisun, $500.
13. Mayfield Countess 2d, calved Mar. 22, 1918, Wm. Bond, $375.
17. Ormondale Aconite, calved April 9, 1918, J. W. Salz, $380.
19. Ormondale Maid 2d, calved Jan. 17, 1918, Wm. Bond, Newark, $1175.

Bulls

45. Ormondale Marshall, calved Nov. 28, 1917, M. Tichenor, $325.

London Estate, Glen Ellen

5. London's Selection, calved Aug. 26, 1917, B. F. Rush, $1300.
7. London's Choice Lady, calved Sept. 14, 1916, Mrs. J. C. Todd, Monterey, $475.
14. London's Lavender, calved Jan. 3, 1917, R. Parson, Hilt, $1025.
11. Village Pride, calved Mar. 3, 1915, and B. C., B. F. Rush, $1400.
21. Pine Grove Secret 8th, calved Feb. 12, 1911, Day & Rothrock, Spokane, Washington, $1250.

Bulls

38. Roselawn Choice, calved Oct. 28, 1913, Mr. Boyd, $40.
40. London's Red Ranger, calved Oct. 26, 1917, M. Tichenor, $385.

University of California

Cows

22. Lodestone Mayflower, calved Mar. 14, 1918, J. R. Boyd, $1000.

Bulls

39. California Model, calved Oct. 27, 1917, Conway Ranch Co., Woodland, $5500.

T. S. Glide, Davis

Bulls

30. Lassie's Knight, calved Sept. 6, 1917, Pacheco Cattle Co., Hollister, $800.
34. September Knight, calved June 3, 1917, J. W. Salz, $850.

D. and H. J. Baughman, Oakdale

35. Pacheco Lad 124th, calved Mar. 31, 1917, R. H. Smith, Ferndale, $410.
43. Ringleader's Mine, calved April 17, 1917, Miller & Lux, $200.

Charles A. Trosi, Reno, Nevada

Bulls

37. Trosi's Stamp, calved Nov. 30, 1916, Mrs. J. C. Todd, $300.
42. Sierra Chief, calved Nov. 27, 1916, E. O. Engles, La Grange, $700.
44. Comstock Sultan, calved Feb. 6, 1917, T. S. Smith, Onyx, $325.

H. L. & E. H. Murphy, Perkins

Bull

41. Holden Boy, calved Sept. 19, 1915, D. M. Loney, Grass Valley, $300.

T. T. Miller, Hollister

Sub. Amethyst Sultan, calved Feb. 17, 1918, Dr. T. T. Purkett, $490.

Shorthorn sale notes next week.

FARM BUREAU CONFERENCE VISITS ELKHORN FARM

On Thursday, March 27, a party numbering about 150, made up of the state farm advisers, their assistants, and farmers visited Elkhorn Farm in order to inspect the pure bred Ayrshire herd owned by J. Henry Meyer. Professor Gordon H. True, head of the animal husbandry department of the University of California, who was visiting the farm at the time, gave a short talk to the men on Ayrshires. He began by mentioning Finlayston, the greatest bull of the breed, having 99 A. R. records to his credit, whose three most representative daughters, Rena Ross 3rd, member of the famous Rena Ross family, having a record as a junior four-year-old of 16,114 pounds milk and 804 pounds of butter, test 4.24 per cent fat, Polly Puss 3rd, having a senior four-year-old record of 13,194 pounds of milk and 612 pounds of butter, test 3.98 per cent fat, and Curfew Bell 3rd with a two-year-old record of 9839 pounds of milk and 512 pounds butter, test 4.42 per cent fat, were led out for inspection. Next Baron's Best of Bargenoch, having 14 daughters in Advanced Registry was taken up; among his daughters shown was Thistledown Hobsland 3rd, a handsome cow, with a record of 8187 pounds of milk and 328 pounds of butter fat at three years of age. Then daughters of Substantial of Highland, the best bred bull for milk production in America today were exhibited, and finally daughters of Beuchan Peter Pan were shown. The outstanding young herd sire, Holehouse Secretary, just imported from Scotland, whose six nearest dams on his dam's side have records of over 11,000 pounds of milk was also most favorably commented upon. After viewing the animals the party was given the opportunity to sample Ayrshire milk and to note its excellent quality.

STATE CHAMPION JERSEY ON PICNIC DAY AT DAVIS

Interested Jap's Santa, the state champion Jersey milk cow, will be shown to the public at the University of California Farm at Davis on Picnic Day, April 26, according to a recent announcement of Dean Thomas Forsyth Hunt. Other dairy cattle of statewide importance will also be shown at the farm.

Last year Interested Jap's Santa produced 805.7 pounds butter fat, and 13,308.5 pounds of milk. This year for nine months she has given 724 pounds of butter fat, and 12,000 pounds of milk. Professor C. V. Castle, in charge of the experiment, expects her to make over 900 pounds of fat for the 365-day period of the test.

NEW YORK DAIRY SHOW

Official exhibits by the states of New York, Vermont, Connecticut, New Jersey, Pennsylvania and others will be among the features of the National Milk and Dairy Farm Exposition which is to take place in the 71st Regiment Armory, New York City, during the week of April 21. At this time also will be held a series of conventions at which farmers, dairymen and others will discuss present milk production and distribution conditions. This is the second year that the exposition and convention is to be held. Last May it was staged in Grand Central Palace which is unavailable this year because of its being used as an army hospital.

HEREFORD BREEDERS ELECT OFFICERS

In connection with the annual sale held at the University Farm, Davis, April 9, under their auspices, the Pacific Coast Hereford Breeders held their annual meeting and elected the following officers for the ensuing year: J. I. Cazier, Wells, Nevada, president; H. M. Barngrover, Santa Clara, vice president, and John A. Bunting, Mission San Jose, secretary. The retiring officers were H. H. Gable, Esparto, president; W. D. Duke, Likely, vice president, and W. R. Madden, Dixon, secretary.

SAN CLEMENTE QUARANTINE

The island of San Clemente on May 1, 1919, will be placed under federal quarantine to prevent the spread to the mainland of sheep scabies. The disease recently was found to exist among sheep on the island. Under the quarantine sheep may be moved from the island to any state other than California, only in accordance with the federal regulations designed to prevent the spread of the infection.

H. M. Barngrover of Santa Clara reports sale of ten head of Hereford heifers to the Evans Brothers of Nevada. Also a fine young bull to Mr. Hoy of Siskiyou County, and six young bulls to the A. Brown Company of Kernville.

A. M. Sanborn, who has an olive orchard in the Poplar district of Tulare County, grew a successful crop of cotton between his young olive trees the past year. Mr. Sanborn reports returns of over $400 per acre from his cotton.



Big Handlers of Big Live Stock

Prominent live stock men at Davis during the big live stock week. From left to right: O. M. Plummer, manager of the Portland Show; Senator Benj. F. Rush, veteran Shorthorn breeder; F. L. Washburn of the Western Meat Company; T. H. Ramsay, banker-stockman of Red Bluff and member of State Board of Agriculture; Chas M. Paine, secretary of the State Board of Argriculture.

SECOND HEREFORD SALE

Continued from Page 537

bull, Mystic Debonair, purchased by W. D. Duke of Likely for $700. He suffered the same handicap as the University entry.

The sale attracted buyers from a wide territory and was under the efficient management of C. L. Hughes of the California Breeders' Sales and Pedigree Company. Col. Fred Reppert, the nationally known Hereford auctioneer from Decatur, Indiana, set the values and Col. Ben A. Rhoades, assisted by Col. Ord L. Leachman, worked the ring side.

The complete list of sales follows:

John H. Cazier & Sons, Wells, Nevada

1. Lorna Doone 7th, calved Dec. 15, 1916, and B. C. S. N. Cowell, San Francisco, $400.
2. Rose Berry, calved Oct. 18, 1916, and B. C. Peter E. Fink, Reedley, $510.
3. Duchess, calved Dec. 9, 1916. Peter E. Fink, $475.
4. Beth, calved Oct. 17, 1916, Alex Brown, Walnut Grove, $400.
5. Bebe, S. N. Cowell, $425.
6. Chance, calved Nov. 18, 1916, R. Bass, Standish, $400.
6. Mabel, calved Sept. 29, 1916, and B. C., G. F. Silliman, Watsonville, $550.
8. Thelma, calved Oct. 7, 1916, G. F. Silliman, $410.
9. Wildeyes 6th, calved July 2, 1916, G. F. Silliman, $550.
10. Penelope, calved May 25, 1911, H. H. Gable, Esparto, $500.
11. Beating, calved Nov. 25, 1914 and C. C. Howard Tilton, Madrone, $725.
12. Bedrop, calved April 13, 1916, G. F. Silliman, $425.
13. Beneath, calved May 18, 1914, and C. C., John A. Bunting, $1000.
14. Mercedes, calved May 28, 1910, and C. C., Benjamin Quigley, Linne, $825.
16. Freighter Lass, calved Nov. 25, 1916, Benj. Quigley, $500.
18. Mighty Miss, calved Feb. 15, 1917, Alex Brown, $415.
19. Aurora, calved May 8, 1913, Benj. Quigley, $650.
20. Bessie, calved Nov. 30, 1916, G. F. Silliman, $425.
22. Constantia, calved Aug. 25, 1911, E. T. Morgan, Nathan, Nevada, $500.

Bulls

23. Nevada Lad, calved Jan. 8, 1918, Lamble Bros., Suisun, $575.
24. Standard Boy, J. M. Guiberson, Corcoran, $625
25. Beau Del Sierra 5th, calved Oct. 23, 1917, G. F. Silliman, $525.
26. Nevada Lad 3d, calved Nov. 15, 1917, N. S. Boone, Hayward, $450.
35. Brave Lad, calved Mar. 12, 1917, S. N. Cowell, $2400.
27. Lemule, calved June 29, 1918, Benj. Quigley, $650.
28. Nevada Lad 2d, calved Sept. 20, 1917, W. J. Bemmerly, Woodland, $925.
29. Mystic Debonair, calved Mar. 29, 1915, W. D. Duke, Likely, $700.
37. Imperial 10th, calved Sept. 19, 1917, A. R. Cutler, $250.

Mrs. D. O. Lively, San Francisco

Cows

30. Folly Copren, calved April 6, 1917, R. Bass, $550.

University of California

Bull

31. Hopeful Prince 2d, calved April 26, 1914, University of Idaho, Moscow, $600.

W. D. Duke, Likely

Bulls

32. Titus, calved April 3, 1918, A. R. Cutler, Visalia, $235.
33. Bloomer, calved Mar. 29, 1918, A. R. Cutler, $235.
34. Ned Green, calved Mar. 29, 1918, Walker & Ross, Red Bluff, $350.
35. Major Alamo, calved Mar. 29, 1918, A. R. Cutler, $235.
36. Lloyd George, calved Mar. 18, 1918, A. R. Cutler, $235.
37. Frank Lane, calved Mar. 18, 1918, A. R. Cutler, $235.
38. King James, calved Mar. 20, 1918, A. R. Cutler, $235.
39. Harvey Francis, calved Aug. 31, 1917, Walker & Ross, Red Bluff, $225.
40. Old Majesty, calved April 7, 1917, P. K. Bradley, Elk Grove, $425.

Cows

41. Grace George, calved Mar. 23, 1918, S. N. Cowell, $200.
42. Gardenia Picador, calved April 12, 1917, R. Bass, $400.
43. Lucky Lass, calved April 6, 1917, S. N. Cowell $310.
42. Lady Picador, calved April 12, 1917, S. N. Cowell, $310.
43. Alamo Flirt, calved April 14, 1917, R. Bass, $385.
44. Jerusha Picador, calved April 19, 1917, S. N. Cowell, $310.
47. Solace Picador, calved May 2, 1917, S. N. Cowell, $310.
49. Miss Neck, calved April 12, 1917, Alex Brown, $410.
50. Gussie Alamo, calved April 7, 1917, S. N. Cowell, $310.
51. Lucia Alamo, calved April 2, 1918, S. N. Cowell, $200.
52. Woodland Flirt, calved April 7, 1917, S. N. Cowell, $310.
53. Orpha Folly, calved April 12, 1917, R. Bass, $390.
54. Diana, calved April 10, 1918, S. N. Cowell, $210.
55. Alamo Folly, calved April 29, 1917, S. N. Cowell, $310.
56. Queen Folly, calved April 6, 1917, S. N. Cowell, $310.

H. M. Barngrover, Santa Clara

Cows

57. Lone Girl, calved Feb. 20, 1916, S. N. Cowell, $500.
58. Annie 3d, calved Mar. 20, 1916, and B. C., Howard Tilton, $575.

Bulls

59. Plumas Lad, calved Jan. 19, 1918, Alex Brown, $550.
60. Roosevelt, calved Sept. 20, 1917, T. S. Smith, Onyx, $300.
61. Oregon, calved Oct. 19, 1917, J. A. S. Shomo, Ukiah, $375.
62. Alaska, calved Sept. 7, 1917, T. A. Work, Monterey, $575.

W. J. Bemmerly, Woodland

Cows

64. Lady Evenho 18th, calved July 4, 1916, S. N. Cowell, $710.
68. Goldie Donald, calved Jan. 2, 1915, Howard Tilton, $750.
65. Geraldine, calved Jan. 14, 1918, G. F. Silliman, $425.
69. Melba Cook, calved Jan. 22, 1918, John A. Bunting, $470.
72. Mattie Gray, calved Jan. 12, 1918, G. F. Silliman, $350.
73. Tess Donald, calved Jan. 20, 1918, J. R. Boyd, St. Helena, $375.
74. Edith Hope, calved Mar. 24, 1916, T. S. McColloch, Dunnigan, $485.

Bulls

67. Golden Ray, calved Jan. 10 1918, Moulton Monroe, Cool, $500.
68. Happy Hope, calved Jan. 23, 1918, H. T. Lillencrantz, Hollister, $425.

Chas. Rule, Junior

Bulls

75. Sonoma Boy 2d, calved April 13 1918, G. Van Gorden, Danville, $350.
76. Sonoma 3d, calved Feb. 20, 1918, Howard Tilton, $425.
77. Sonoma Boy 5th, calved Mar. 14, 1918, A. R. Cutler, $260.
78. Sonoma 10th, calved Mar. 16, 1918, A. R. Cutler, $280.
79. Simoon 10th, calved Mar. 1, 1918, G. F. Silliman, $240.
80. Sonoma Lad, calved Feb. 21, 1918, E. V. Buddecke, Roseville, $250.
81. Glow King, calved Mar. 4, 1918, Walker & Ross, $250.

Cows

82. Sonoma Girl 2d, calved Feb. 18, 1918, John A. Bunting, $850.
83. Sonoma Lass 2d, calved Mar. 4, 1918, G. F. Silliman, $465.
84. Miss Sonoma 6th, calved Mar. 2, 1918, G. F. Silliman, $425.

Hereford Sale Notes on Page 552.



Sir Fayne Pontiac De Kol Pietertje
H.B. No., 157535

Will offer for sale this valuable Herd Sire. He is from a 24 pound granddaughter of King of the Pontiacs.

Born April 17, 1915.

Sire—Sir Mooie Fayne De Kol Jane 76287.

Dam—Whittier De Kol Pontiac Pietertje 173965. Butter seven days, 24.12.

Todos Santos Rancho
E. D. Barry, Jr. *Daggett, Cal.*

Perfect balance

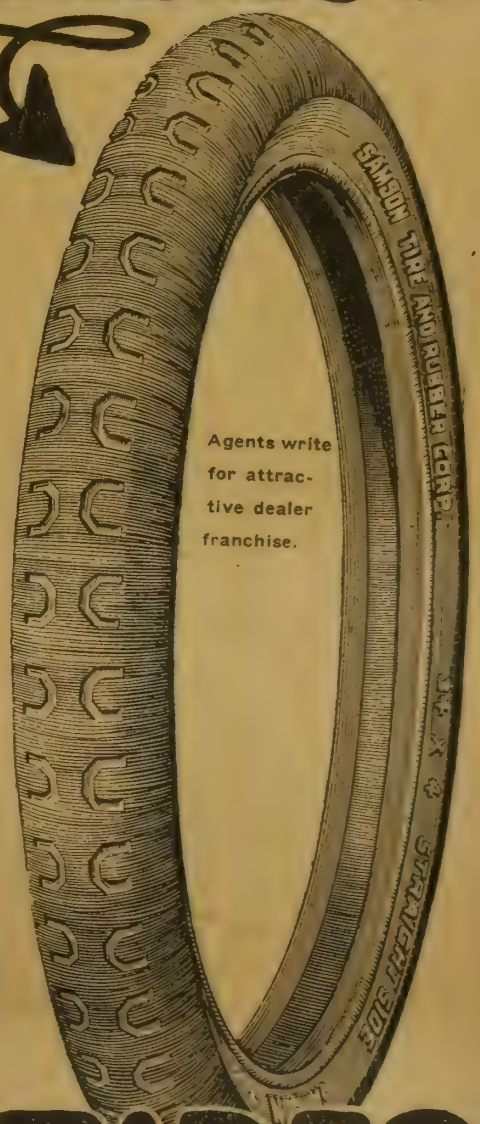


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COLORADO

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916 East First Street, Los Angeles.
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It's the only brooder stove with two **RADIATORS** hence compound **ECONOMY.**

It keeps chicks from crowding by proper application of heat, the only **SENSIBLE** way.

It's the only brooder stove using **CHEAP OIL TOPS** successfully as fuel.

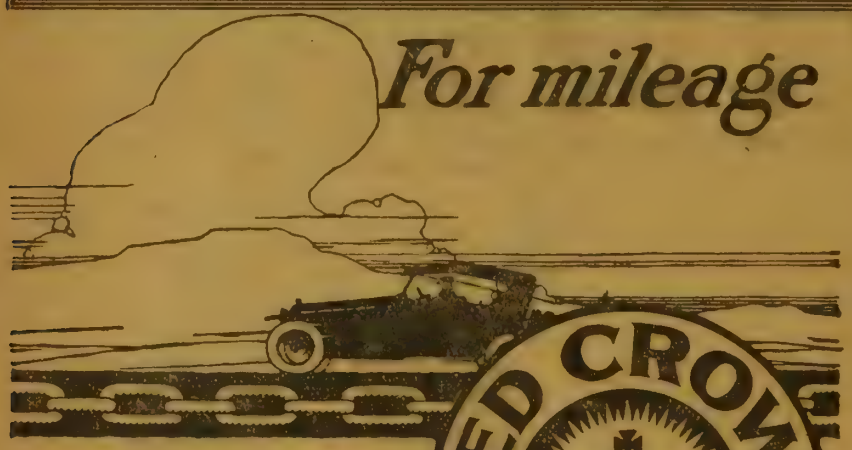
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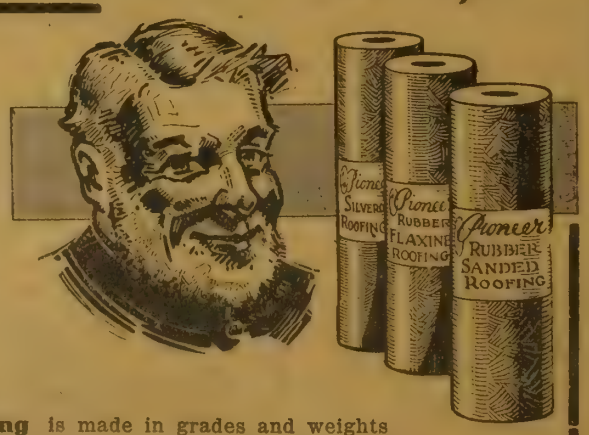
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TURKEYS FROM SHELL TO TABLE

Continued from Page 539

low ten hens to one tom for thrifty birds. Keep the house where they roost clean and free from vermin. Coal oil on the roosts is a good exterminator of insect pests.

Sprouted barley: Have seven boxes, about four feet square, and nine inches deep. Bore holes in the bottom for drainage, fill them with barley, and turn water over the grain twice daily. When well sprouted there will be one box for each day.

When the laying season begins, watch your hens carefully as they will invariably steal their nests out in the weeds or brush, and snakes, dogs or skunks may destroy them. The eggs should be brought in the house each evening and should be kept at an even temperature, being careful not to get grease on them or anything that will close the pores in the egg and cause the germ to die. The turkey hen will lay twice, usually from 18 to 25 eggs each time. Many poultry raisers set the first eggs under hens, so the turkey hen will lay soon again, in order to have early turkeys.

Turkey hens are good sitters, and if kept free from mites will seldom leave their nests. It is almost impossible to break one from sitting She will sit just as contentedly upon a china egg or an old door knob as upon a nest of eggs. The bodily heat of a turkey hen when sitting is about two degrees warmer than that of a chicken hen, and they usually will hatch eggs 24 hours sooner than the chicken hen does.

When your turkey hen wants to sit, get a large box, that is high enough for her to stand up in. Loosen one of the top boards so you can put your hand in to give her fresh water and food or fix the eggs if need be, but this is seldom necessary for the hen usually understands her business better than we do. In one corner of the box scoop out a hollow for a nest, lining it well with straw and put in about 20 eggs, with the date of sitting on each one in order to avoid confusion if you should have to change the eggs.

Put a can of water and one of food in the box where she can reach it. Place a coop in front of the slide door that you have cut in the box, so you can let her out to exercise after a day or two, also to prevent the soiling of the eggs.

In the evening, when you catch the hen, taking care not to alarm her, place her on the nest, keeping your hand upon her back until she is well settled on it. Unless the hen is very gentle it is best not to disturb her, for she might crush the eggs by jumping on them.

In about 27 days after setting the hen, remove the can of water from the box, as the little turkeys will hatch on the 28th and may drown by getting into the water.

Do not remove nor feed the young turkeys for from 24 to 36 hours. Nature has provided nourishment for them for that length of time. If they are fed too soon they may have indigestion, in which case they will seem to grow smaller until they die.

When you go to remove them from the nest and put into a box with the bottom covered with clean straw, have a cup by you with a tablespoon of coal oil in it and put some on the hen's head, a little under each wing, and a few drops at the root of her tail. As you lift each little turkey out, dip your finger into the oil and serve them in the same way, putting on just the amount that sticks to your finger.

In one corner of the coop place a box about three or four inches high and a foot square. Remove one side of the box and put coarse wire netting over it. The little ones will soon learn to run in there to eat the food you place in it. If you do not arrange something like this the mother hen will eat it all herself.

If you do not have a drinking fountain to hold the water for them, an old cup will do, if you put a rock into it large enough to keep them from getting into it. Their first meal should be a hard boiled egg chopped up with the shells and mixed with curd that has been made from well clabbered milk and cooked just long enough to make crumble. Sprinkle black pepper over it. This will prevent diarrhoea and is also heating. Give them a little fine gravel with their food. Feed them every three hours until they are two weeks old. The second day after you take them off begin to give them a little chopped onion tops or mustard leaves in their food. When ten days' old, give them a little boiled wheat or cracked barley with the curd. The eggs can be dispensed with after the fourth day, but it would be better to feed the egg for a week.

In two weeks they can be turned on the range with the mother hen after the grass is dry in the morning, and if the weather is warm. Dampness is fatal to little turkeys, yet, as they have the least sense of any animated thing, if you do not watch them in showery weather you may find that they have chilled to death from standing under the eaves or a drain pipe.

When three or four months old they will want to roost in a sheltered place. If any little turkeys look droopy, examine closely for lice, for this is usually the reason.

Coyotes and hawks will take toll of them. When there is a hawk around the old hen will crane her neck and turn her head sidewise, and give a warning call, and in two minutes there is not a young turkey to be seen. When the danger is past the mother calls and out they come from clumps of weeds, from underbrush or behind clods or rocks.

Any ponds of water or the horse-trough will prove pitfalls for them. A board put in the trough to float on the water will save many of them.

If your turkeys develop blackhead, as turkeys are prone to do, isolate them at once, putting them into warm, dry quarters, and give them plenty of nourishing food, gravel and fresh water with a small piece of bluestone in it, and wash their heads with a weak solution of carbolic acid, making them inhale a few whiffs of sulphur smoke. If the swelling is well developed, take a safety razor and make an incision under the eye, and with a fountain pen filler, or small syringe, fill the cavity with peroxide. This will cause the pus that has accumulated to escape. Be sure to hold the head of the fowl down so the mucus does not go down the throat, and then put tobacco dust on the cut, or on any canker that may be seen in the throat or mouth. This operation may have to be repeated, but once is usually enough. The swelling is reduced, and the place heals over.

Dressed turkeys bring a better price than live ones do in the market, and they do not shrink in weight, as when selling them as live weight. When ready to dress them, make an incision in the neck and allow them to bleed freely by having them hung up by the legs to a stout peg on a wall. This will keep them from becoming bruised, as they would if allowed to flop around on the ground.

As soon as they become quiet, commence picking them dry, placing the small soft feathers in one box and the coarse ones in another. An expert picker can pick a turkey in 15 minutes, or four an hour. It can be done quicker, but not so thoroughly. Clean the birds thoroughly, but do not draw them as the commission men prefer them in this condition, saying that they keep better if not cut into. Leave four or five large feathers in each wing and in the tail. Hang up over night in a cool place. When getting ready to pack them for market tie a scalloped tissue paper around the feet, and one around the head, leaving the beak out. Use a piece of narrow ribbon to tie the paper on with, also to tie the wings over the breast. Ribbon is cheap, and makes the bird look much more attractive. When packing them, place on the back so as not to flatten the breast.

Put a card to your commission man inside of the box as well as one tacked on it, as sometimes the outer one is pulled off in transit. Have the number of turkeys that you are shipping, and their weight marked on the tag, as well as your address.

In extremely hot weather special care is necessary to prevent chicks from being overheated by exposure to the sun, confinement where ventilation is bad, or overcrowding. The brooder should be under shelter, with good circulation of air around it, and the number of chicks should not be greater than it will accommodate comfortably under hot weather conditions.

THE MAN BEHIND

By W. D. White

'Tis the man behind the gun that enables the shot to hit the mark. It takes brains and muscle to make a success of anything. To succeed in rabbit raising one must think and work. Nature does her part, gives her returns freely, but she is like the little boy's mother. The lawn was cut, and when the father came home he said somebody must have worked. The little boy straightened up painfully yet proudly, and said: "Mamma worked me."

Mother nature may seemingly work you, but you will be proud of it when you see your success.

Hutches will not build themselves, but you can make them so that the stock can be fully protected and easily cared for. Neither will the hutches clean themselves; you must work to do that. Anyone can get plans of correct hutches and instructions as to keeping them clean.

One must feed correctly. At a low price you can buy books full of information about all these things, written by men from their years' of experience.

Good, healthy stock can be kept healthy, and their offspring will be likewise, if they are properly cared for.

Drafts, hot sun, dirty hutches, poor food or even good food improperly fed,—laziness and ignorance are the causes of all failures in rabbit raising.

These are the days when one must use all resources to help in making a living. The butcher, the baker and the candlestick maker want for their goods many times what they did years ago and wages are but a little higher. So what one can save and make outside of his daily wage must make up the difference.

The writer has raised rabbits for more than 20 years and has found them very profitable, but daily he has had to use his brains and muscles.

Anyone can do likewise if he will meet the conditions.

HOW TO FEED BARLEY

By Jean A. Koethen

Hens do not as a rule find whole barley, fed in its natural hard, dry state, very palatable. Sprouting it four or five days, or until the roots begin to show, adds to its palatability, without taking much, if anything, from its nutritive quality. If it is sprouted until the green sprouts begin to show, it becomes green feed without much value for egg making. If it is sprouted until the green sprouts are over an inch high, the hens do not care for it even as greens unless it is run through a clover cutter.

To sprout barley or oats, soak the grain from 24 to 48 hours, then pour into a flat box, or better still, into one of the trays of a sprouting cabinet. In a sprouting cabinet, each tray is shaded by the one above it, except the top one, which is covered with a moistened piece of burlap. If boxes are used, each one should be covered with a burlap sack, and the more constantly the burlap is kept moist the more rapidly will the sprouts grow. As soon as the roots show, begin feeding. If the grain is not kept fairly moist much of it will dry out and become less palatable than it was in the beginning.

When barley is fed as a scratch feed it should be scoured or hulled. Scoured barley has part of the hull removed. Hulled barley is still more palatable, and more expensive.

Rolled barley is fed dry by many poultrymen, but is more palatable when steamed. Fill a kettle or pail at night, cover with water, and let stand on the stove till it nears the boiling point. Then let it stand and swell and soften all night, and feed for breakfast. Barley steamed in this way may be made part of the moist mash if this is preferred.

HEAD OF THE HOUSE

Not long ago a Scotch minister knocked at the door of a house where a husband and wife were quarreling. When admitted, he inquired:

"Who's the head of this house?"

The man quietly replied:

"Sit yersel' doon, mon; sit yersel' doon. We're just rying to settle that noo."

Doctor—Tell your wife not to worry about her deafness, as it is merely an indication of advancing years.

Mr. Meekman—Er—would you mind telling her yourself, doctor? —Tit-Bits.

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Grafted Feijoas or Pineapple Guava. Large plants $3.00 each, 10 for $25. Wm. Boyes, Lomita, California.

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For Sale—Bronze also Mammoth Bronze turkey eggs. Also young tom turkeys for breeding. Robinson Turkey Ranch, San Dimas, California.

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Onion Plants—1,000,000 California Red, 75c per 1000. Now is the time to plant. Monroe, The Tree Man, Orland, California.

Our New Hardy Hybrid Alfalfa beats the best, don't compare with others, but write for facts. J. L. LAWSON, San Jose, California.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees, Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

For Sale—Florida Sour orange seed and California sweet seedling orange seed. Order early. Milo Hunt, Whittier. Phone 750.

For Sale—Sudan Seed, government tested, 15c per pound or $12.50 per hundred F. O. B. Jamacha, California. G. A. Spencer.

Millions of Tomato, Pepper, Celery and other plants for sale. L. C. Johnson, Pomona.

Dwarf Milo Seed. From field that produced better than 2½ tons per acre. $6.00 cwt. W. L. Helwig, San Jacinto.

MACHINERY

FOR SALE—USED RANCH TOOLS.
Guaranteed to do as much work as new. WE SELL FOR LESS. CALL AND SEE
WINDMILLS — 8 ft., $29 to $35; 10 ft. $39 to $45; 12 ft., $58 to $68; 16 ft., $135.
REDWOOD TANKS — NEW, used, all sizes, 25,000 gal., $135; 50,000 gal., $250.
NEW GALV. TANKS—1000 gal., $42.50; 2000, $53. USED 6000, $125; 7000, $145.
RANCH TOOLS—6 H. Lambert engine, $95; 10 ft. grain drill, $95; mower, $45; beet drills, $35; 4-gang disc plow, $120; potato planter, $75; spike harrows, Planet Jr. new potato digger, $20; 2-row bean cultivator, $35; irrigating pipe; sundries.
PUMPS — Complete pumping plant double acting deep well Dow pump 12 H. Western engine, pipe and rods for 135 ft. lift belting, all accessories on cars, $875 or less than half, engine alone costs $700 now. 1-in. centrifugal, 2-in. American, $35; 2½ B. & J., $45; 4-in. horizontal cent., $82.50; 6 hor., $125; 4 two stage, $150; single Pomona plunger pump $50, many others, 50 brass cylinders. Checks, Liberty Bonds accepted. DEMMITT CO., upstairs, 120 N. Main. Yards, 816 Yale, Los Angeles. Also buy first-class used material.

For Sale — One Bean TrackPull Tractor in first-class condition. Engine recently overhauled and brought up-to-date. A bargain for some one. Holmes Date Gardens, Indio, California.

For Sale—Two Bemis Transplanters, only used once, good as new. Apply to John A. Hill, Box 491, San Jacinto, California.

3-Inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2.

HOGS

Duroc Boars—A son of King the Col. O. S. Larson's great boar and Crimson Lady Wonder, farrowed February 10, 1917. A very fine animal. Also eight of his boar pigs about three months old. Holmes Date Gardens, Indio, California.

Registered Duroc Gilts—Ten Sept. and seven June gilts, two bred sows. Well grown, good breeding, reasonable price. J. J. Prendergast, R. 2, Box 87A, San Bernardino, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

MULEFOOT HOGS. LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724 Sacramento, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

LARK MEADOW RANCH
BERKSHIRES.
GEO. A. STINGLE, EL MONTE, CALIF.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLITS, CALIF.

BIG TYPE POLANDS
W. W. BROWNING, WOODLAND, CAL.

EDUCATIONAL

BEST OF BUSINESS TRAINING.
Munson School
for
Private Secretaries.
600 Sutter St., San Francisco.
Send for catalog.

DUCKS

Mammoth Pekin Ducks 10 days old, 30 cents, $25.00 per hundred. Eggs for setting $1.00 dozen, $7.00 a hundred. August Surtman, Merced, California.

Fawn Runner Duck Eggs $1.25 per setting. Mrs. M. Lopez, Lathrop, California.

HOGS

FIRST AUCTION SALE

REGISTERED BERKSHIRE HOGS

May 1, 1919

75 - Head of Sows and Boars - 75

Sired by Iowana Champion Peer 2d, a son of Rivals Champion Superior Emblem, a son of Solano Emblem and Superior Leader, a son of Grand Leader 2d, Grand Champion of the world.

A choice selection from a herd of 500 head. Everything from this herd but the very best are sold for pork. The tops are offered at auction. All registered and of the best families. For catalogs address W. S. Guilford, Superior California Farm Lands Company, Willows, California. Herd is at Monroeville Orchard, six miles south of Hamilton City, Glenn County, California.

C. L. HUGHES, Sales Manager
COL. BEN RHOADES, Auctioneer

CASTLEVIEW

Giant Type Berkshires.

We are booking orders for spring pigs from Grand Champion sows and sired by Mayfield Rockwood, sire of Champion barrow at 1919 Western Berkshire Contest.

Castleview Ranch, Santa Rosa, Calif.

BERKSHIRES BERKSHIRES

ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

"GROW THEM OUT"
BERNSTEIN'S PIG SALE

Sat., April 26th, '19, I will sell sixty-five registered Poland-Chinas to the highest bidder. A few bred sows and service boars. All the rest are PIGS from weanlings up to gilts ready to breed from fall litters. Come and BUY THEM YOUNG AND GROW THEM OUT. W. Bernstein, owner. Write for catalog to W. T. Dice, Sec., Box 374, Hanford, California.

Billiken Chester Whites, are all sold except one yearling boar. Am booking orders for spring pigs to be shipped at weaning time. Can still accept a limited number of orders. My boars and sows are of the best blood and most approved type and the pigs I will have to offer will be equal to the best that can be obtained anywhere. C. B. Cunningham, Mills, California.

Mammoth Poland-China sows—We are offering about twenty tried sow and yearling gilts all sired by the world's champion, Superba, at very attractive prices. They are very large and smooth and possess a world of quality, all guaranteed safe with pig before shipping. Rough's Greenfields, Arlington Station, Riverside, California.

For Sale—Poland China — Quality type. Young stock of boars and gilts for sale at all times. At the head of our herd stands some of the best blood—Superba and I. B. A. Wonders, the World and State Champions. Poland China Ranch, C/o H. B. Peake, Mgr., 358 11th Street, San Bernardino, California.

Grape Wild Farm Berkshires. A few fall Boars by Big Leader Grape Wild Farm Leader and Majestic King, also spring pigs. A. B. Humphrey, Prop., Escalon, California.

O. I. C. BREEDER'S NOTICE
I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Building, Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

For Sale — Berkshire boar Pacific Star Masterpiece 2nd 241131—2½ years old. Nil Goethes Masterpiece 198190, dam Star Belle Betsey 226782. Splendid herd header. J. E. Moltzer, Van Nuys, California. South Sherman Way, corner Rita Street.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

POULTRY

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1898. Further information write Must Hatch Incubator Company, 438 Seventh St., Petaluma, California.

It's like groping in the dark to attempt raising poultry successfully without some knowledge of the business. Poultry for Profit tells you how to house, feed and raise chickens, ducks and turkeys successfully in California. It contains 225 pages with 18 pages of illustrations and bound in cloth $1.00 postpaid. Cultivator Publishing Co., 115 N. Broadway, Los Angeles, California.

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 387, Inglewood, California.

Baby Chicks—We specialize on Money Making White Leghorns. High record stock with records that are unimpeachable. Also Brown Leghorns, Anconas, Minorcas, Rocks, Reds, White Wyandottes and Buff Orpingtons. Especially interesting Circular and Price List ready January 1. B. W. Archibald, Soquel Santa Cruz Co., California.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs, $2.50 per 15 eggs. Chicks 25c each; pullets May hatch, laid 12 dozen December, 10 dozen January. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California.

Hatching Eggs—White Leghorns, Light Brown Leghorns, Dark Brown Leghorns, White Rocks, $2.50 per 15; $10.00 per 100. All bred to highest possible standard of beauty and utility. Mahajo Farm, P. O. Box 597, Sacramento, California.

Standard Bred S. C. White Leghorns. Winners at California Liberty Fair. Hatching eggs, $3 up per 15, $15 per hundred. Laying hens and pullets for sale to make room for young stock. ALLESSANDRO POULTRY YARDS. Telephone 53511, 523 Rosemont Ave., Los Angeles, California.

Sly's Rhode Island Reds winners and layers. Hatching eggs from high-grade stock scientifically bred for exhibition and utility. Settings $5.00, $3.50 and $2.00. Send for catalogue. Albert Sly, 1644 Middleton Place, Los Angeles.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

Baby Chix R. I. Reds, Barred Rocks, Brown and White Leghorns from Hoganized stock, bred to lay. Reasonable prices and pleased customers our aim. Tobener Hatchery, Washington Avenue, San Jose.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith Prop., Corning, California.

Wanted—1000 Poultrymen to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Imschweiler, Box 70, Inglewood, California.

Pea-Fowls—Three pairs of ten months old pea-fowls at $10.00 per pair. First orders with cash takes them. Harry A. Miller, Kerman, California.

White Wyandotte setting 15 eggs, $2.00. Mission 281, G. O. Tetley, 190 Edgewood Place, Riverside.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks BABY CHICKS, eggs, Cockerels. Fairmead Poultry Farm, Fairmead, California.

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo. Schmitt, Box 263, Corcoran, California.

Black Minorca and Buff Wyandotte Eggs $1.50 per setting. Chicks 20c each, thoroughbred laying strain, none better. A. G. Moore, 432 Ulysses Street, Los Angeles.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Chix or Eggs—Hoganized W. Leghorns—also limited quantities of Buff Leghorns, Buff Minorcas, B. P. Rocks, L. Brahmas, Reds. S. Martina, R. 2—627 Santa Cruz.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, Reservoir, Pomona, California.

POULTRY

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns. CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for twenty years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

For Sale—Eggs from White Muscovy Ducks, 25c; Mammoth Bronze Turkeys, 25c to $3 each; Mammoth Toulouse Geese, 50c to $1 each; setting White Wyandotte Eggs, $1.50 to $3. Guinea Fowl, $4 a pair. A few choice Toulouse Ganders, $15 each. All stock blue ribbon winners. Paradise Valley Poultry Ranch, National City, Cal.

Baby Chicks Every Week. Order early and get the date you want. White and Brown Leghorns, Rhode Island Reds, Barred Rocks, Anconas; also hatching eggs. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

Finest Hatchery in the World. Chicks, White Leghorns, Rhode Island Reds, 10s, 1000s, hatched right in our $60,000 brick and concrete hatchery from our Hoganized heavy layers. Stock, eggs. Pebbleside Poultry Farm, Sunnyvale, California.

Poultry for Profit—A 225 page book, with 18 pages of illustrations, tells you how to successfully house, feed and raise chickens, ducks and turkeys in California. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 N. Broadway, Los Angeles.

WANTED

Wanted—Salesmen and Agents. Exclusive territory granted. Powerene is equal to gasoline at 5c a gallon. Is guaranteed to be harmless, to remove and prevent carbon, doubling the life of all gasoline motors, saving repairs, adding snap, speed and power. An amount equal to 20 gallons of gasoline will be sent to any address in the U. S. for $1.00. W. Porter Barns, Santa Rosa, California. Dept. A-11.

Wanted—Place as foreman. Advertiser is thorough in all lines of farming, fruit growing and the care of live stock. Experienced in working all kinds of labor both tenant and wage systems. Address Box 22, Care of Cultivator.

Wanted — I Have Wealthy Clients Who desire to purchase prospective oil land. If you have property you think will interest them communicate with me. HARRISON LEWIS, suite 1023 to 1029 Investment Bldg., Los Angeles.

Duroc Jerseys Wanted—Bred and open gilts and young sows. State price, breeding and when bred. Jersey Queen Farm, San Jose, California.

Wanted—Second-hand Sorghum Mill and Pan; one or both. State size and make and price. Address, B. L. Mussetter, Usona, California.

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minnesota.

Wanted to Hear from owner of good farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minnesota.

RABBITS

Raise Rabbits for us. We supply the breeding stock. Send stamp for particulars. H. E. Gibson Co., Arcadia, California.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

For Sale — Thoroughbred rabbits, all breeds. G. O. Tetley, 190 Edgwood Place, Riverside.

California's Finest Utility Belgians at popular prices. Sutter Rabbitry, Yuba City, California.

HORSES

For Sale—Pure bred young shire stallions and fillies in foal to the champion stallion Rothwell Forester. Also registered Shorthorn bulls, ready for service, and a few yearling jacks and jennets. Ranch 49 miles west of Spokane and 10 miles west of Davenport on Sunset Boulevard. G. M. Wilson, Rocklyn, Wash.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

PIPE

"TESTED" and "GUARANTEED" Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes, New and used. "Pacific" pipe for all purposes.

PACIFIC PIPE CO.,
Main and Howard Sts., Est. 1906, San Francisco.

SHEEP

Sheep for Sale—500 Ewes with lambs by side and fully wooled. Have rented my ranch and want to sell. A good buy for a small place. John M. Cox, R. F. D. No. 1, Box 160, Brawley, California.

CATTLE

100 HIGH GRADE HOLSTEIN COWS AND HEIFERS
8 REGISTERED HOLSTEIN BULLS

ALL TUBERCULIN TESTED

AT PUBLIC AUCTION

NAPA STATE HOSPITAL, NAPA, CAL.

SATURDAY, MAY 3, 1919.
Beginning Promptly at 10 A. M.

The famous Napa State Hospital herd of grade Holsteins has been headed by registered Holstein bulls for the past 14 years and has been regularly tuberculin tested for the past 10 years. Last year the 117 milking cows and heifers in the herd averaged 11503.6 pounds milk. Every animal over six months of age in this sale is tuberculin tested.

The cows and heifers in this sale are out of the best grade cows in the herd, only the best producers ever having been retained, and they are sired by such registered bulls as Lord Asa, Prince Rag Apple Imperial Korndyke, and Colony Wadmantje Aaggie, whose dam made 18712 pounds milk and 781.25 pounds butter in one year as a 4-year-old and later made 33.01 pounds butter from 552.6 pounds milk in seven days.

The bred cows and heifers in this sale are in calf to the noted Napa State Hospital registered herd bulls, including Sir Dutchland Colantha of Longfield, N. S. H. Hazelwood Netherland Korndyke, and a son of Raphaella Johanna Aaggie 3rd, who holds the world's strictly official record for milk produced in one year.

A SPECIAL FEATURE—We will sell the twin yearling daughters of the great grade cow N. S. H. Monte who made 20,596.4 pounds milk and 762.28 pounds butterfat in 10 months in the California State Dairy Cow Competition, carrying a calf 5½ months, and they are bred to a son of Raphaella Johanna Aaggie 3d, the world's strictly official yearly milk record cow.

EIGHT REGISTERED HOLSTEIN BULLS, choice individuals and most of them out of official record dams up to over 29 pounds butter in seven days. Some of them are ready for service right now.

Come to the sale whether you want to buy or not. We believe you will be interested in seeing for yourself what the Napa State Hospital is doing to advance the dairy and breeding interests of California. Parties from the interior will find the new paved highway completed all the way into Napa.

Auctioneer—COL. BEN A. RHODES, Los Angeles; Sales Manager, C. L. HUGHES, Sacramento.

THE GREATEST SALE

OF STRICTLY HIGH GRADE

HOLSTEIN COWS AND HEIFERS

EVER MADE IN CENTRAL CALIFORNIA

TUESDAY, APRIL 29, 1919

THE JAMES M'GILLIVRAY RANCH

SACRAMENTO, CALIFORNIA

Owing to the rapid increase of his herd of registered Holsteins, which now numbers close to 250 head, James McGillivray will make an absolute dispersal at public auction of his well known high producing herd of grade Holsteins on the above date. This is a remarkable herd of well marked, good uddered grade Holsteins famed wherever known for their high production which is their inheritance from many generations of high class registered Holstein bulls. Watch next week's issue for detailed announcement which will interest every prospective buyer of high producing grade dairy cows. The McGillivray Ranch is south on 21st St., Freeport Road, 2 miles from Sacramento city limits.

Auctioneer—COL. BEN. A. RHOADES, Los Angeles; Sales Manager—C. L. HUGHES, Sacramento.

Guernseys—We will sell stock from our prize winning, high producing herd, at reasonable prices, valued according to individuality and breeding. Our supply is limited but if the buyer wants a number of animals and will write us we will furnish him with particulars. Revada Guernsey Farm, Yountville, Napa Co., California.

For Sale—35 Head high grade Holstein cows fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch, Hannon Bros., Third Street, Lankershim. Care of Chas. Irwin.

Special Notice—Second farm sale—Shorthorns, Shropshires, Berkshires, Ponies SATURDAY, AUGUST 2, 1919. SHORTHORN CATTLE, SHROPSHIRE SHEEP, Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn County, California. W. P. Dwyer and W. S. Guilford, Owners.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAllister Sons, Chino, California.

Ayrshires — Pure bred bull calves ready for service. Redwoods Ayrshire Farm, La Honda.

CATTLE

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery St., San Francisco, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced.

For Sale—Registered Holstein Friesian Bull, 4 years old, mostly white. Todos Santos Rancho, Daggett, California.

FARM LANDS FOR SALE

ALBERTA THE WHEAT GRANARY OF THE WORLD AS CALIFORNIA IS THE FRUIT-BASKET.

We own and control several thousand acres in the choice farming districts of Alberta. Our improved lands are in farms of from 500 to 1600 acres and each farm has considerable acreage ready for spring crop. Our raw lands are in proved districts, surrounded by improved farms. Prices range from $15 up. Small cash payments, balance long time yearly and crop payment. The F. W. Anderson Mtge. & Investment Co., 501-5 Hutton Bldg., Spokane, Washington.

OWENS RIVER VALLEY

For Sale or Exchange—This 440-acre hog, cattle, sheep and alfalfa farm, fenced and cross-fenced, 400 acres rich soil, springs, creek, artesian well, reservoir and gravity water; free government range, new six-room bungalow, barns, shop, sheds, and three sets cheap improvements. Big orchard, garden, berries, etc. Only $25,000, clear title; will take $10,000 to $15,000 in exchange, balance 5 years' time. Ask for pictures and complete description. F. G. SIMMONS, 213 E. Philadelphia Street, Whittier, California.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

For Sale—Thirty-eight Acres of the finest San Fernando Valley land out of doors. Excellent walnut proposition, been cropped to beans the past three seasons. Close to school, stores, railroad, boulevard. Priced for quick sale, cash or terms. H. L. Allard, 410 Security Bldg., Los Angeles, California.

For Sale—12½ Acres garden or alfalfa land near Corona. Has pumping plant with abundance of water. Price $450 per acre. Could add 2 acres adjoining with house or a larger house in Corona. For particulars address: Owner, Box 106, Arlington, California.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator, Box B. A. J.

For Sale or Rent—Tulare County, 480 acres, cotton and alfalfa land. North of Delano, 4 wells shallow water, 40 acres fenced, 4-room house, good stable. $50 per acre, terms. See owner. P. H. Manchester, 1480 West 23rd Street, Los Angeles, California.

For Sale—160 Acres between Woodville and Octol, $7000.00 worth of improvements. 20 acres Alfalfa, 25 acres Barley, 65 acres levelled for irrigating. Price, $125.00 an acre. Easy Terms. J. L. Zack, Tulare, California.

For Sale—320 Acres Alfalfa Land, including water, located in Kings Co. Price, $100 per acre. Will divide, terms. J. A. Elliott, owner, 130 E. 25th street, Los Angeles. Phone 63247.

$10 to $25 an acre, good land, 160 acres and up, some improved, oak timber, watered by streams and springs, fine climate. W .W. Baldy, Raymond, California, Madera County.

For Sale—120 Acres, one mile from Coachella, suitable for DATES, grapes, alfalfa. Partly improved. THIS IS A SNAP, INVESTIGATE. Bargain. Box 624, Coachella, California.

For Sale—10 Acres in Alfalfa and garden, stock, etc.: $4000. Mrs. Lulah M. Boyer, R. 1, Box 7A, Calipatria, California.

WESTERN DUROC BREEDERS MEET

The Duroc-Jersey breeders, aroused by the activities of the other breeders, held a meeting at University Farm Friday, April 11.

Fred De Vore of the Duroc Bulletin, who is making a trip through the Western states for the National Duroc-Jersey Association, gave a very interesting talk and also showed moving pictures of various herds in the East.

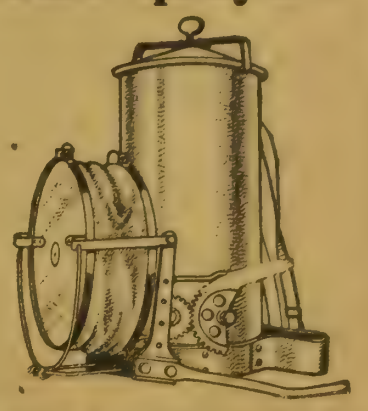
De Vore in his remarks laid special emphasis on advertising both for the breed and the individual breeder. It was decided to hold a guaranty bred sow sale at the University Farm either in January or February.

A committee to be selected by President Johnson will have entire charge of the sale and every animal offered will be selected by this committee and must come up to the standard set.

The committee and date of the sale will be announced later.

Johnson stated that the futurity to be held during the state fair had filled.

American Beauty Dust Sprayers



Sulphur Vines Faster and Better than Any Other.

Don't waste time with -- a poor machine.

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The California Sprayer Co.
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Sulphur



It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards SIX times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

Try our new brand of VENTILATED Sublimed Sulphur, 100 per cent pure, for making Paste—(Atomic Sulphur)—and for dusting.

For Lime Sulphur Solution, use our DIAMOND "S" BRAND refined Flour Sulphur. We can furnish you this sulphur at such a low price that it will pay you to mix your own solution.

To create additional available plant food, drill into the soil 100 to 400 pounds per acre of our diamond "S" Brand Powdered Sulphur. Write direct to

San Francisco Sulphur Co.

624 California Street, San Francisco, Cal.

We are equipped to make immediate shipment. Send for illustrated booklet; price list and samples, and please state for what purpose you use the sulphur, quantity needed, and date of shipment preferred. Tel. Kearny 871 .

SEED POTATOES

We specialize in selected SEED POTATOES; Certified White Rose, American Wonders, British Queens, Burbanks, Garnet Chills, and other varieties. Also fancy, recleaned Alfalfa Seed. Write for prices.

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San Francisco . . Cal.

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100,000 FEET OF NEW AND SECOND-HAND PIPE AND CASING

PIPE—Practically all sizes from ½ to 15 inches.

CASING—Practically all sizes from 3 to 14 inches.

All pipe and casings has good threads and couplings on each joint.

RIVETED PIPE—4 to 12 inches, as good as new. We also carry valves and fittings.

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Adams Pipe Works
Bay and Mateo Sts. Los Angeles, Cal.



Only four easy hours by auto from Los Angeles, over 83 miles of pavement and 7 miles of good mountain dirt roads, brings you into nature's playground.

Here you find the hotel and camp, the big oaks, the rippling stream, trails, fishing, bathing and the many other pastimes that make you feel young again.



Trout fishing is exceptionally good now at Wheeler's Cold Springs, which camp is situated on the Sespe River, 9 miles further back in the mountains. This camp is reached via the Saddle Animal route and is a wonderful trip.

Come up and enjoy your week-end.

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Pacific Electric Railway

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Household Department

IT IS THE SPRING

See this joy of sparkling morning,
See this light the day adorning,
See this sapphire vault;
See these birds in sunshine twirling,
See these happy flocks returning,
See the brooks exult—

See them with the willows blended,
See these tears from twigs suspended,
See the green new-born;
See the mountains, see the valleys,
See the bees and moths on sallies
Hear this Nature's horn!

All around pulsating, thrilling—
See—it is the spring!
—Alfanasiy Afanasyevich Fet (from "Russian Poets and Poems," by Mme. N. Jarintzov.)

MINIATURE REPUBLIC

By Carl Machold

WHEN one thinks of a republic, he naturally assumes that it is a country of considerable area, governed by and for the people. When one learns of a monument, he thinks in terms of stone, or marble or bronze, and yet within forty miles of Los Angeles and six miles of Pomona is the Junior Republic, turning out living monuments of success, as the result of faith and hope and charity on the part of some of our thinking citizens—citizens who have the best interests of our coming generation at heart.

Some nine years ago several public spirited people, learning of the great number of boys who for one reason or another strayed from the straight and narrow path, determined to help these boys. As a result of their continuous efforts, and the generous financial help of public spirited men and women, the California Junior Republic has instilled hope and ambition in the hearts of hundreds of boys.

The Junior Republic was incorporated to help the boy who is getting beyond the control of parents and school teachers; who plays truant from school and associates with like or more worthless boys. If left to his own devices, he goes from bad to worse and eventually is sentenced to a reformatory or prison. When a parent, juvenile judge or probation officer wishes to give a boy another chance before sending him to a reformatory, the facts are written to the Junior Republic. If there is room for another boy and he appears healthy, mentally and physically, he is accepted as a "citizen" of the Republic.

The older boys soon make his acquaintance and he is taken around to the various industries and introduced to the boys and instructors. The fun and the experiences in the swimming pool, the ball grounds, the up to date gymnasium, the library and club rooms are eagerly told the new citizen.

The Republic boys spend one-half of each day at school and the other half at a useful industry during the school period. The Republic, in addition to the cooking plant and laundry, has an electric and machine shop for which there are many applications, and which is an ideal place for a boy wanting to become an electrician or machinist. The boy now in charge of the dairy is taking a correspondence course in dairying in addition to his practical work; he can use the Babcock milk tester, can differentiate between a good milker and a "boarder," and tell the reason why; he understands pedigrees of dairy stock, "line" breeding, etc.; he has had flattering offers to work for dairymen at good wages, but—prefers to say with the Junior Republic until he can better fit himself as a herdsman for a pure bred herd. He is an assured success along his chosen lines.

Another boy has taken an interest in hogs and has charge of the piggery. He has won prizes at the Riverside Fair on his entries and special mention in a write-up in two agricultural papers. Another boy has been placed in charge of a herd, whose foundation hogs average cost was $1000 each, and is giving splendid satisfaction. Other boys learn to operate the tractor, and this is a wonderful attraction to the boys. It has, as a matter of fact, often been demonstrated that it is a privilege to become enrolled as a citizen.

The Republic also has a well equipped printshop, where the boys print a monthly magazine and edit as well as print a weekly paper. Copies of both the weekly and monthly papers are sent to former citizens and instructors in France as well as in far-away Siberia. Positions await every boy who makes good here, and many are now holding responsible positions.

The boys have their own officers. They elect their mayor, council, judge, etc., and do considerable electioneering. The present judge, a manly young fellow, works in the electric shop and attends school during the day, a jolly good boy, but as solemn as an owl when presiding. When "His Honor" enters the court room, all stand until he seats himself. He has a record as being most just to all litigants.

At least two former mayors are now established in Los Angeles and possibly 100 or more have been in the army. When one considers the difference to society between workers and shirkers, producers and parasites, uplifters and down and outs, healthy and sick, ambitious and lazy, plodders and drones, then he is amazed at the results accomplished by this handful of philanthropists who make dreams come true.

The Republic has had over 700 boys who had the wrong start in life, many of them indolent, and some who had come before the court on serious charges. All of these boys were benefited to some degree by their sojourn at the Junior Republic, and a large per cent are now good, industrious, law abiding citizens in the greater republic.

USING LEMONS

I thought, perhaps, I might help "A Young Housewife" in the use of her lemons as they make lovely salad dressings.

New Pine Salad

Four medium sized apples diced, two bananas diced, one orange diced, one level tablespoon sugar sprinkled over mixture.

Dressings — One-half cup sugar mixed with one level teaspoon cornstarch. Juice of one lemon. One-half cup of water and pinch of salt. Bring to boil in porcelain or aluminum pan and when cool turn over mixture.

My "boys" say it tastes like a pine board smells, "but they sure like it."

Salmon Sandwiches

Take a small can of salmon and two young onions the size of your finger and use two-thirds of the top with the rest. Chop or grind or simply cut in very small bits and mix thoroughly with the salmon which has been drained of all liquid. Squeeze into this the juice of half a lemon (more if liked), and stir evenly through it. Butter slices of bread, cover with lettuce leaves and spread with the prepared salmon.—The Wife.

THOSE LEMONS AGAIN

I am a constant reader of the Cultivator—look forward to it each week. I must say it is one of the best farm papers we ever had. Nearly each week I find some question answered for some one, that has been in my own mind. I was saved the time in writing to you.

Now A Very Young Wife's query as to what she can do with a barrel of lemons. If they were mine I should use them in making a syrup, bottling it up and keeping for pies, lemonade, flavoring puddings, cakes, ices, and lots of other uses could be made of it. How lovely on a very hot day a few spoonsful of it in a glass of Shasta water! I can taste it now.

But if she doesn't care to do that and the lemons are in good condition why doesn't she offer them for sale to the readers of the Cultivator? I am sure if the price were right many would be glad to get a few dozen, because lemons in the stores are so high that I know I don't use as many as I would if I had a barrel full.—St Helena Subscriber.

VALUE OF GIVING

That man may last, but never lies,
Who much receives, but nothing gives
Whom none can love, whom none can thank,
Creation's blot, Creation's blank.
—From an old scrap book.

FIRELESS COOKER ONE PIECE DINNER

By Minnie C. Childs, Tustin

Four cups cooked hominy, five potatoes, two good sized carrots, two teaspoons salt, one cup tuna, two cups milk, two tablespoons fat, two tablespoons flour.

Cornstarch may be used instead of flour. If brown gravy is desired, brown flour in fat; stir fat over fire to melt; add milk and flour, cooking slowly; add vegetables, cut in small pieces, stir in hominy and tuna, season with salt, and if desired a little dried celery tops or parsley may be added or a sweet pepper very finely minced. Place in fireless cooker two hours.

This may be varied by using rice instead of hominy, tomatoes in place of milk, cup of any finely chopped meat in place of tuna. A delicious, satisfying dinner for six people.

Hominy is an excellent food if properly prepared. It must be well cooked. To two cups dried hominy that has soaked over night, have ready two quarts of boiling water to which has been added two teaspoons salt. Place in fireless cooker over night and you have a delicious basis for breakfast, dinner or supper. Serve plain with milk for breakfast, adding dates, figs, bananas, or nuts as a dessert or bake with thin custard for supper.

The addition of a cup of milk and a little grated cheese, baking one-half hour, makes a good, substantial, tasty dish, and as a basis for many vegetable combinations, with or without fish or meat, you may have any number of delicious, attractive, nourishing dishes.

Hominy Pudding

Two cups cooked hominy, two cups milk, one egg, two tablespoons honey, one cup cooked and seeded prunes, a little nutmeg grated over top.

Mix hominy, milk, honey, add well beaten egg, mix well; grate nutmeg over top; place in greased pudding dish, heat slowly and put in fireless cooker one hour; will not hurt if it stands longer. If baked, one-half hour is sufficient.

Honey

Honey may be used to sweeten dried fruits, prunes, apricots, apples, berries, also lemonade and fruit juices.

It may be substituted for sugar in cookies, gems, and plain cakes, using one-third less of honey than sugar.

A Jelly Hint

In making jelly, carefully extract juice and boil well before adding sugar. Measure, and add sugar, cup for cup, and boil just long enough to jelly. If sugar is heated before adding the boiling juice it will not require so long cooking; at least one-third of the time is saved. The shorter the time jelly boils the more delicate it is. We all like the kind that "quivers" yet stands up.

ALREADY PREPARED

Many busy women who do their own work have little time left or are too tired to think much about improving their physical beauty. When you have been washing out your house dresses, you forget that half the work of manicuring is already done for you by the soaking of the suds. Your nails are already prepared without your having given an extra moment or even a thought to it. Sit down and rest a minute with an orange stick in your hand, and while the cuticle is still soft and loose, gently urge it back away from the nails. Do this every day when you finish washing your dishes or whatever else it may be. Then rub a bit of sweet oil into the roots of the nails and finger ends. This will replace the nourishment that too much water is likely to destroy. Wipe thoroughly on a soft old towel, giving the oily nails a few extra strokes. You will be surprised how well your nails compare with those of your neighbor who has abundant time to lavish with enamel and buffer.—C. B. in Successful Farming.

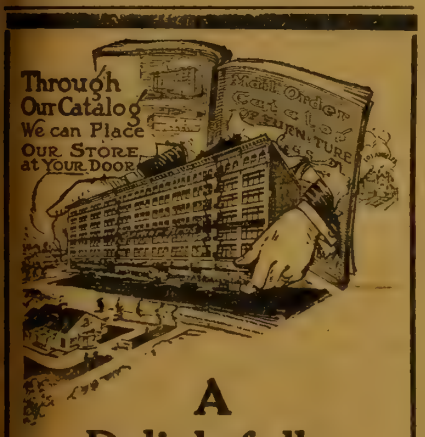
SOME USES FOR "OLD THINGS"

A way to use men's discarded trousers: Rip up, wash and press, cut into six inch squares, sew together on the machine enough for a top for a comfort. If you have a worn blanket use that instead of cotton which is so expensive now. Get dark outing flannel for lining, tie with luster cotton and you will have a nice warm comforter for these chilly nights. Also a fine addition to your camping outfit next summer.

Stove holders can be made from the pockets, by putting a piece in and stitching on the machine

One can use the ends of bath towels, when the centers are worn thin, for wash cloths. Cut regulation size, crochet around edges with knitting cotton. Good bath towels can be made from the best part of a worn bed spread by cutting into towel sizes, either hemming or crocheting edges with knitting cloten. These days when towels are so expensive we will find this helps out.

Do you use a gas range or oil stove? A piece of sheet iron cut to cover the whole top is a great convenience and fuel saver. With the use of this one burner will often take the place of two or three in warming up foods, and the problem of keeping them warm until serving time is solved.



A Delightfully Furnished Home For Every Ranch and Farm

YOUR HOME may be far from the city, yet it need not lack the city-home comforts. It can be just as modern in its appointments—just as cozily and beautifully and comfortably furnished as any city home, and well it should be.

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—within reasonable distances and make liberal allowance to further points. Learn more about our helpful home-furnishing service and how the great buying power of this institution SAVES YOU MONEY.

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HAROLD SOMERS, 150 De Kalb Ave., Brooklyn, N. Y.

GRANT SIX



The Comfort of the Grant Six is as Pronounced as its Economy

You should have a comfortable motor car. Without real comfort you sacrifice half the pleasure of motor car ownership and it's the best half. There is no substitute for comfort.

So, because it is a pronounced feature of the Grant Six directly traceable to its unique spring suspension, we invite your special attention to this virtue of the Grant Six.

We know of no other light car that rides so easily. Owners continually impress this point on their friends. Friends are equally quick to comment on it.

Thus the Grant Six enjoys a unique reputation as an exceedingly comfortable car that is as well earned and well deserved as its splendid reputation for economy.

It is possible to explain the great advantages in engineering terms, but no explanation can be half so eloquent or convincing as a ride in the Grant Six. Make a point to get that ride.

As to economy we simply point to the fact that though this is a *six-cylinder* car, with overhead valve motor, with full seating capacity for five passengers, owners average 20 miles to the gallon of gasoline, 900 miles to the gallon of oil and 7000 miles to the set of tires.

And these are *average* records. Many do even better. Some exceed the average records by twenty to thirty per cent.

The Grant Six is a model of sturdiness, style and good finish. It is completely equipped.

From these five styles select yours

Five-Passenger Touring Car $1120—Roadster $1120—Coupe $1625
All-Weather Sedan $1645—Demountable Sedan $1400
All Prices F. O. B. Cleveland

GRANT TRUCKS

are now built in 1800 lb., 1½ tons, 2 tons and 3½ tons capacities. All are electrically started and lighted. All are completely equipped—and all are priced at figures that mean most truck value for every dollar.

Write for descriptive literature on passenger cars, trucks or both and name of nearest dealer.

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BUY FOR LESS
Save $15 to $200 NOW
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Cash or Easy Terms
Write for Reduced Prices on WITTE Engines —all sizes—2 to 30 H-P.—Kerosene — Gasoline — Stationary — Portable — Saw-Rig. If you need POWER to pump, saw, grind, fill silo, or do other hard work, be sure to get my money saving offer. I make better engines—guarantee longer—sell for less.—Valuable Book FREE.—Ed. H. Witte, Pres.
WITTE ENGINE WORKS
3106 Oakland Ave., Kansas City, Mo.
3106 Empire Bldg., Pittsburgh, Pa.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle it, send 20 cents in stamps and mention your dealer's name and get sample by mail postage paid. Write for prices in larger quantities delivered free by parcel post.
Mfg. by Z. A. MACABEE, Los Gatos, Cal.

Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

Los Angeles Market

Los Angeles, April 16, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 51 lb.; prices to retail merchants in 1-lb. squares, 54-55.

Dairy exchange prices last week on extras:

April	9	10	11	12	14	15
'19 ...	53	53	53	53	..	51

CHEESE

Brokers' prices:
California fresh, lb., 30; price to retail merchants, 32@33.

EGGS

Fresh extras, Produce Exchange closing price; 45 doz.; price to retail merchants, 48@50 doz.; case count, Produce Exchange closing price, 43 doz.; price to retail merchants, 46@48 doz.; pullets, Produce Exchange closing price, 43 doz., price to retail merchants, 46-48.

Dairy exchange prices last week on extras:

April	9	10	11	12	14	15
'19 ...	45	45	45	45	45	45

POULTRY

Prices to producers: Hens, 35@36; broilers, 32@37; fryers, 40; roasters, 40; old roosters, 14; capons, 42; ducks, 35; ducklings, 36@37; geese, 32; turkeys, 35@40; squabs, 50.
Belgian hares 15.

LIVE STOCK

By F. P. Allen, Bureau of Markets, Los Angeles

Live stock prices April 9:

Good steers	13.00@13.50
Medium steers	11.00@12.00
Common steers	9.00@10.00
Good cows	11.00@12.00
Medium cows	9.00@10.00
Common cows	6.00@7.50
Hogs No. 1, 175-225 lbs.	17.50@18.00
Hogs No. 2, 250-400 lbs.	16.00@16.50
Hogs, feeders	13.50@14.00

Above prices are for grain fed hogs in carload lots f. o. b. Los Angeles.

Spring lambs, per head	7.50@8.50
Fall Lambs No. 1 55 to 70, cwt.	16.50@17.00
Fall Lambs No. 2, 65 to 80, cwt.	16.00@16.50
Wethers No. 1, cwt.	11.00@12.00
Ewes No. 1, cwt.	9.50@11.00

POTATOES AND ONIONS

These are the actual prices obtained April 15 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.

Demand and movement slow. Prices slightly lower. Stockton. Burbanks, quality generally good; sacked per 100 pounds, extra fancy, 3.75@4.00; resorted, 4.10. Idaho Russets, quality and condition fair, 2.60@2.75; Rurals, 2.40-2.50. Oregon Burbanks, fancy 2.90@3.00. New stock: Homegrown Red Rose and White Rose, 2.50@2.75 per lug box. Seed stock, White Rose, sacked per 100 pounds, best mostly 2.75@3.00.

Carlots: Very few sales, some going into storage. Closing prices Monday, carlot sales to jobbers: Stockton Burbanks sacked per 100 pounds, extra fancy 3.75. Idaho Russets sacked per 100 pounds, 2.25@2.50; Rurals, mostly 2.25. Oregon Burbanks sacked per 100 pounds, 2.50.

Sweet Potatoes: Lug box best 1.50; sacked 4.50@5.00 per cwt.

Onions: Demand and movement moderate. Little change in prices. Stockton, sacked per 100 lb.; Browns, best from cold storage, 4.25@4.50; White Globes, 11.00@12.00; Homegrown green onions 15 bunch.

VEGETABLES

These are the actual prices obtained April 15 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz.,	75@85

Asparagus: Imperial Valley, Green, 10@15 lb.; Northern, green, fy., 15@17; extra choice, 9@11 lb.; local 14@15 lb.

Cabbage: Sales to retailers, best cabbage, 4.00.

Carlots: Demand exceeds supply, no change in prices. Carloads f. o. b. cash track. Early Winningstadt, California crates 90.00@100.00 per ton, crates extra. Southern California Winningstadts ranged higher in middle western consuming markets at 5.00@6.00 per crate.

Carrots, doz.	45@50

Cauliflower: Best in cabbage crates, 2.75@2.85; poorer, 2.00.

Celery: Homegrowns, best, 8.00@8.50; poorer, 5.00.

Lettuce: Sales to retailers, best lettuce in cabbage crates, 75@85.

Carlots: F. o. b. cash track, Imperial Valley, Iceberg in California crates, demand slow, prices lower. Best 3.00@3.25. Los Angeles district, no demand, prices lower, few sales, best mostly 1.25@1.50.

Best California Imperial Valley stock was weaker in producing sections at 3.25@3.50 and declined slightly in consuming markets at 3.50@5.00 per crate. Los Angeles stock ranged downward at 1.50@1.75 f. o. b. and ranged mostly 3.00@3.25 in Chicago.

Parsley, doz.	20@25

Peas, Imperial Valley 8 lb.; local (San Pedro) best 10@11.

Peppers, Chili, lb., best	25
Bell, lb., best	40
Radishes	2@5

Rhubarb: Local Giant Strawberry 1.65@1.75 per packed box. Crimson, 1.50@1.80 per box. Northern Strawberry, extra choice 2.00 per box; fancy 2.25 per box.

Spinach, doz.	15

Tomatoes: Quality and condition generally good. Mexico, best 3.25@3.50 per lug box. Poorer and small, 75@1.00 per lug box.

Turnips, doz.	30

FRUITS

These are the actual prices obtained April 15 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtowns, fy. medium size 3.00@3.50; loose 7 lb. Oak Glen, Rome Beauties and Pearmains, 3.50@3.75; Winesaps, 3.75@4.00; Yucaipa, Delicious, fy. large size, 3.00@3.50.

Pears: Winter Nellis, lb., 6@7.

Pineapple, lb., 20.

Lemons: Fy. packed, 4.00@4.25; local pack, 3.00; loose, some tree ripe, 1.75@2.00.

Oranges: Navels, medium and large size, fy., 5.25@5.75; local packed, 3.00@4.00; Tangerines, 7@7½.

Grapefruit: Local fy., 2.50@3.00 bx.

HONEY

Supplies exhausted. No sales reported. Continued dry weather indicates probable light yield of sage honey, new crop.

BEANS

Carloads f. o. b. usual terms, choice recleaned, limas sacked per 100 pounds, no sales reported account of pool refusing to book further orders for the present. Henderson Bush 6.75, warehouse cash to growers, choice recleaned Small Whites sacked per 100 pounds undamaged 6.75. Large Whites undamaged 6.25@6.50. Blackeyes 3.00@3.25. Pinks undamaged, 5.75@6.00. Tepary, no sales reported.

GRAIN AND FEEDS

Carlot prices on local grain exchange.
For government prices on wheat see S. F. market.

Corn, sacked No. 3 Yellow	2.28¾
No. 3 White	3.20
Wheat	46.00@47.00
Milo	2.81¼@2.83¾
Barley	2.47½@2.51¼
Egyptian	3.05
Feterita	2.95
Bran	44.00
Middlings	56@50

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat	19.00@24.00
Barley	17.00@20.00
Alfalfa	16.00@19.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy	26.00
Standard dairy	24.00
Standard alfalfa	22.00

San Francisco Markets

San Francisco, April 15, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale dairy produce exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extra	56
Prime Firsts	Nominal

Prices extras past week and year ago:

Apr.	8	9	10	11	12	14
'19	59	57½	58	58	57½	56
'18	..	39	37½	37½	38½	..

Rcts. wk. ending April 14, 575,000 lbs.

CHEESE

Dairy excn. quotations:

Cal. Flats	29@31½
Cal. Y. A. fy.	38½
Ore. Triplets	38½
Jack, full cream	25@31

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	49
Firsts	46
Extra Pullets	47

Prices extras past week and year ago:

Apr.	8	9	10	11	12	14
'19	47	47	47½	48	48½	49
'18	..	37½	37½	38	38	..

Rcts. wk. ending April 14, 14,498 cases.

POULTRY

We quote to producers, lb.:
Hens, 44-46; broilers 45-60; fryers, 45@50; old roosters, 23@25; young roosters, nominal.
Ducks, 35-38; geese, 35-38.
Belgian hares, live, 16@17.
Jack Rabbits, 3.00@3.50.
Squabs, 60@65.

LIVE STOCK

Cattle—Grass fed, on foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. alive, 12@12½; 1200 to 1400 lbs., 12@12½; second quality, 11@11½; thin steers, 9@10.

Cows and Heifers—No. 1, 9½@10; second quality, 8½@9; common to thin, 4@7.

Calves — Light weight, per lb., 11½@12½; medium, 10½@11½; heavy, 8@10.

Sheep—Lb., gross weight: Wethers, unshorn, 11@11½; ewes, unshorn, 8½@9½; lambs, yearlings, 12@12½; milk, 14@15.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 18½; 150 to 250 lbs., 19; 250 to 300 lbs., 18½; 300 to 400 lbs., 18.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers: Choice, 1050 to 1200 lbs., 12@12½; medium to good, 950 to 1050 lbs., 11@11½; good grass steers, 1000 to 1200 lbs., 11½@12; other steers, 950 and over, 10@11. Cows, 950 lbs. and up, 9½@10; medium to good cows, 8@9; canners, 5@6.

Hogs — Hard, grain fed, well finished 175 to 250 lbs., 19; 150 to 175 lbs., 18¾; under 150 lbs., 17½; 250 to 300 lbs., 18½; 300 lbs. and up, 18.

POTATOES

Per ctl. on wharf: Delhis, 1.75@2.15; fancy, 2.25@2.50; Oregon Burbanks, 2.00@2.40; Gems, 2.00@2.35; Red Salinas, 3.00@3.25; sweet, per 100 lbs., 5.00@5.50; new potatoes, 3½@5 lb.

ONIONS

Storage, cwt.	3.75@4.00
Garlic, lb.	6@7

VEGETABLES

Wholesale selling price:

Artichokes, doz.	50@
Asparagus, lb.	@
Beans, string, L. A., lb.,	30@
Wax	30@
Beets	1.00@1.50

Cabbage, Early Flat Dutch, 1.00@1.75

Carlots: Demand and movement moderate, little change in prices. Quality and condition wide range. Street sales—Early Flat Dutch, bulk per 100 lbs., 1.75@2.75.

Carrots, sk.	2.25@3.25
Celery, cr.	4.00@5.00
Cauliflower, doz.	50@1.00
Cucumbers, hothouse, bx. of 30	3.00@3.50
Egg Plant, lb., local,	5@10

Lettuce: Crate, southern, iced, 1.50@2.25; Watsonville, 1.50@2.00.

Supplies heavy. Demand and movement good. Quality and condition generally good, little change in prices. Street sales: Imperial Valley, Iceberg, California crates 3.50@4.00, Los Angeles Iceberg, California crates, 2.00@2.50. Watsonville, head lettuce, California crates, best 4.00@4.25.

Mushrooms, bx.	15@50
Peppers, Southern	12@15
Peas	6@10
Pumpkins, sk.	1.00@1.10
Rhubarb, Strawberry, bx.	1.00@2.00
Strawberry, bx.	1.75@2.25
Squash—Summer	1.75@2.00
Tomatoes, Mex., cr.	3.75@4.25
Turnips, bag	1.25@1.75
Loquats, lb.	12½@15

FRESH FRUITS

Wholesale selling price:
Apples: Newtowns, 3.00@3.25; Winesaps, ex. ice, 3.50@4.00.

Bananas	6½@7
Loquats, lb.	15@17
Pears—Winter Nellis	3.00@4.00
Strawberries, Imperial Valley, cr.	3.00@3.25

CITRUS

Per box: Lemons, 3.00@4.00; lemonettes, 2.00@2.50; grapefruit, 2.50@3.50; mandarins, half orange box, 3.50@4.00; tangerines, half orange box, 3.50@4.00; new navel oranges, 4.50@5.50; Mexican limes, 7.00@8.00.

BEANS

Demand moderate. Little change in prices, carloads f. o. b. usual terms, sacked per 100 pounds, quality season's average. Small Whites 6.75@6.90. Large Whites and Pinks 5.75@6.00. Red Mexicans, 5.25@5.50. Cranberry beans 5.00@5.25. Blackeyes, 3.75@3.90.

GRAIN AND FEEDS

Barley: Feed, 2.35@2.40 per cental, shipping, 2.45@2.50.

Oats: Red feed, 2.15@2.30 per cental.

Corn: California yellow, 2.75@3.00 per cental. Egyptian, 3.00@3.25 for dry ar

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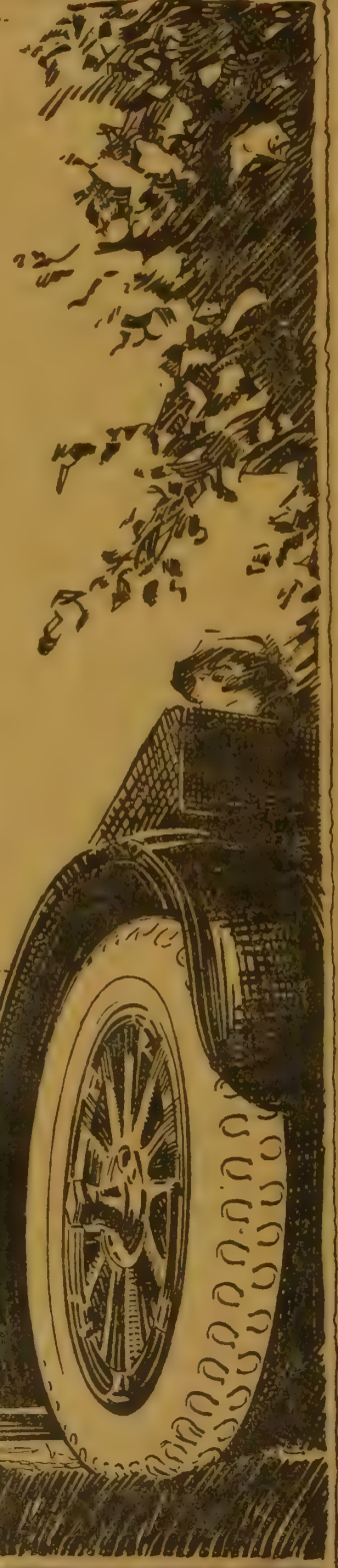
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2.75@2.90 for rain damaged; Milo maize, 2.80@2.90 for dry and 2.60@2.75 for rain damaged.

Rye: 3.50@4.00.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.62 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58½
No .3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran, 41.00@44.00; shorts, 42.00@45.00; middlings, 50.00@52.00. Rolled barley, 49.00@50.00; alfalfa, 30.00@32.00; scratch feed, 3.50 per cental.

HAY

Under date of April 12, Scott, Magner & Miller says:

Receipts past week 1693 tons. The market in this city continues dull. About the only demand noticeable is a slight inquiry for fancy wheat hay in light bales for retail purposes and fancy alfalfa hay. A small amount, however, would be sufficient to fill all requirements. Most of the arrivals have been of the medium and poorer grades of hay and these drag along without much demand, concessions in price being continually made to effect sales.

Some orders have been placed during the past week by the government for shipment but as local dealers holding large stocks have obtained these orders and are filling out of their warehouse stocks, it has had practically no effect upon the general market either in the country or city. There has been some demand from the interior for alfalfa and prices in consequence have been fairly well maintained. With favorable weather the cutting of first crop alfalfa as well as volunteer hay in the early districts will commence very shortly. In fact, in some sections cutting has already commenced in a small way but before the end of the coming week no doubt it will be quite general. This promises very early new hay and farmers are endeavoring to dispose of their hay on hand before the new crop is available. Conditions are most favorable for a very large crop of both alfalfa and hay.

Fancy Wheat hay (light five wire bale).....21.00@23.00
No. 1 Wheat or Wheat and Oat hay .....17.00@19.00
No. 2 Wheat or Wheat and Oat hay .....13.00@16.00
Choice Tame Oat hay.....17.00@19.00
Other Tame Oat hay .....13.00@16.00
Wild Oat hay.....12.00@15.00
Barley hay .....12.00@15.00
Alfalfa hay .....12.00@14.00
Stock hay .....12.00@14.00
No. 1 Barley straw, bale.....50@80

Citrus Fruit Market

Los Angeles, April 16, 1919.

There have been a number of shipments of off sizes of under grade fruit which have, in auctions especially, somewhat demoralized the market on ordinary grades. High quality stock is still commanding exceptionally good prices. Any f. o. b. California quotations which are made, are around $4.50-$5.00.

The lemon market is somewhat stronger but still lacks firmness in many sections. There are around 50,000 boxes of foreigns afloat.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 15,576 cars, lemons 3610, total 19,186. To same date last season; oranges 7396, lemons 1917, total 9333. Central California this season; oranges 3015, lemons 354, total 3369. Last season to same date; oranges 2266, lemons 113, total 2379. Northern California; oranges 244, lemons 2, last year same date 202.

AT THE AUCTIONS

April 9

New York: Slightly lower on oranges. Nav. 3.95-5.95, lem. 3.40-4.35, Bloods. 5.35-5.60.

St. Louis: 7 or., 2 lem. Nav. 3.50-4.20, Seeds. 4.10, Sweets. 3.85-4.10, lem. 3.25-4.35.

Cincinnati: 4 or., 1 lem. Nav. 4.15-4.35, Val. 4.85-5.30, Seeds. 4.90-5.30, lem. 3.80-4.05.

Philadelphia: 8 or., 2 lem. Nav. 4.35-5.55, Bloods. 5.00-6.25, Mikes. 2.95-5.60, Sweets. 4.50-5.75, lem. 2.90-3.70.

Boston: 14 or., 2 lem. Nav. 4.05-5.70, Seeds. 3.60-4.75, Sweets. 4.80, Bloods. 5.10, lem. 3.20-3.80.

April 10

New York: Active, higher. 22 or., 5 lem. Nav. 4.25-6.40, Sweets. 4.45-5.70, Val. 4.90-5.20, Seeds. 3.50-3.60, Tang. halves, 3.15, Bloods. 2.35-3.05, lem. 3.20-4.65.

Boston: 11 or., 2 lem. Nav. 4.25-5.90, Sweets. 4.10-5.00, Seeds. 4.70-4.80, Bloods. 2.55-5.05, Grapefruit 5.10, lem. 3.30-4.05.

Philadelphia: 11 cars. Nav. 3.95-5.15, Bloods. 5.15-5.30, Seeds. 4.20-4.85, Grapefruit 4.15, lem. 3.35-4.35.

April 11

New York: 26 or., 3 lem. Nav. 4.40-6.30, Bloods. 4.55-4.95, Val. 4.85-5.60, Seeds 5.00, Mikes. 5.15-5.80, lem. 3.00-4.30.

Boston: 12 or., 1 lem. Nav. 2.90-6.10, Seeds. 3.80-4.40, Bloods 4.90-5.00, Mikes 5.80, lem. 2.75-3.70.

Cincinnatti: 3 or., 1 lem. Nav. 4.30-4.75, Seeds. 4.15-4.50, lem. 3.65.

St. Louis: 3 or., 3 lem. Nav. 3.75-4.55, Sweets. 4.60-5.00, Bloods. 2.60, lem. 3.85-3.95.

Pittsburg: 3 or., 1 lem. Nav. 3.25-5.05, lem. 3.10.

Cleveland: 1 or. Nav. 1.05-6.00, Mikes 2.85-5.95, Bloods. 5.50.

April 15

New York: 26 or., 1 lem. Nav. 2.65-6.25, Sweets. 4.85, Seeds. 3.80-3.95, Val. 4.20-4.95, Bloods. 3.80, lem. 2.70-4.15.

Philadelphia: 14 or., 2 lem. Nav. 3.65-5.50, Mikes. 1.55-4.70, Sweets. 3.15-4.45, Bloods. 4.75, lem. 3.15-3.70.

Boston: 17 or., 1 lem. Nav. 3.75-5.45, Seeds. 3.95-4.80, lem. 2.85-4.05.

Pittsburg: 4 or., Nav. 1.95-5.00, Seeds, 3.70-4.45, Mikes. 2.80.

MARKET NOTES

In common with other spring vegetables asparagus in the central part of the state has been badly retarded by cold rainy weather. Cuttings last year at this date were light, and this year they are much lighter and the season is the latest in years. Usual shipments vary from 250 to 600 cars per season depending upon the earliness of the crop. Movement will be light this year especially if Eastern crops develop early. The usual pack of canned product runs from 800,000 to 1,000,000 cases per year. A heavier pack than last year is expected.

The earliest cantaloupe plants are in bloom in the Brawley district.

Lettuce moving slowly. All early patches gone, few new patches starting with better quality. San Fernando district—Lettuce movement is considerably heavier and cuttings are equivalent to about 12 cars. Practically all were trucked to Los Angeles for final disposition. The quality of lettuce now moving from here is very fine and of good size.

Onion planting is finished but carlot shipments of early varieties are not expected before the last of May. The early crop shows slight increase over last year, but late plantings for the main crop are somewhat reduced. Preliminary estimated indicate 7000 to 7500 acres, including contracted stock. The wet weather is promoting excessive weed growth in certain districts which may induce abandonment of the worst fields.

The chile pepper crop in the Colma district is estimated around 1800 acres with approximately 400 cars for shipping purposes. These are developing satisfactorily and first shipments are expected around April 15.

The spinach crop of Central California came on late. Market conditions discouraged shipping. Full acreage under contract was not planted as canners induced growers not to put in late crops.

It is estimated that there are 99 acres of tomatoes in the Coachella Valley. Growers in the Oasis district have replanted some of them five times and now have only a partial stand. Condition estimated this week 50 per cent, but later than normal.

The onion acreage in the Delta district is not yet officially determined, but estimated at 7500 acres, which includes contract seed stock. Early red onions at Stockton district will be ready around June 1. Acreage estimated to be about the same as last year.

Late cabbage in the Fullerton district is improving in quality.

About 900 acres of cantaloupes have been planted in the Thermal district.

The Alameda district has shipped out practically all its cauliflower. Shipments from the entire Bay district will probably be cleaned up in a few days.

Los Angeles County is now increasing shipments of lettuce as Imperial County's shipments decline. Total movement from the state in April will be lighter than in March.

Very little increase is shown in potato planting over the state.

It is expected that the state work on the roads of Arizona will be well under way by July 1. Approximately $1,750,000 will be available for roads and bridges; in addition there will be about $1,000,000 of federal money available during the year beginning July 1. Several counties are planning road improvements and will undoubtedly issue bonds. The plan for a bond issue of $4,000,000 in Maricopa County is being met with great enthusiasm and little opposition.

The forest service will build 232 miles of roads in the national forests of Arizona during the next two years. A fund of $1,300,000 is available for this purpose.

WEATHER CONDITIONS

San Francisco, California, April 12, 1919

Stations	Rainfall—Wk	Season	Norm	Temp.—Max.	Min.
Eureka	.70	36.08	40.46	56	48
Red Bluff	.00	25.99	22.23	74	46
Sacramento	.01	17.14	17.84	74	42
San Francisco	.00	25.62	20.30	60	47
San Jose	.00	18.86	15.32	74	38
Fresno	.00	6.74	8.45	78	42
San Luis Obispo	.00	17.81	18.41	74	42
Los Angeles	.00	8.22	14.49	74	50
San Diego	.00	8.10	9.14	68	50

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Wagons
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Put up your big hay crops with Moline Sweep Rakes and Stackers.

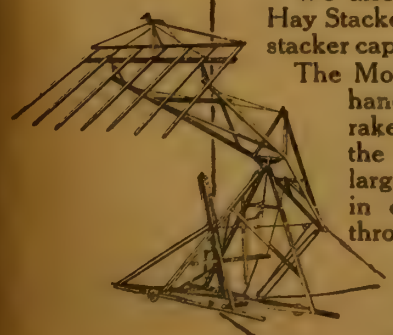
They enable you to do your work speedily, handle your hay crops without damage by breaking or shattering, stack it lightly to prevent packing, and top off the stack with a high crown to shed rain.

Moline Hay Tools are light, strong and durable. With them the fewest number of men do the most work and put up hay so that it remains good until used.

The Moline Swinging Hay Stacker offers the most speedy, economical and practical method for stacking big hay crops. Two men and one horse can stack 25 tons a day with it. Builds a stack 25 feet high. Loads from either side and is easily transported from place to place. It is entirely automatic in its action.

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Take these chicks from the time they are about five weeks old until they are eight weeks old. What do they need most to effect a good, healthy growth? Do they need fat? Not especially! They need *bone and muscle.*

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And that's exactly what you do when you feed Sperry Suregrow. For, it gives your growing chicks just what they need to develop properly. More than that—it gives them the *physical foundation* that means good layers and good breeders—and, incidentally, *good profits.*

And—don't forget this: the money you invest in Suregrow will come back to you many times over in the increased health and vigor of your flock. It's surprising how many chick troubles—indigestion, moping, slow growth, etc.,—all disappear when you feed this balanced ration! For, Suregrow is the one feed you can depend on *absolutely* to produce a good, sturdy growth—a growth that goes a long way toward future profits!

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Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. VII — April 26, 1919 — No. 17

An Annual Tractor and Implement Demonstration



This scene gives only a faint idea of the eagerness with which thousands of people tramp over the plowed earth gathering inspiration and information regarding tractors and implements demonstrated: The great California demonstration will be held at Arden Acres, Sacramento, May 6-11. There are 650 acres where powerful machines with all kinds of implements will be given perfect demonstration.

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Model Ninety Five-passenger Touring Car, $985 *Sedan $1495; f. o. b. Toledo*

California Cultivator

Vol. LII, No. 17 — Los Angeles, April 26, 1919 — One Dollar Yearly

The New Dried Vegetable Industry

By Arthur L. Dahl

DRIED or dehydrated vegetables are new forms of food to which we are soon to become accustomed if, indeed, we have not already tried and liked them. We have had dried figs, raisins, prunes and scores of other articles of food for a long time, and it is strange that dried vegetables have not become popular here before as they have in Europe. For years evaporated vegetables have formed a staple article of diet in Germany, Holland and other countries, and as far back as the Boer war England purchased large quantities of the product to feed her soldiers in South Africa. Some of these supplies were left over and stored until the commencement of the present war, and upon examination were found to be in good condition and were used to feed the soldiers, thus demonstrating their keeping qualities. Millions of pounds of dried vegetables were purchased, and are still being purchased, by England, France and Italy from Canada, and these are shipped to Europe and Asia. Germany is said to have 1350 drying plants devoted to dehydrating potatoes alone, and the quantity of potatoes dried in that country annually is in excess of 800,000,000 bushels, or twice the normal total production of this country.

When the United States became an active participant in the war and began to send fighters abroad we were told that not only must we equip these men for fighting but we must also maintain them while on foreign soil. They must be fed and clothed and cared for from the United States, and to the existing problems of shipping was added the handling of the tremendous bulk and weight of food to feed the increasing numbers of Americans sent to France and the other battle-fronts. The boys making up our armies were used to the kind of food they always got at home, and to keep them in good condition it was considered necessary to supply them with various kinds of vegetables. The fresh was only available for short periods, and then its perishable character and weight prevented shipments for long distances. Canned goods, while excellent food, were likewise heavy and bulky. After investigations carried on by government food experts, including a public hearing before a senate committee on the subject of dehydration, the war department decided to follow the practice of the Allies and use dried vegetables to send abroad. A contract for millions of pounds of dried potatoes, carrots, soup vegetables, etc., was made with E. Clemens Horst of San Francisco, a large hop grower who had, on his own initiative, made elaborate experiments in drying vegetables in one of his hop kilns, and produced a superior quality of the product. As fast as his hop driers could be converted into vegetable drying plants they were used for that purpose until ten large establishments in California and Oregon were working night and day for the government. Practically all of the vegetables processed were grown on lands in the immediate vicinity of the driers, thus avoiding much handling and the loss through wiltage which occurs when they have to be shipped any distance. Potatoes, however, were bought in the large centers.

In addition to the plants operated by Mr. Horst others in different parts of the United States were given government contracts, and new companies are being formed very rapidly and the industry bids fair to develop into an extensive one, even after war contracts are ended, because of the vast domestic demand which can be developed once the people become accustomed to the use of this new form of food.

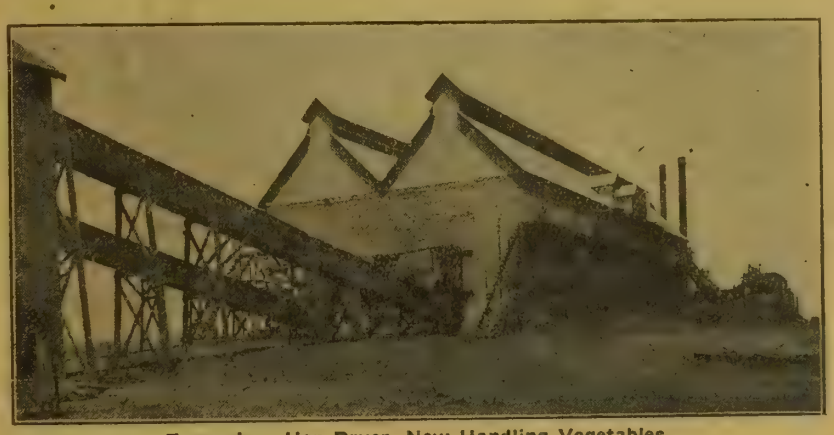


Preparing Vegetables for Drying

In the Horst plants the vegetables as received from the field are hand-picked and sorted before going to the machines for cleaning and peeling.

In sending dried vegetables abroad the government saved an enormous amount of tonnage, because the dried product, being all pure food, without waste, is equivalent in food value to many times its bulk and weight of either fresh or canned. In fresh vegetables from 60 to 85 per cent of the entire bulk is made up of water, and this water is not only retained in the cans but added weight and space is given by the containers. A 2¼ ounce package of dried tomatoes is equal, in food value, to a 60 pound case of canned tomatoes, so it is apparent the tremendous saving in handling and transportation which will accrue from the use of the dried product.

Dried vegetables will keep indefinitely and are ready for use after soaking for a few hours in water to restore their bulk. When cooked they have virtually the same flavor as the fresh, and such food experts as Professors Fairchild and Alsberg of the department of agriculture assure us that in the process of drying only the moisture is removed, the texture and food values and the flavor are unimpaired.



Formerly a Hop Dryer, Now Handling Vegetables

Twin drying plants on the Horstville Ranch which have been a great factor in reducing the bulk of California vegetables.

At the time Mr. Horst conducted his experiments in the drying of vegetables he distributed hundreds of pounds of the dried vegetables to hotels, cafes, clubs, hospitals and public institutions throughout the country to test their flavor and food qualities. In practically every case the chefs or dietitians who conducted these tests not only reported favorably upon them but requested to be furnished with permanent supplies to be used in their institutions. Such famous hotels as the Biltmore and the Ritz-Carlton of New York, the Willard of Washington and the Palace and St. Francis of San Francisco are regularly using dried vegetables, even when fresh stock is available. The saving in preparation, the elimination of waste, and the close approximation of taste and appearance of the dried to the fresh enables it to compete successfully with the latter.

Even the housewife is learning the advantages of the new product, and the various dehydrating companies report an increased demand for samples, followed by orders for practically all varieties put up. In the current magazines the foremost dietitians of the country advocate the use of dried vegetables in the home, pointing out that the human body requires the various mineral salts supplied only by vegetables, and these salts are retained in their original purity in the dehydrated product. The fact, too, that the average housewife can, by using dried vegetables, keep on hand for any emergency all varieties of vegetables, ready for almost instant use, will prove a big factor in introducing the new food into the home. In the middle of winter the same kind of a meal can be served as during the growing months of summer, and the monotony of the winter diet can thus be avoided.



General View of Vegetable Dryer

The drying plants of hop yards proved a material factor during the war in dehydrating great quantities of vegetables for shipment across. This is a general view of a Sacramento plant.

The universal use of dried vegetables would result in saving the large percentage of loss sustained in handling the fresh produce, ranging as high as 50 per cent in some cases. Added to the deterioration sustained during the transportation from producer to consumer, from 20 to 40 per cent of the bulk is discarded in the form of tops, roots, peelings, etc. This is practically all wasted because the average housekeeper makes no use of it, whereas at the drying plants all waste is saved and fed to cattle or hogs. At the Horst plants in California even the water used to wash the vegetables is saved for its mineral salts and mixed with the stock feed.

Vegetables are readily grown almost everywhere, and if large commercial or community drying plants are maintained throughout the country, an enormous amount of unused land could be utilized for growing vegetables, as the growers would be assured of a market for their product. The limited market now existing for fresh vegetables would be enlarged to take in the whole world, because dried vegetables are easily shipped anywhere and will keep in all climates.

Vegetables for drying are picked when fully mature and after being sorted by hand are placed in machines which peel, slice or otherwise prepare them for the drying room. Trays of the sliced vegetables are placed, one upon another, in the drying rooms, where currents of warm, dry air exhaust the moisture, leaving the food structure unimpaired. After a few hours in the drier, the product is put up in paper cartons or large tin cans, and it is ready for the market.

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877. Combined with California Cultivator 1914. Livestock and Dairy Journal, Established 1901. Combined with California Cultivator 1916

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Saturday, April 26, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The cover illustration is simply a shadow of a coming event which will give opportunity to all within reach of Sacramento to gather a fund of information regarding power and implements necessary for more efficient, more profitable, and more satisfactory farming operations. Scenes similar to that depicted in this illustration will be constantly shown at Arden Acres, May 6 to 11. A bit of the determination of farmers to get information as to the latest in power farming is shown in this illustration, which is from a photo taken at the Los Angeles demonstration last fall.

GOVERNMENT NITRATES

Pacific Coast fruit growers who may have desired to purchase government nitrates, especially those in the southern part of the state, feel that "government nitrate at cost" has been of little benefit to Coast producers. There was some nitrate delivered to San Francisco at $81 per ton, which, by the time it reached producers' hands, cost approximately as much as when purchased from the regular dealers. In Los Angeles County, for instance, the saving was usually somewhat less than one dollar per ton. Last year's deliveries were entirely on the South Atlantic Coast. It is possible that another year they may reach to other points, though we take it this will depend upon circumstances, for the greater number of this year's sales have been from the supply which was secured for war purposes.

STATE CONVENTION

The office of State Commissioner Hecke and a number of committeemen of Riverside are at work planning for a state convention of fruit growers and farmers to be held in that city, May 26-31. In fact, we believe this is to be a great convention week in which some half dozen different organizations including the fruit growers, county horticultural commissioners, coast entomologists, state nurserymen and others will unite. This is the convention which was to have been held last November. The "flu" prevented. It is expected that plans are in the making which will mean an even greater convention than would have been held at the former date.

AIRPLANE FARMING

The Cultivator is in receipt of "copy" for an article on the use of the airplane in farming operations. It is written in all seriousness and the author endeavors to show wherein the up-to-date farmer may keep in more definite touch with most distant parts of his lands and direct more intelligently the operations of his workers. Our first impulse is to scoff, but "the world do move" and with wonderful swiftness, so we will withhold our comment and watch for a few weeks developments in airplane farming.

Now comes this news letter from the state horticultural commission: "Following closely upon the novel but practical use of the airplane as an aid in enforcing the restricted zone planting of cotton in the pink bollworm districts of Texas, the federal government now adapts the tools of war to the needs of the hour, and it is planned to utilize the airplane in dropping aerial bombs which will generate smothering gases to extinguish forest fires. The far-reaching value of the idea is promising, even at this early experimental stage."

SHORTAGE OF BEET SEED

The department of agriculture is giving warning as to possible shortage of beet seed for the crops of 1920 and 1921 and urging that immediate arrangements be made by beet sugar companies for their planting requirements. Cablegrams from representatives of the department of agriculture in the Netherlands, together with other information regarding stocks in hand and contemplated plantings, indicate a serious situation. This is because of a real shortage in production and the anticipated vastly increased demand on the part of eastern France and, in fact, all of central Europe.

The present indications are that there is sufficient seed now in the hands of the beet sugar companies in the United States to take care of the entire acreage to be planted to sugar beets in 1919. The most recent information in regard to the supply for 1920 indicates that there is at present a shortage of from 25,000 to 40,000 bags. This is being met through importations in order to provide sufficient for a normal planting next year.

Dutch growers and dealers are unable to book further orders for 1919 seed and orders for 1920 delivery must be received by them this month. At the present time surplus stocks in the Netherlands are selling at 1.3 florins a kilogram (approximately 25 cents a pound) and up, though some dealers are holding for from 2 to 2.5 florins a kilogram (approximately 35 to 45 cents a pound). Reports received from German sources indicate that prices there will remain high or possibly increase during the next two years.

VICTORY LOAN

The campaign is on for the fifth and last of the Liberty or Victory Loans. The victory has been won, and because of the liberal support of former loans such preparation has been made that the lives of thousands of our boys have been saved. In turn the boys did their share right nobly, and every American should be willing to pay for so great a victory.

We have had our Liberty Loans with Liberty Bonds as security. Now comes the Victory Loan with government notes. Wherein a government note differs from a government bond we are unable to say, but here are some of the main facts regarding the government notes which will be purchased from the United States government by those who endorse America's wonderful accomplishment in the late war:

Interest rate 4¾ per cent.
Notes dated May 20, 1919.
Notes due May 20, 1923.
First coupon will represent interest from May 20 to December 15.
Interest dates June and December 15 and last coupon at maturity, May 20, 1923.
4¾ per cent notes carry the following tax exemptions: Exempt from all city, county and state taxes, with the exception of estate and inheritance taxes; exempt from normal federal income tax.
3¾ per cent notes are entirely exempt.
Campaign opens April 21 and will close May 10.
Government Installment Plan: Initial payment, 10 per cent; second payment, July 15, 10; third payment, August 12, 20; fourth payment, September 9, 20; fifth payment, October 7, 20; sixth payment, November 11, 20; with accrued interest on deferred installments.

RAISIN DAY, APRIL 30

We have noticed that when rice pudding is made almost exclusively of raisins and they are well smothered in thick cream the "eatin's" is decidedly satisfactory. We have also noticed that at the eating place where we are now getting our luncheons the cook occasionally throws a handful of raisins into the soup. The good taste of this last proceeding may be questioned by some, but the point is that raisins add to the pleasure of many a dish from soup to dessert.

To bring this fact more specifically before the people of the country the raisin growers have for several years observed April 30 as a day sacred to raisins. Raisins are sold and given away on condition that they are eaten in every form possible. Recipes are published and advertising carried in many of the large magazines, and the advantage and general healthfulness of a diet consisting largely of raisins is shown to the people. They are fine "eatin's" and somewhat profitable to the state of California which last year produced 163,000 tons of raisins valued at $25,000,000 and, thanks to co-operation, all sold at livable prices, and generally sold to consumers at livable prices.

INCREASED PRODUCTION

Sometimes Californians have to back off and look at their own state through the small end of the telescope in order to get proper perspective. We have talked much of our great citrus production, our production of raisins, prunes, fresh fruits of all kinds, and these truly do bring millions of dollars to the state, yet with it all live stock is our greatest industry. Here are a few striking figures which make this fact stand out.

The Imperial Valley is now shipping a trainload of spring lambs every week to Eastern live stock markets. On the 19th a train of 47 cars of fat steers left Los Angeles for Kansas City, where they will arrive Monday, the 28th; 471 of these finely finished youngsters were shipped by Walter Greenings of the Rock Springs Cattle Company; seven of the cars were loaded by McClure of Compton; 13 were from the ranch of J. B. Norton. This bunch of fine stuff averaged 500 pounds and had been fed on concentrates 135 days.

Chas. Robinson of the Clay Robinson Company of Chicago, who is visiting here, inspected this lot of stuff before it left and remarked that it would bring $17.50 or $18.00 at least within $17.00 to $18.00.

C. H. and O. B. Fuller are also shipping 5000 head of finished beef. All told from the southern end of the state before the end of May this season's shipments will aggregate 20,000 head; last season's total aggregated 15,500.

These shipments all represent surplus stock which it is hoped will some day be dressed in California and sent under refrigeration.

DAWN OF NEW ERA

Some day in the future one who aspires to chronicle the principal events that were factors in the live stock development of California will if he desires to be at all accurate give a large place to the events that transpired at the University Farm during the week of April 7-12.

California live stock interests wrote history during the week mentioned and many a live stock man was truly "born again." At least it seemed so. Men who a few years ago could not be interested in better cattle sat at the ringside of three sales and paid more money for pure bred bulls and females than ever changed hands in any previous week in this state, and the gratifying feature of the sales, for the most part, was the fact that these new investments were made without wild speculation brought about by the heat of enthusiasm. Values, higher than California has been accustomed to, were established by practical men who had learned the value of improved stock and who were determined to own the kind that has been proved profitable. Another feature of the week was the selling of a California bred bull calf for $5500—more money than was ever paid for a Coast produced beef bull—thus demonstrating that the breeders of this state can produce cattle as good as the best and that our cattlemen appreciate the fact.

We believe that no similar week has accomplished more for the beef industry of the state and we predict, with a certainty, that California is just entering upon a new live stock era wherein the industry will be greatly expanded and California will take her rightful place as one of the greatest live stock producing centers of the world. The wedge has been started—a few more blows in the shape of more good sales and the big start is made.

Riverside County cannery is asking for larger production of Lima beans for canning purposes.

The Mission Brand in the Making

By C. B. Messenger

SPECTACULARLY high prices for any period of time are reasonably sure to be injurious to all producers. Uniformly fair prices, or prices which give the producer cost of production and reasonable profit and deliver the goods to the consumer at a fair cost, are sure to result in permanence and the upbuilding of the industry.

One of California's best orange growers has given a lesson in securing a fair return to the producer and giving fair priced product to consumer. Likewise he is the grower of some of California's best and highest grade oranges. It has been a principle with Charles C. Chapman, a grower of oranges and lemons in Orange County for many years, that a first class quality of fruit, and uniformly first class and uniformly packed fruit should be sent from his orchards near Fullerton. There have been times when market conditions gave opportunity to sell the Chapman "Mission Brand" at prices almost spectacular, but this has been the exception; uniformly good prices have been the rule, and by good we mean good from the standpoints of both consumer and producer.

Mr. Chapman has some six or seven hundred acres, more largely planted to Valencias than any other fruit, and it is on the quality of these Valencias that Mission Brand has been built up. The first step in the production of these fruits has been the selection of the kind of fruit which does best under the soil and other conditions which Mr. Chapman had. These conditions seem to be perfect for Valencias. Hence it has been comparatively easy to produce a high percentage of of fancy fruit.

Next came thorough preparation of the soil and creating conditions in which the well selected trees could do their best. One of these conditions has been the supplying of sufficient fertility to the soil. The one greatest need in these orchards has been found to be for more vegetable mould, or humus, and this has been secured in every way, such as the purchasing of trainloads of manure from the stables of Los Angeles, green manuring, the purchase of bean straw, low grade alfalfa hay, and even the use of prunings from the trees, which have been run through large cutters and reduced to small particles and distributed over the orchard. As a regular proposition the soil gets, say, around five to six cubic feet of stable manure to each tree. This is on 30 year old Valencias. In addition there is applied about 20 pounds of complete commercial fertilizer or its equivalent. There have been years when larger applications of commercial fertilizer have been made. The growing of green manure crops has been discontinued in the older orchards. The reason for this may be seen by noting the "canyon" appearance given in the illustration of the orchard by the monster trees 30 or more feet in height. The shade has become so dense that it is practically impossible to get satisfactory stand of melilotus or green manure crop. On the younger orchards, however, Mr. Chapman has believed in using so far as possible of melilotus or other green manure crop. His favorite at this moment is melilotus, although he is giving a thorough test to soy beans. Summer cover crops have not been planted as a rule. The method of handling the melilotus or soy bean crop is by turning under with the mould board plow.

When asked as to his treatment of soil at time of blooming, that is as to whether he would plow under cover crop or irrigate during blossoming time, Mr. Chapman referred to the manager of his ranches, E. W. Hemphill. In fact Mr. Chapman added that Mr. Hemphill had been in almost entire control of the ranches since the first setting of the trees, and to him should be given the credit for a great measure of the successful work in these orchards. Mr. Hemphill does not believe it wise to give heavy irrigation or deep plowing or any other surface disturbance of the root system, if possible to avoid it, at blossoming time. This should be understood to be taken with "if possible to avoid", for there are times when one is seemingly obliged to set aside all rules. There is where many of us fail in that a principle which may be eminently sound under usual conditions ceases to be so under other conditions. If one is unable to turn under a cover crop or to irrigate his land prior to its blooming or setting of the new crop and his trees are actually suffering for moisture a greater loss might be visited upon the trees if the orchardist ignores their demands. But notwithstanding this violation, as remarked, it is the rule of the ranch not to give this heavy irrigation at blooming time.

When asked as to possible influence for good of a cover crop during month of June, when the usual "hot spell" may cause serious trouble to the newly set crop, Mr. Chapman said that he had not made test of this method but did add: "My experience has been that if our land is well irrigated when we approach the June hot spell and we then cultivate, we will avoid much of the disaster which often follows this spell. I am more and more convinced of the high value of cultivation. We must irrigate, of course, but many of us use too much water and do not do enough cultivating."

The present crop which is loading down the trees shows the wisdom of his method of treatment, and while he makes it a principle not to apply "too much" water we imagine frequent examination of soil conditions gives him exact knowledge of the demands of the trees and of the soil. When the water is applied it is with the utmost economy, through proper location and arrangement of water delivery system Illustrations on this page show the

Continued on Page 595



Inspecting the Coming Valencia Crop

C. C. Chapman, who has for many years shipped Valencias into New York markets, at times securing spectacular prices, is the gentleman at the right in the picture above. The gentleman at the left is E. W. Hemphill, manager of the great Chapman orchards near Fullerton. Mr. Hemphill has directed the planting and care of these orchards practically since their establishment by Mr. Chapman many years ago.



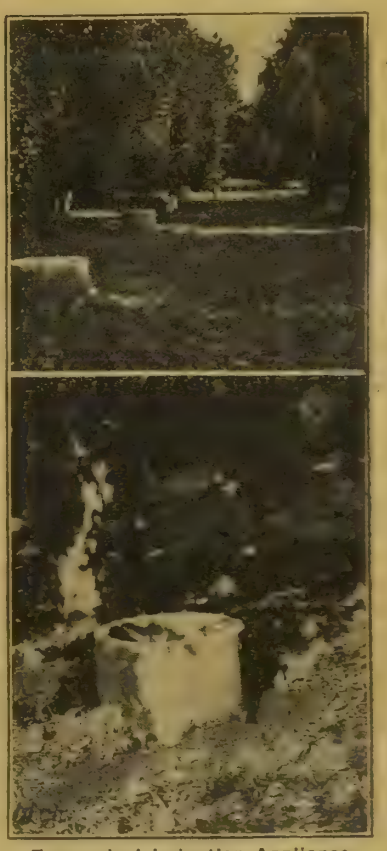
Thirty Years Old and Still Doing Fine

Looking down the "canyon" of Valencia trees on the ranch of C. C. Chapman of Orange County which has been producing crops now for nearly 30 years. This orchard has had best of care as to soil, special effort being made to keep up the vegetable mould content.



Another Form of Outlet

An irrigation appliance which is a labor saver. This is on the ranch of J. B. Neff, Orange County, and allows perfect control of water. Where an outlet is lower than another farther on the same headline, the cap permits of complete closure and forcing water to higher level



Economical Irrigation Appliance

The outlets shown in both the above illustrations are the same, the lower one showing better the location in relation to the row of trees. The outlet in each case is on the outside of the upper row of trees. This permits the turn around with the cultivator close up to trunk of tree. The back up from the outlet is sufficient to irrigate the soil on upper side of tree.

Agricultural News Notes of the Pacific Coast

Northern California

Cherries are ripe in all Sacramento Valley cherry centers.

Chico orange growers report average return of $4.16 per box.

Butte County growers are testing out a new forage grass called Harding grass.

County farm bureaus of the state are discussing the matter of forming a state farm bureau.

The Contra Costa County farm bureau held pure bred Berkshire sale at Martinez last Saturday

Supporters of the $40,000,000 state good roads bond issue are hoping for call for election on June 24.

State Commissionr Hecke estimates that California spends $5,000,000 annually in insect pest control.

Nearly 60,000 acres of the great Vina Ranch, mostly in Butte County, has been subdivided and sold.

The Hunt cannery at Haywards is being enlarged and it is hoped to soon have it running ten months each year.

Farmers in many of the rice districts have seed beds prepared for the planting of the coming season's crop.

Placerville Fruit Growers Association has awarded contracts for the erection of a warehouse and packing house.

Prune and apricot growers of Hayward have organized a branch of the California Prune and Apricot Growers, Inc.

General Manager Virden of the California Fruit Distributors report conditions are perfect this year for a big fruit crop.

Farmers of Eden Township, Alameda County, are planning for an exhibition of farm products to be held at Haywards.

The California Cattlemen's Association has endorsed the proposal to hold an International Live Stock Show at San Francisco.

Lieutenant McCormick has been appointed cow tester for Contra Costa County farm bureau. There are 835 cows being tested.

The California Almond Growers Association has passed resolutions endorsing the administration of Market Director Weinstock.

Saturday of this week farmers of California gather in the annual University Farm picnic at Davis, where the boys of the school furnish the fun and the farmers the lunch.

Apple growers of Humboldt County increased their planting during the past season as never before, and growers there propose to be a greater factor in California apple production.

The Butte County Citrus Association has elected G. E. Middlehoff, president; R. S. Powers, vice president; Oscar Warner, secretary; First National Bank, treasurer; G. E. Middlehoff, R. S. Powers, J. A. Lawrence, R. A. Leonard, W. E. Vaughan, A. C. Mastellar and Frank C. Gray, directors.

Berry growers of Sebastopol are charged with having stricken from Assembly Bill 172, known as the Net Foodstuffs Container Act, the following provision: "No containers, boxes or baskets wherein food products or other commodities are packed shall have a false or raised bottom, or be so constructed as to facilitate the perpetration of deception or fraud."

Central California

Raisin Day April 30.

Turlock melon growers are planting largely to honey dews.

Stanislaus County will plant in excess of 2000 acres of watermelons.

This has proved the greatest planting year ever for figs in San Joaquin Valley.

Wire worms are proving a worse pest than usual in the fields of Stanislaus County.

There is a greater acreage of grapes in Merced County than is given to any other fruit.

Tulare County Pomona Grange is boosting for the more general use of the Torrens land title.

Riverbank Farmers Union recently held a "Get Acquainted Social" at Union school auditorium.

Tulare proposes its location as the ideal center for a great centralizing plant for handling milk products.

Los Banos, Merced County, is milking 7000 cows, which last year produced butter fat valued at $1,400,000.

Stanislaus County pear growers have found certain winter pears are more resistant to blight than Bartletts.

Fresno business houses will close and the entire day of April 30 be given over to Raisin Day festivities, parades, etc.

The Nutting date gardens near Fresno are proving an inspiration to experimental date planting in several sections.

The California state fish and game commission is distributing young rainbow trout in the waters of the Kaweah River.

The Cattle Protection Board has inaugurated inspection of cattle at shipping point. Carriers will not accept these inspectors.

The Tulare Cooperative Poultry Association handled a greater business during the month of March than any preceding month.

San Joaquin Valley has organized a public utility association; the purpose of which is to secure just rates from the big light and power companies.

The almond growers of Merced County have joined the California Almond Growers Exchange. There are 20,000 almond trees in that county.

P. R. Jones, formerly specialist with the department of agriculture investigating thrips control in Tulare County, recommends improved methods of control.

San Joaquin Valley tractor owners are appealing for dirt extensions for paved highways so that tractors may be moved from section to section without injury.

Horticultural Commissioner Penny of Santa Cruz County recommends the use of strong lime-sulphur solution before the swelling of the buds to prevent brown rot of apple.

Horticultural commissioners of Kern, Tulare, Kings, Madera and Fresno Counties met recently and adopted standards for making tests on table grapes for the coming season.

Owing to the high prices of all kinds of material, especially of cans, the cannery at Carruthers, Fresno County, will not operate this season. The plant is to be completely overhauled preparatory to a full run in 1920.

Southern California

Coachella Valley is now shipping carrots by the carload.

California Limas are now quoted at warehouse at 7¼ cents.

The new Lima bean pool recently sold 215 cars in two days.

Southern California walnut growers anticipate a 20,000 ton crop.

Many Orange County dairymen are planting largely to sorghum grains.

The canneries at Hemet, Riverside County, are making general improvements.

Many of the oranges going to market now are run through precooling plants.

Hemet, Riverside County, reports the fruit crop will break all previous records.

Strawberries with fruit already formed and in full bloom indicate immense crop.

Riverside orange growers have been sending boxes of their finest fruit to the state legislature.

In the reelection of Mayor Vandegrift of Pomona the anti-smudge pot ordinance seems to be endorsed.

The Riverside County chamber of commerce holds all day meeting at Blythe, Palo Verde Valey, this week.

The Dairy Council is securing many members who believe in advertising more liberally of products of the dairy.

Oxnard feels that with the return of bean prosperity Ventura County again becomes the bean center of the world.

Imperial County has organized a Pima Cotton Association which will have charge of marketing and Eastern shipments.

Deputy Commissioner Weldon recently made an address before fruit growers of Victor Valley, San Bernardino County.

Southern Orange County and northern San Diego County are planting Lima beans to about the same extent as in former years.

Stockmen of Imperial Valley are complaining because of high prices of feed putting them at a disadvantage with nearer coast feeders.

Imperial Valley has shipped over 60 cars of peas, mostly to far Eastern markets. Each car consists of 370 drums and a drum averages around $10.

Farm Adviser Essig, having taken charge of the work of the Lima bean pool, he has been succeeded in Ventura County by former Horticultural Commissioner Staunton of San Luis Obispo.

The report of the Southern Pacific Milling Company, one of the largest warehouse companies storing beans, shows in its warehouses: Limas, 382,985 bags; Small Whites, 440,793; Blackeyes, 40,313.

The scrap between the fishermen and State Commissioner Weinstock continues and Lent has passed with hardly a fish in the market. San Pedro fishermen have continued to stir up trouble in other fishing sections.

Imperial Valley planting to cantaloupes has been larger than in some preceding seasons. It is practically 3000 acres greater than last year. The aggregate will be about 14,000 acres, 10,000 of which is in the Brawley district.

The Coast and General

Live stock exposition is to open in Sao Paulo, Brazil, April 21.

There are 50,000 swarms of bees in the Yakima Valley, Washington.

Yakima Valley, Washington, is experiencing shortage of farm help.

Orchardists of Hood River, Oregon, held a blossom festival this season.

Colorado produced 234,303 tons of sugar in 1917-18 and 191,880 in 1918-19.

The great bulk of the beet sugar of the United States is produced west of the Mississippi River.

It is estimated that the importation of potatoes from Canada this year will be larger than for several years.

Under the revised dairy law, Arizona dairy commissioner will be entitled to one and possibly two deputies.

Douglas County, Washington, farm bureau agent spent many weeks this spring in giving germination tests to seed wheat.

Algeria, which usually produces a surplus of grain for export to France, finds that its exports for 1919 will be greatly reduced.

A considerable delegation of Arizona good roads enthusiasts is attending the good roads conference at Mineral Wells, Texas.

South China produces large acreage of peanuts, but local consumption and crushing for oil leaves only small quantity for export.

Brazilian foodstuffs are being seriously reduced by attacks of great numbers of locusts. Beans and rice and corn are all suffering.

The Yakima Horticultural Union, Washington, recently sold two cars of fancy Winesaps at $4.00. This is the record price for Yakima apples.

Some cattle growers in Yavapai County are reported to have contracted their yearlings at $36, which is about $4.00 less than last year's price.

Bee keepers of Washington recently met at Toppenish and discussed the matter of container cost. Last year's prices were $128 per thousand, this year's, $168.

The Peshastin Fruit Growers Association, Washington, sold for its members 150,150 boxes of pears and apples, and averaged per box to the grower $1.70.

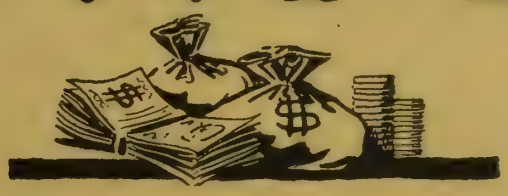
Retail milk dealers of Phoenix, Arizona, are organized, with Hubert Geare, president; Robert Webb, vice president, and George Elliott Miller, secretary and treasurer.

The importation of lemons is now permitted by the war trade board of Australia, prior to June 1, 1919. This only up to ten per cent of the quantity imported during the year ending June 30, 1918.

Live stock census in Sweden shows the number of cattle to be far lower than at any time since 1914; sheep also greatly reduced and hogs little more than 50 per cent of number shown by the 1914 census.

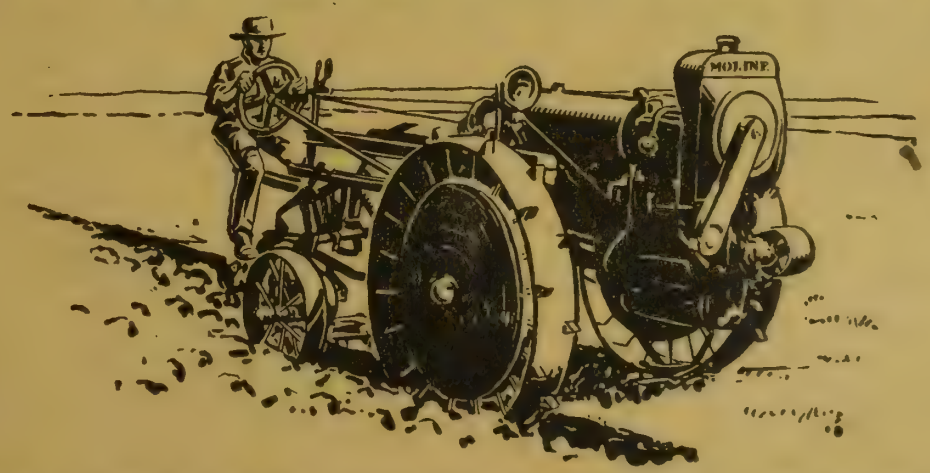
Homer Hamlin, consulting engineer of Los Angeles, is making an exhaustive survey of the proposed Paradise Verde Project and will later submit a report to the United States reclamation service, regarding the advisability of utilizing the waters of the Verde, either for the proposed project or to enlarge the Salt River project.

$1,000.00 REWARD



To the first farmer naming a job of general farming that can't be done by a

MOLINE UNIVERSAL TRACTOR



THE TRACTOR THAT ELIMINATES THE HORSE

MOLINE PLOW CO.
MOLINE, ILL.

Moline Service Satisfies

Secretary Sustains Quarantine

THE quarantine governing the importation of nursery stock and other plants and seeds into the United States is scientific in origin and purpose, and sound in principle, declares Secretary Houston after careful personal consideration. Its enforcement, he says, will make for the safety of the plant, fruit and forest interests of the country with as little injury to private agencies and individuals as is compatible with the purpose of the quarantine.

This judgment of the secretary of agriculture was announced after the briefs submitted to him by a protesting committee of florists and nurserymen's organizations, together with all department records and correspondence in relation to the hearings before the federal horticultural board, were reviewed by Thomas G. Shearman, attorney in charge of the investigation of appeals from decisions of the forest service. Mr. Shearman was instructed to include in his inquiry every phase of the subject, particularly all criticisms of the quarantine from whatever source. After studying the report of this inquiry, together with all the other records, the secretary reached his decision.

Attention is called to the care exercised to make sure that all interested persons had the opportunity of being heard. The federal horticultural board gave 60 days' notice of the original hearing. After the hearing, the whole matter was again taken under advisement by the department, and investigated for a period of three months. Then the form of the proposed quarantine was sent out in such ways that all interested parties had the opportunity of studying it. Nearly two months later, another conference was held. The suggestions made at that conference were submitted to the experts of the department and given careful consideration before the quarantine was promulgated.

After stating these facts and reviewing the various criticisms that have been made, Secretary Houston says:

"As the result of my consideration of this entire matter, it appears to me that the department had to face and solve this problem: Given the fact, on the one hand, that any importation of plants and plant products is necessarily fraught with danger from disease or pests, and the further fact, on the other hand, that entire exclusion would be unwise at this time, how could a general quarantine be drawn, so as to reduce to the lowest terms both the disease and pest dangers involved in importation, and the injury involved in restriction.

"In working out the solution of this problem, two considerations have been kept constantly in mind with reference to the different classes of plants and plant products to be covered by the quarantine order: the necessity or importance of the particular plant, and the danger arising out of its importation. The quarantine, as finally formulated, has been the result of bringing to bear upon these two considerations such technical and scientific information as could be obtained from sources believed to be reliable.

"Necessarily, there are all kinds of gradations, both in the risk of disease or infestation, and the importance or necessity of the various plants considered. Where the necessity is at the maximum, and the risk is toward the minimum, the quarantine will be found to be inoperative as for instance, in the case of fruits, vegetables, and cereals for food and similar purposes, and field, vegetable and flower seeds. When, on the other hand, the risk is at the maximum, and the necessity is at the minimum, the quarantine is found to be strict, as, for instance, in the case of plants whose roots are balled in ordinary earth.

"It is clearly my opinion that the distinctions and classes in this quarantine order have been made only after careful consideration of the best information obtainable. It is also evident that the various restrictions embodied in the order are not necessarily final; one amendment has already been issued, that of February 12, 1919, with reference to the use of sterilized soil about the roots of imported plants. It is, therefore, always possible that further convincing evidence may make other amendments necessary, not only for modifying or removing restrictions now in force, but also for extending existing restrictions or adding further prohibitions thereto.

"It is recognized that the enforcement of certain features of this quarantine order will injure some horticultural interests, not only by necessitating readjustments but by the possible loss of some lines of profit. Such provisions, however, have been inserted only because it was believed, on satisfactory evidence, that they were necessary in order to protect the wider interests of the public at large.

"It is also recognized that some of the plants and plant products, whose importation has made them more or less popular, will become rarities until they can be produced in this country and, if as seems likely in a few cases, this turns out to be impossible, that it will be necessary for the public to do without them or to accept a substitute which can be produced here or which can be imported with safety.

"In any discussion of the purpose and effect of this quarantine order, the fact should not be overlooked that definite provision is made therein for the entry, in limited quantities, even of the prohibited bulbs and plants, through the government office of foreign seed and plant introduction. In such case, the importation would be safeguarded by the highly developed quarantine and inspction service of the department and the country could, in this way, gradually be supplied with new varieties and the necessary stock for propagation, without the dangers attendant upon commercial importations.

"In view of the facts and considerations set forth, it is my opinion that Plant Quarantine 37 is scientific in origin and purpose, as well as sound in principle, and that its enforcement will make for the safety of the plant, fruit and forest interests of the country with as little injury to private agencies and individuals as is compatible therewith."

For Three Years Hudson Super-Sixes Have Led

Super-Six leadership was first established on the speedway. There it showed such performance and endurance as immediately placed it in the front as the greatest stock car that had ever attempted such feats.

But present Hudson leadership does not rest upon what it has done in establishing the best time for one hour, or for one hundred miles, or for its twenty-four hour performance, or for having made the best time in the greatest hill climb that was ever held, when it climbed to the top of Pike's Peak. The Super-Six is not distinguished because of any one notable performance, although it holds more such records than any other car.

There are seven Hudson models Two open and five closed The 7-Passenger Phaeton sells at $2200

The greatest proof of Hudson leadership is shown by the way in which 60,000 Super-Six owners are satisfied with their cars.

Acknowledged by all Rivals

Hudson body designs too are the standard of motordom.

Everyone in touch with motor car development knows how the Sedan, the Touring Limousine, the Speedster, the Cabriolet, the Limousine and the Town Car, models that first appeared on the Super-Six chassis, have served as patterns for other cars. Hudson owners always get the advance models.

Full production of Hudsons will not be reached before June. Until then buyers of open models will have to supply their wants from the limited stocks of those few dealers who may have such cars.

In almost every locality the Hudson Super-Six is not only the largest in number among fine cars, it is regarded as the fine car. In many sections it is the only fine car to be found.

HUDSON SUPER SIX

Hudson Motor Car Company
Detroit, Michigan

(1037)

ROEDING'S FRUIT GROWERS' GUIDE

"Roeding's Fruit Growers' Guide" by George C. Roeding, Fresno. $1.00.

"Fruit growing is a business pure and simple. It had a very important bearing on our winning the war. The purchases of dried fruits in California alone, exclusive of canned goods for the men who were at the front, aggregated $25,000,000 of the crop of 1918. Vegetables, canned and dried, formed another very important adjunct in the diet of our men, and the purchases ran up to millions of dollars. Intensity in farming operations is being encouraged now more than ever before. A man who planted fruit trees and intercropped with vegetables during the period of the war certainly fulfilled his obligation to the government. He not only provided for the future when he planted his orchard, and increased the value of his land, but in addition to this he was encouraged to go to the expense of installing a pumping plant for developing water, building ditches and, where necessary, cement pipe lines, with much more care and thoroughness than he would have done were he devoting his attention merely to the raising of vegetables alone. It is becoming more and more apparent in these days that a fruit grower should specialize. This does not means that a man living on a farm should not have a small or-



Mr. Farmer

If you grow Raisins, Prunes, Peaches, Pears, Apples, Apricots, Grapes, you need a

SAHARA DRIER:

Every year your losses run into thousands of dollars because of adverse weather conditions—over-ripe fruits, etc. The Sahara Drier guarantees you against such losses. It is the cheapest and best possible insurance for your crops. You cannot afford to take a chance on early rains such as came last Fall.

WINE GRAPES—Many of the California growers are making ready to dry their 1919 crop. We guarantee our machine to do satisfactory work. Our patented process makes this possible. Prices are $650 and $850 for our one-ton-per-day Drier. See our representatives for particulars:

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(Guaranteed Analysis)

Nitrogen, 4.00 per cent; Phosphoric Acid, 7.00 per cent; Potash, 1.00 per cent.

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When Writing Advertisers, Mention The Cultivator.

chard, berries, vegetables, alfalfa, a cow, poultry and hogs. It is being demonstrated, however, that with our diversified climates and soils certain localities are better adapted to one variety of fruit than another. This point should never be lost sight of. There is far too great a tendency on the part of many people to plant the fruit which has been bringing the highest prices for several seasons, utterly disregarding the fact that both soil and climate may not be conducive to make the venture a success."

The above is the first paragraph of a book which is a valuable addition to every fruit grower's library. It's a discussion, or rather a very complete and practical statement such as should be made in the text of a fruit growers' guide.

After the statement as to beginnings, or as to the necessity for the fruit grower putting on his thinking cap, the book proceeds with preparation of soil, selection of stock, time of planting, treatment of trees when received, how to plant, discussion of planting methods, with number of trees per acre, etc., short discussion of planting; after this general discussion of planting and pruning of orchards and vineyards, then special treatment for apples, pears, cherries, plums and prunes, apricots; practically every fruit grown in California is taken up with short pungent suggestions of various steps in orchard making and orchard care and harvesting.

No table of contents is given but an excellent index aids one in turning quickly to a desired topic.

While the book contains only about 100 pages it has been given Roeding's direct punch, and in addition scores of illustrations teach faster than words the how of doing things. We have been able to find more direct and definite answers to California cultural questions than in any book yet issued.

There are some points on which without question some growers might disagree with Mr. Roeding, but the wise man who is able to write books acceptable to all growers has not yet risen. For instance, in the matter of pruning walnuts Mr. Roeding says: "Even if the trees are ten feet high (this in planting from nursery row) they should be cut back to three and a half feet from the ground after being set." We think perhaps Mr. Neff might take exception to some of the pruning hints, as perhaps some other walnut growers might do, but even here Mr. Roeding is able to fight his own battles.

PEACH CROP IN GOOD CONDITION

The condition about April 1 of the commercial peach crop was 84 per cent of the normal compared to the final percentage last year of 52.4, according to the bureau of crop estimates of the United States department of agriculture. No quantity estimates were given, but the bureau, assuming that adverse conditions do not affect the crop later, said that the April 1 condition report indicates that the 1919 peach crop may possibly exceed the very light crop of 20,546,000 bushels in 1918 by as much as 40 per cent, and may equal, if not exceed, the 28,901,000 bushel crop of 1917. Conditions generally throughout the peach regions are excellent, says the bureau, but emphasis is placed on the temporary nature of early peach reports.

PRODUCTION OF HONEY

Since good honey prices are assured for some time to come, beekeepers are justified in aiming at the best possible production for the coming summer. If colonies are in box hives or poor hives of any sort they deserve better treatment. Best results are only attained by using up-to-date appliances and methods. When fruit trees are in bloom it is a good time to transfer bees to modern hives, for at this time there is usually but little honey or brood in the combs to hinder operations. In most cases colonies appear to have sufficient stores this spring, which is all that is required for building up to good strength ready for the honey flow. In case stores are scarce, however, syrup of equal parts of sugar and water should be fed on warm days in sufficient quantities to keep the bees well supplied.

Sacramento

1919		MAY				1919
SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

DAYS TO OBSERVE

These will be six busy days. You will see modern farming done the Power way. The newest devices for labor saving—for economical farming—will be in action.

Tractor DEMONSTRATION May 6 to 11

At Arden Acres

Tract of 650 Acres. Adjoining Country Club. Six Miles from Postoffice

Come prepared to stay. The demonstration of all the up-to-date machines will be of great interest. Tractors—Plows—Harrows and power farming accessories of every kind will be on exhibition. You will see tractors at work, doing exactly what they will do for you on your farm. You will see them pulling mould-board plows, disc plows, harrows, scrapers and all kinds of farm implements. Remember, there's nothing quite like seeing. At this demonstration there will be tractors to meet every demand for the big and little ranches, for the orchard, grove and vineyard, for hauling, for the pulley. COME.

Free Admission. Free Auto Parking. Free Camping Grounds Nearby. Excellent Restaurant Fully Equipped.

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CALIFORNIA TRACTOR AND IMPLEMENT ASSOCIATION

Membership: 77 Tractor and Implement Manufacturers and Dealers

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Cauliflower in the Season of 1918-1919

CAULIFLOWER is one of the most important winter vegetables grown in California and meets with very little competition in the Eastern markets from other producing districts during its marketing season. The only other section of the country where the commercial production of this crop has approached the output of California is Long Island, which ships during the fall months.

Los Angeles County is by far the most important producing section and practically the only other cauliflower shipped from this state is produced in San Mateo County, near San Francisco. Considerably more than 75 per cent of the crop each year is grown in Los Angeles County. Last season's acreage in Los Angeles County was 3450; in San Mateo, 1300.

In the season of 1916-17 there were shipped from this state 1654 carloads. In 1917-18, 2173 carloads were shipped and this past season of 1918-19 a total of 1594 cars were shipped. This movement extended from April to November.

The past two seasons have proven conclusively that the weather, in its influence on growing conditions, is the most important limiting factor in the cauliflower deal. In the 1917-18 season a combination of unfavorable weather and poor transportation resulted in the most disastrous season known, from the viewpoint both of the growers and shippers. This situation arose from the lack of rainfall through the late fall and extending up to February 1, a period during which the normal rainfall is over 11 inches. Conditions were made worse by severe drying winds which tended to retard the maturing of the crop, reduced the size of heads, and made the crop generally inferior for shipping. Last year heavy loading of cars, together with unavoidable delays in transit, owing to the poor rail facilities, resulted in the glutting of many markets with stock which had deteriorated in transit and which brought "red ink" returns to the growers.

The unfortunate season of 1917-18 resulted in a considerable decrease in plantings for the season 1918-19, as shown by the bureau of crop estimates figures, which indicate that the acreage this past season, in Los Angeles County, was 3450, as compared with 4800 in the season of 1917-18. The Japanese and Chinese growers, who produce a large proportion of the crop, planted about their usual acreage, but that planted by other growers was much less.

While the growing conditions this season were considerably better than last year, still there was a time during the month of February, when the crop matured so rapidly it could not be handled properly and, if transportation facilities had been as poor as last year, a great deal of this stock would have arrived in bad condition. Light rains the latter part of November, after the long, dry fall, gave a more promising outlook to the situation, but during December the nights were so cool that little growth could be made. After this long period of retarded growth the crop began to mature rapidly the latter part of January and heavy shipments commenced.

During the period of heaviest movement from the southern district many of the heads were loose and "ricey" and from some fields fully 50 per cent of the heads hauled to the packing sheds were turned back to the growers for delivery to pickling works. At this time only a small percentage of heads were hard, tight and well bleached. The main movement during this period was from what is known as the "Half Early" plantings, as the "Early" strains had gone forward largely in mixed cars. The so-called "Late" varieties did not mature uniformly this season and very little, if any, of this stock was shipped.

Prior to the 1917-18 season the heavy shipping period had been in the month of January, but last year and this the peak had been reached in the month of February and the crop matured fully a month to six weeks later than normal.

Cauliflower as produced in Los Angeles County presents an interesting contrast to the Broccoli type shipped from San Mateo County in the central district of this state. The Chinese, Japanese and American growers on the level, irrigated lands south of Los Angeles, practice decidedly different methods of growing the crop from those used by the Italian growers in the hill lands south of San Francisco. In this latter district the common varieties are known as Snowball cauliflower, White Broccoli and Black Broccoli, the latter type being the one of greatest commercial importance. Most of the planting in San Mateo County is done in June and July and transplanting in August and September.

The crop is usually grown without irrigation in the heavy soils in that region and in favorable seasons the per acre yield of Broccoli runs heavier than that of cauliflower in the Southern district, because of the cool, humid climate, heavy manuring and close planting. On the other hand, in dry years the acre yield is generally less than that secured in the Southern district because of the lack of irrigation.

In the 1917-18 season the yield of shipping stock in straight and mixed cars, exclusive of pickling stock and that consumed locally, was estimated to have been 173 crates per acre in Los Angeles County and only 150 crates per acre in San Mateo County. The figures on the per acre yield of the two districts for this season are not yet available. In the Central district the plants are commonly set about two feet apart each way, and each plant is watered by hand at the time it is set out, unless the soil has recently been moistened by rain. In harvesting, the heads are usually carried out to the ends of the rows by hand and packed on the ranch.

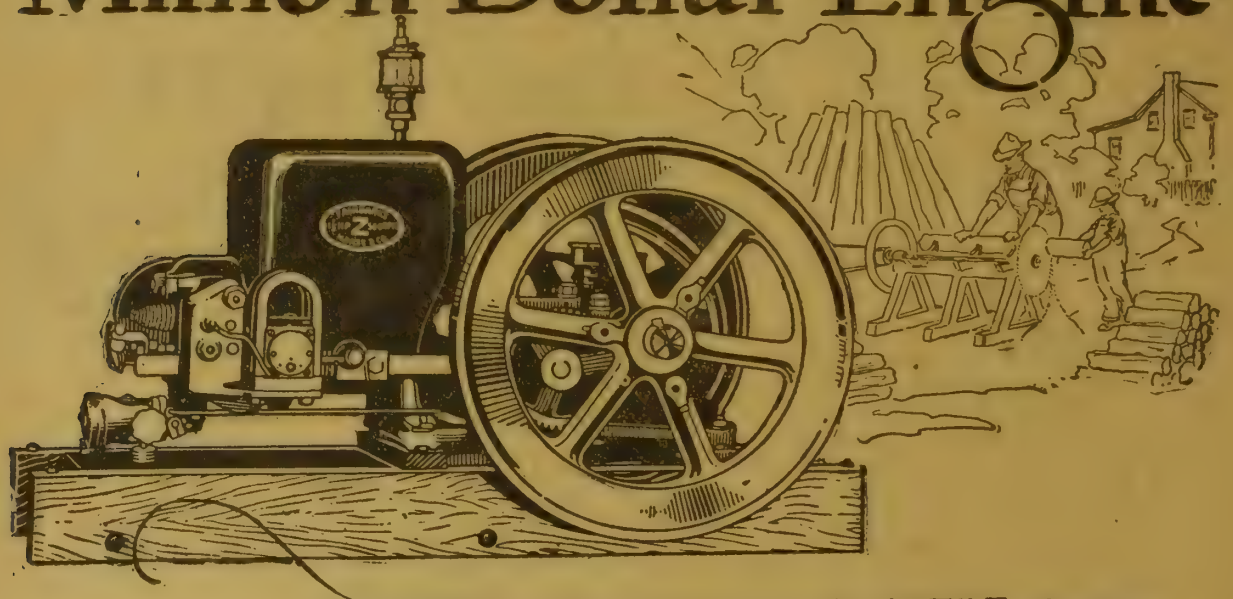
In Los Angeles County the planting season covers a long period, running from May 15 to September 1, in order to obtain the continued supply of matured heads throughout the winter months. Growers as a rule recognize the importance of supplying the Eastern markets continuously through the winter months, and in their efforts to produce a somewhat uniform daily supply they have developed several strains of seed, known as "Early," "Half Early" and "Late," which are planted at intervals of from two to three weeks apart.

Transplanting from the seed beds begins about July 15, and sometimes continues to as late as November 1. The plants are set about 20 by 34 inches apart in the field, and frequent irrigation is employed by the furrow method during the growing period. In harvesting the crop each plant is severed close to the ground with a long knife, the second stroke cutting off the main, outer leaves at the base, after which each head is tossed into a two-wheeled cart which is driven over two rows of plants. It is generally necessary to go over each field several times, as the individual heads mature irregularly. In the Southern district packing is seldom done on the farm, but the cauliflower is thrown from the field carts into large wagons or auto trucks and hauled to the packing houses.

Here the heads are tossed on the end of a long conveyor about four feet wide, which moves slowly and carries them to the packers who stand at either side. Inspectors at the receiving end of the conveyor examine each head carefully and, if the stock is loose and "ricey", it is thrown aside, to be taken back by the grower. Generally each load is considered a lot by itself, and the grower is paid for the number of crates actually packed.

The heads are packed 9's, 12's and 15's in flat pony crates, measuring 8½ by 18 by 25½ on the outside and which are designed to hold one dozen standard size heads. In packing, the lower part of the leaves are left attached to the head and the tips of the leaves are cut off even with the top of the crate before the lid is nailed on. The standard cauliflower crate measures 13 by 18 by 25 inches, and is designed to hold two dozen standard sized heads. A standard carload consists of about 500 pony crates, or 285 standard crates. In some cases, certain markets prefer heads wrapped in paper, from which the leaves have been trimmed.

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FIFTEEN million dollars worth of "Z" Engines are on over 200,000 farms—proving a remarkable engine service. The new 1½ H. P. "Z"—just perfected—completes a line of KEROSENE engines—1½ H. P. to 15 H. P.—all of which merit the keenest interest of every farmer. The rare combination of scientific design—fool-proof construction—efficient operation—lowest possible fuel cost—certainly establishes the supremacy of the "Z". Go to your dealer—see the "Z"—then you'll quickly learn why progressive dealers feature the "Z" line after comparing it with all others.

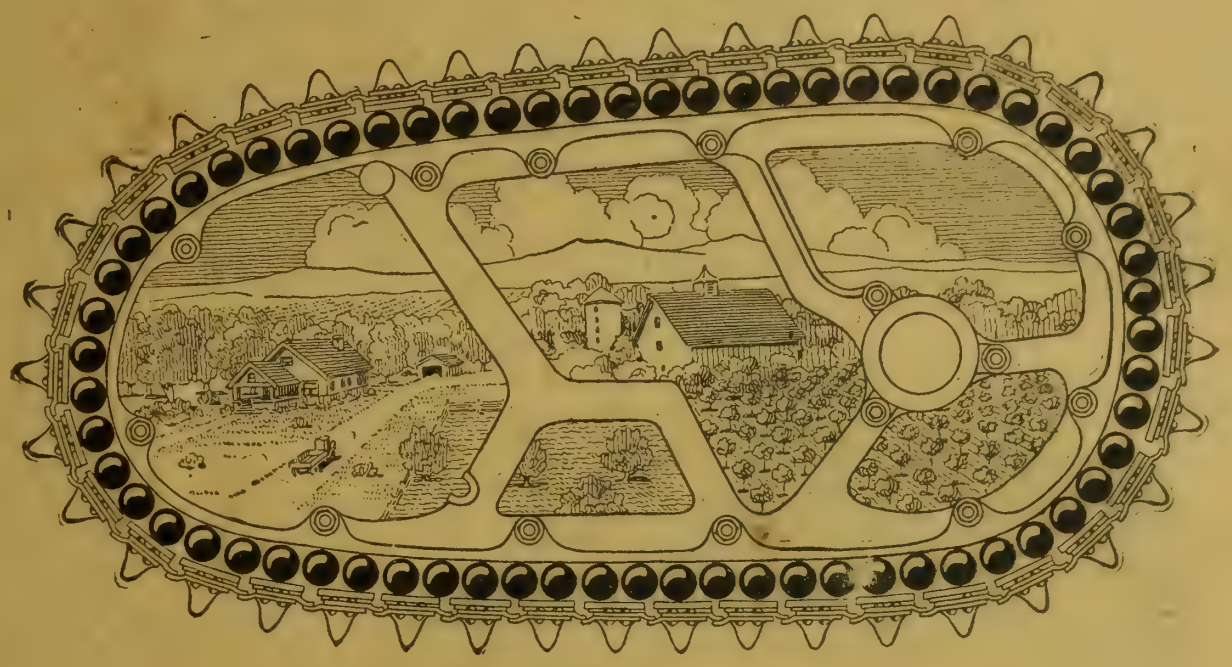
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Throttling Governor—Built-In Oscillating Magneto

Prices, 1½ H. P. $61.00—3 H. P. $100.00
6 H. P. $179.00
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Successful Farming thru the Ball Tread



Putting the Rollers under the Drudgery in Farming

There are three sizes of these
Roller-Bearing, Work-Achieving, Money-Making
Yuba Tractors: 12-20, 20-35, 40-70
Ready for Immediate Delivery

Power farming is the modern business idea. The resistance of hard soils, the long field, the weary round, drive you toward the use of power on the farm.

The machine best adapted to hard usage, *the one that puts the rollers under the drudgery on the farm,* is the YUBA Ball Tread Tractor.

Riding your YUBA you feel a sense of security. You are sure you will arrive at the end of the day without breakdown. You know that the mechanical perfection of your YUBA is your best guarantee of long service, few repairs, small upkeep.

Perhaps the only argument against the YUBA is the price. But that affords YUBA perfection.

Write for the catalogue. Tell us how many acres you farm, or what uses you expect to have for a tractor.

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A. F. GEORGE COMPANY, Yuba Dealers,
200 N. Los Angeles St., Los Angeles, Cal.

Arizona Farmers Eat Alfalfa

By M. E. Bemis

IT IS rather an old story, that of the jury that could not agree and the foreman told the court bailiff to bring around dinners for eleven and a bale of hay, but when 300 Arizona farmers and business men with their wives sat down with the governor of the state to an alfalfa dinner, something new as well as unique was pulled off in the state that is so full of surprises that it is called "The Wonderland of America." There are more than seven wonders in Arizona, but alfalfa is one of the greatest and almost the least talked of.

The following menu comprised the "feed":

Alfalfa Noodle Soup
Alfalfa Croutons
Sandwiches
Alfalfa Bread
Alfalfa Fed Cold Meats
Alf-ine Jello
Alfalfa Coffe Alfalfa Tea
Alfalfa Muffins
Alfalfa Layer Cake Alfalfa Syrup
Alf-ine Ice Cream
Alf-ine After-Dinner Mints
Alf-ine Assorted Candy
Alf-ine Chaser

Although the governor facetiously remarked that a friend sat beside him all the evening with his knife out in case he should "get bloat", there were no casualties and few complaints, though possibly as a steady diet few would be enthusiastic.

This alfalfa dinner was merely the closing event of a most important occasion, a real Hay Congress, composed of producers of and dealers in hay, which in Arizona means alfalfa. 85 times—or tons—out of 100.

Several months ago the dealers organized, and then it was found that the dealers' problems involved the producers' and the shippers' troubles as well, and the Hay Congress which convened in Phoenix April 7 was the gradual outgrowth of conditions that made it advisable to get together for the good of all concerned.



Arizona Hay "Feed"

Banquet of Arizona hay makers. Gentleman sitting slightly at right of center of picture with the figure "1" on his shoulder is Governor Campbell; on his left, "2" is Senator C. C. Greene, president of the Arizona Hay Dealers' Association; "3" is Dr. Bower who planned the banquet.

One of the big things that it was felt necessary to put across was the adoption of a standard for hay. Up until the government regulations under the food administration there was little attempt to grade hay in Arizona. To be sure, one could buy grain hay but this might be either barley or wheat, and alfalfa hay might be first cutting, fifth cutting or anywhere in between; it might be fine or coarse and it might be pure alfalfa or it might contain considerable weeds. Government requirements compelled the establishment of a standard, and J. M. Jaggers was appointed by the state food administration to look after this feature of their work.

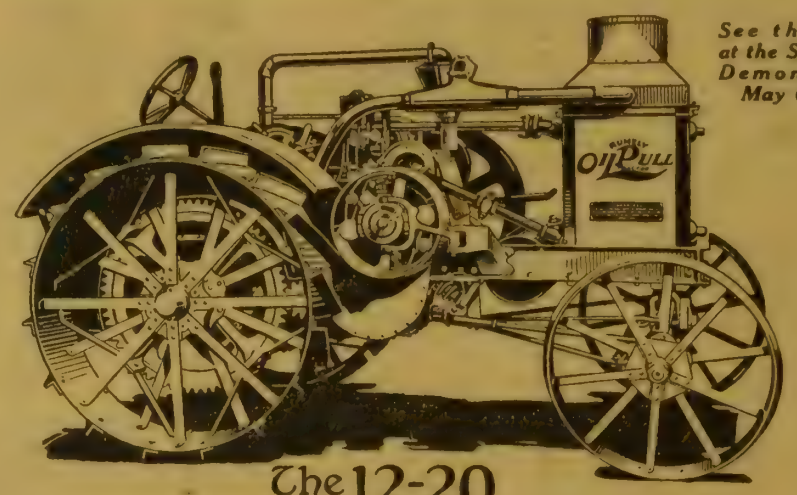
Shortly after his appointment he organized the hay dealers, and it was through this association of hay dealers that the Hay Congress was called.

At the morning session of the congress, after reciting conditions which led up to the organization of the hay dealers, Secretary Jaggers said:

"The inspection of hay at point of origin with the support and cooperation of the inspector and producer, I believe, is one of the principal avenues through which Arizona hay will be placed on the market again at par. I am of the firm opinion that this inspection bureau has the heart cooperation of those who desire that their commodity should be handled upon its merits. We see no serious objection to the inspection of hay at point of origin, but much good has been accomplished by such an arrangement. The inspection bureau was forced upon you by our government through the United States food administration when, by an investigation, it was found that scores of cars were lying idle on spurs, switches and in railroad yards at various points in our markets, the contents refused by reason of inferior grades. And in addition to this condition numerous complaints were being filed with the government from the actual consumer who was in pressing need of hay and unable to pay the enormous war-time prices for the inferior grades of hay. I am sorry that it is impossible to bring forth the files which contain reports from your markets with respect to Arizona hay for October and November of last year, prior to the establishment of the inspection bureau at point of origin, but, for your information, may I not assure you that these condition do not exist today and neither is there a huge sum of money of from seventy-five to one hundred thousand dollars due to the producer from the local dealers of the valley for rejected and inferior grades of hay."

The congress agreed that the uniform size of bales should be 75 pounds. Congressman Carl Hayden with reference to the problem of freight rates, said:

"In case the railroads are returned to private ownership, as seems likely to happen in the near future, the interstate commerce commission will probably be given power to make freight rates and regulate issues of railroad stocks and bonds so that there will have no excuse for raising rates. The railroad has been getting a big share of the hay man's profits. A few years ago hay opened here at $4.00 a ton. In California the price was kept advancing until it reached the then almost incredible price of $25 a ton. Valley hay men kept shipping to California but did they get the advantage of the high prices and make a fortune out of them? Not at all.



See the OilPull at the Sacramento Demonstration May 6th-11th

Capacity — Pulls three plows—operates 22-inch thresher.

Fuel—Guaranteed to burn Kerosene successfully under all conditions.

Cooling — Oil cooled—no evaporation—non-freezing.

Motor — Heavy duty, 2 cylinder 6 in. x 8 in.—560 R. P. M.

Crankshaft — Built to U. S. Naval Specifications.

Frame—Hot riveted steel members—no bends—no splices.

Transmission — Cut steel gears, enclosed and running in oil.

Bearings—Hyatt roller bearings in transmission and rear axle.

Governor — Fly ball throttling type—automatic speed regulation.

Belt Pulley—19 inch diameter—running directly off crankshaft—no intermediate gears.

Lubrication — Force feed and splash.

Speeds—Two forward—one reverse.

Drawbar—Adjustable spring drawbar.

BACKED BY WRITTEN GUARANTEE — OilPull — ADVANCE-RUMELY

A New OilPull in a 3 Plow Size

"Build us an OilPull in a 3-plow size."

That was the call from farmers everywhere—and the 12-20 is our answer—the latest and smallest of the OilPull line, an all purpose outfit built on the proved OilPull design and construction.

Into the 12-20 are built all the features that during the past ten years have established the unequalled OilPull record for economical, dependable operation and long life—plus those improvements that only long experience can teach.

Like all sizes of the OilPull the 12-20 is backed by a written guarantee to burn successfully all grades of Kerosene under all conditions, at all loads to its full rated brake horsepower.

In the 12-20 the weight distribution is absolutely correct—no danger of turning over, or the front wheels raising off the ground. The 12-20 "stays put" on rolling land as well as level.

The 12-20 is a light weight, big power outfit—its rating based upon only 80% of its maximum efficiency—a 20% reserve power when you need it.

The 12-20 is oil cooled, which means that the radiator will not freeze in the coldest weather nor boil in the hottest—that it will go indefinitely without refilling—that instead of clogging the circulating system with sediment it keeps it always open—that instead of rusting the cooling system parts, the oil preserves the metal. The OilPull cooling system eliminates a cooling fan—it keeps the motor at the right temperature at all loads. The harder the OilPull works—the cooler it runs.

All transmission gears are cut gears—all shafting and parts such as the cylinder, piston, rings, etc., are ground to the thousandth part of an inch—a guarantee of a perfect fit and greatest efficiency. The OilPull is built complete in Advance-Rumely shops.

The 12-20 is as efficient on the belt as on the drawbar. The belt pulley is just where it ought to be, on the right hand side, up within full view of the operator. The 12-20 can be lined up with a belt machine, backed into the belt and the belt started and stopped from the platform. The belt pulley is driven direct off the crankshaft—no loss of power. The band wheel is extra large and by driving through a cross belt allows the use of a looser belt.

The 12-20 will pull three 14-inch bottoms under average conditions, operate a 22-inch thresher fully equipped, and handle all the various drawbar and belt power jobs.

All OilPull tractors are not only backed by a guarantee that assures you the most economical operation—they are also backed by an organization big enough to guarantee you efficient service at all times. Advance-Rumely maintains 27 branch offices and warehouses.

Ask for the catalog describing this new 3-plow OilPull.

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ADVANCE-RUMELY

Sulphur



It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards SIX times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100 per cent pure, in double sacks, for Dry Dusting and making Paste—(Atomic Sulphur).

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food, drill into the soil 100 to 400 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR, 100 per cent pure. This has increased various crops up to 500 per cent.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dry Bordeaux, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 DEGREES BE., Sulphur Paste, Nicotine, Blackleaf 40, etc. Fungicides and Insecticides.

Carried in stock and mixed to order.

San Francisco Sulphur Co.

624 California St. San Francisco, Calif.

We are equipped to make immediate shipments. Send for "ILLUSTRATED BOOKLET"; also booklet "NEW USES FOR SULPHUR", Price-list, and Samples.

Please state for what purpose you use the sulphur, quantity needed, and date of shipment preferred. Telephone Kearny 871.

ARCADIAN

Sulphate of Ammonia

Truck crops respond readily to an application of Arcadian Sulphate of Ammonia. Use 100 to 300 pounds per acre followed by a good irrigation.

Arcadian Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past. Especially kiln-dried and ground to make it fine and dry. Ammonia 25¼ per cent. Made in U. S. A. Arcadian is the great American Ammoniate.

For sale by: CALIFORNIA: San Francisco; Hawaiian Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Pacific Guano & Fertilizer Co., Western Meat Co., California Fertilizer Works, Los Angeles; Pacific Guano & Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Agricultural Chemical Works, Hauser Packing Co. OREGON: North Portland; Union Meat Co.

For information as to application, write

The Barrett Company

Agricultural Department
510 First National Bank Bldg.
BERKELEY, CAL.

New Harness

is cheaper than second-hand, dollar for dollar of cost. Come in and see what we have to offer you in HERCULES HARNESS and Horse Collars. Our own make and fully guaranteed.

Stallion collars made to order.

W. Davis & Sons

California's Pioneer Harness Manufacturers, 333 Market Street,

SAN FRANCISCO, CAL.

Catalogue of Harness, Saddlery, Trunks and Traveling Bags sent free on request.

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

"With each rise in the price of hay in California the railroads raised the rates. They probably did it out of charity, thinking that a sudden influx of wealth into the valley might be very bad for the farmers."

The congress went on record as being in favor of the "Producers' Organization", and a movement is now under way for just such an association. It is entirely fitting that Arizona should have a strong organization of alfalfa growers. In many of the Middle Western states where alfalfa has not the same relative importance that it has to Arizona farmers there are organizations of growers who cooperate for mutual interest, not alone in the matter of handling the product but in exchanging views as to the best methods of cultivation, harvesting and marketing.

About 85 per cent of all the hay producers in Arizona, according to the estimates of L. M. Harrison, field agent for Arizona, United States bureau of crop estimates, is alfalfa. New York, with an acreage of 4,300,000 acres devoted to hay and producing nearly five and one-half million tons, has only 83,461 acres devoted to alfalfa, and the production is 2.6 tons per acre with a total of 217,000 tons. Nebraska leads the country in alfalfa production, having 562,530 acres in this crop. The acreage in California is 214,300; the average yield is 5.3 tons, which is the largest yield per acre of any state in the Union. Arizona has approximately 125,000 acres devoted to alfalfa, this in spite of the fact that the acreage of cotton has more than doubled, only 8000 acres less than in 1917 and the total production is nearly a half million tons, in addition to considerable pasturage.

About one-fourth of the entire acreage of the irrigated land of the state of Arizona is in alfalfa, hence the importance to the farmers of Arizona of any organization whose purpose is to cooperate in such a way as to secure better crops, place them on the markets in the best possible condition and in shape to command the highest market price and to so cooperate with the hay dealers as to secure their fair share of the actual net returns and to obtain the lowest possible freight rates.

GET READY

The agricultural department of the Sperry Flour Company is recommending:

"The beginning of the new crop season will find California's warehouses and mills with a very short supply of old grain and there will be a ready market for growers who are in a position to harvest and deliver their wheat early. As the season advances this demand will decrease.

"There is a considerable acreage of Early Baart wheat planted this year which will ripen about as early as barley. Now is the time to commence to get harvester and machinery in shape in order to take care of the crop as soon as it ripens. This preparedness will save a certain percentage of loss which always occurs in any variety of wheat if it is not harvested as soon as it is ready, and will enable marketing wheat when the demand is greatest.

"When harvesting remove all screenings possible. It is surprising what can be accomplished in this direction with a little care. It's expensive to pay freight and other handling charges on screenings contained in wheat, but much can be fed to good advantage at home. Just figure up what it would cost to harvest and get to the mills 10 per cent of the screenings in wheat.

"In the 1918 wheat crop screenings ran from one per cent to as high as 25 per cent. Part of these were usable, but a very large percentage was a total loss. The mills found that a considerable loss of wheat was sustained in separating usable screenings, such as barley and oats, and also in removing cheat. Again, in washing smutty wheat some light wheat was inevitably carried off.

"For these reasons it is unlikely that the mills will make the arbitrary allowance paid last year for usable screenings. It will pay every grower to send his wheat to the mills in the cleanest possible condition."

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Sacramento, Cal.,

May 5th to 10th

We will have on Exhibition and Demonstrate Our Full Line of

Deep Tillage Implements

Subsoilers
Chisels
Mouldboard Plows
Orchard and Field Cultivators
Automatic Discs
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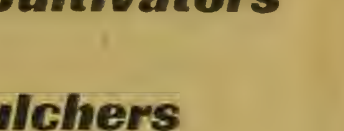
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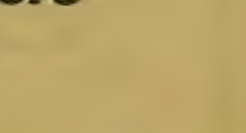


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Great Capacity Low Upkeep-

Especially Strong for Alfalfa - Feed Hopper only 39 Inches From Ground - Largest Feed Opening-



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118 So. Los Angeles St. Los Angeles

Advantages of Tractors

Several hundred tractor owners in the Dakotas were asked these questions:

"What do you find the principal advantages of the tractor for farm work?"

"What are its principal disadvantages?"

The replies have been summarized in Farmers' Bulletin 1035, just published by the department of agriculture.

Saving in time, making it possible to cover the desired acreage within the proper season, is put first among the advantages by a large percentage of the farmers. Other advantages mentioned are:

Ability to do thorough work, especially in hot weather, when horses are at a disadvantage.

Saving in man labor, doing away with more or less hired labor and enabling one man to farm a larger acreage than he can with horses.

Economy.

This last advantage is mentioned by a larger percentage of Dakota farmers than of farmers in other states where similar investigations of the tractor have been made. This is doubtless because the cropping system followed in the Dakotas is such that the tractor can be used to advantage for more of the farm work than in most other parts of the country.

The principal disadvantage of the tractor, according to the reports made by these farmers, is its injurious effect on moist soil. This difficulty is a serious one in districts where the soil is heavy and where it is necessary to do a considerable amount of work in early spring.

Difficulty of operation seems to rank next as a disadvantage. A large percentage of farmers emphasize it. Other disadvantages mentioned are expense of operation, undue increase in investment, and delays on account of engine trouble.

In comparing the reports upon which this bulletin is based with those obtained from tractor owners in various parts of the corn belt several years ago it appears that less stress is laid upon the disadvantages of the tractor in the recent reports than in the older ones.

PAINTING ADOBE

Due to the absorption of moisture by cement plaster and the unequal expansion of cement and adobe and the accumulation of air between cement plastered coats and adobe, cement plastered on adobe walls does not hold. It is readily noticeable that where an adobe house has been plastered with cement plaster and exposed to the weather for a year, and sometimes less, the plastered coat has begun to fall off. Instead of plastering the outside with cement a much better and cheaper method is to plaster the wall smooth with adobe mud and when dry put on a good coat of crude oil. After the oil has well soaked into the wall and somewhat dried on surface, which will take from one to three months, give the wall a coat of oil and lead paint of whatever color is desired; the non-fading colors, such as black, gray and white, are generally to be preferred. Crude oil, such as used in railway engines and which costs from four to five cents per gallon, is the kind to use for the first oil coating on the adobe wall. This can be either sprayed on or put on with a large roof paint brush. One gallon will cover from 80 to 100 square feet. Several farmers in Cochise County have used this finish for adobe houses and find that it is excellent. A correspondent reports that he has used it for inside finish on adobe wall and finds that it is better and cheaper than cement plaster. The oil and paint will not slough off, the wall will last longer and look even better than when plastered.—A. L. Paschall, Farm Adviser for Cochise County.

THE NEW

Studebaker

CARS

—why they are a good investment

Because:

—there are three new models—a car to answer every buyer's requirements.

—Studebaker quality, dominant for 67 years, is reflected in these new cars.

—they are beautiful in design, thoroughly modern and mechanically right.

—over 300,000 Studebaker Cars in actual service in every part of the world have contributed experience to the designing and building of the New Studebaker Cars.

—experimental models of each new car were given a gruelling factory test of 40,000 miles, over the roughest roads of Canada and the United States.

—they are daily proving their mechanical excellence in the hands of thousands of enthusiastic owners everywhere.

—Studebaker has put into each new car the most careful and experienced workmanship and the best materials money can buy.

—the motor of each new car gets the utmost from every gallon of fuel consumed, due to especially designed carburetor and a scientifically designed hot-spot intake manifold.

—uniform distribution of weight over the entire chassis insures unusually high tire mileage.

Because:

—Studebaker uses genuine leather in its upholstery.

—24 distinct paint and varnish operations insure a beautiful and permanent body finish, impervious to changing weather conditions.

—remarkable accessibillity permits inspection, adjustment or repair with little effort or loss of time.

—Studebaker manufactures completely in its own plants its bodies, axles, motors, transmissions, steering gears, springs, tops, fenders, and cuts its own gears and other vital parts, thus eliminating middlemen's profits.

—Studebaker maintains what are probably the most complete laboratories in the automobile industry for the development and the proving of materials used in the New Studebaker Cars.

These are but a few of the many very good reasons for Studebaker value—why Studebaker can and does produce cars of sterling high quality at low prices. If real economy is your consideration—if you want to get the most for your mouey—investigate the New Studebaker Cars before you buy. And if you purchase your motor car on the same basis as you do your blooded stock or a piece of farm machinery—as an investment—then Studebaker should be your first choice.

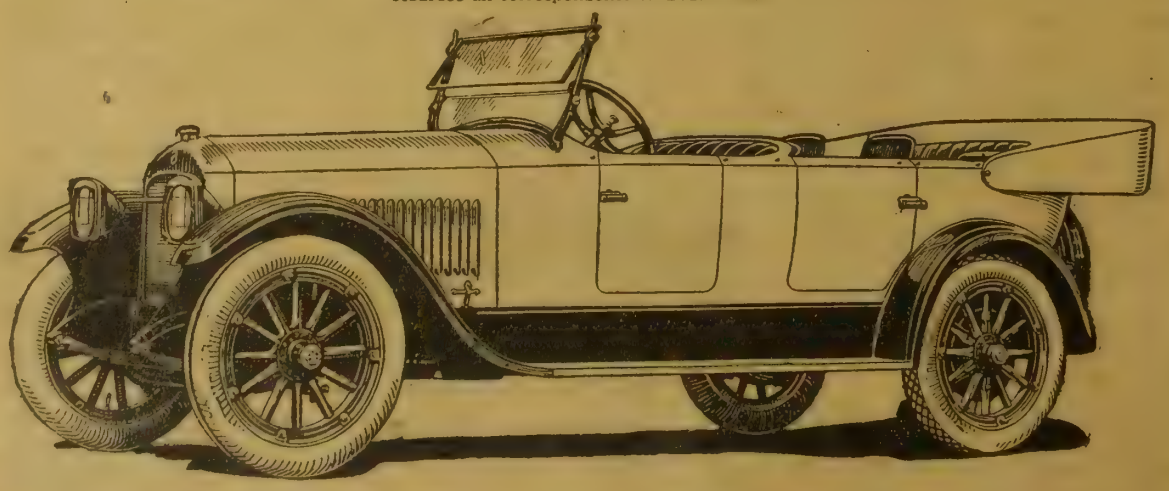
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THE NEW BIG-SIX—*The Only Car at its Price with Cord Tire Equipment*

PYRETHRUM SHOULD BE SEALED

Insect powders containing pyrethrum will retain their effectiveness for months if kept in sealed containers, but if left exposed to heat and moisture they will lose their power to kill insects within a few weeks. This is brought out in tests recently completed by entomologists of the United States department of agriculture, a report of which has been published in the department's bulletin 771. Pyrethrum both whole and ground was kept for various periods under a variety of conditions, and then tested for effectiveness in two different ways: By dusting the powder on small potted nasturtium plants heavily infested with aphids, and by dropping croton bugs into a glass jar containing a small amount of the pyrethrum powder to be tested, and shaking the jar so as to cover them thoroughly with the powder.

It was found that the ground flower heads kept in tightly closed glass containers for five and a half years lost practically all their effectiveness, while the whole flower heads kept in similar containers for the same period were almost unhurt. Both whole and ground flower heads kept in sealed fruit jars for 150 weeks were not injured. When exposed for 34 weeks in an open dish in a room, ground pyrethrum was not injured, but its effectiveness was materially reduced by an exposure of 136 weeks and it was practically worthless at the end of 150 weeks. When exposed to the weather for 21 weeks both the whole and ground heads were greatly reduced in efficiency.

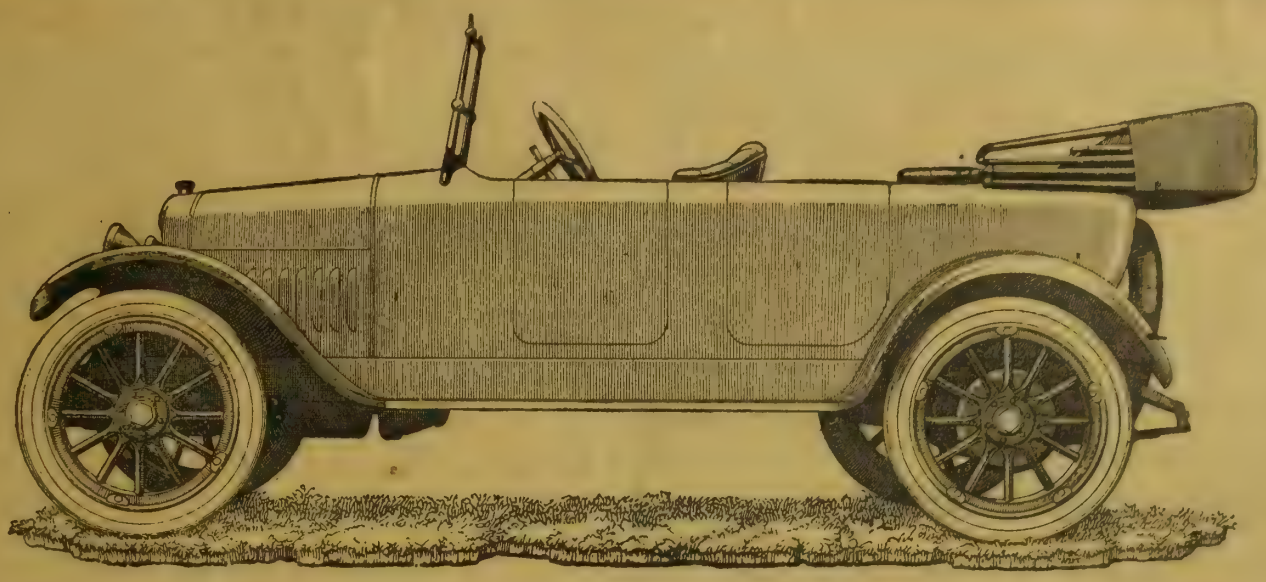
THE USE OF FERTILIZERS

California is a land of rich soil, so rich in fact that "Manure is poison to California soil," and when that was, stable manure was hauled to the highways and used to keep down the dust and to hold drifting sand. "Them was the good old days" in California road improvement. We build roads and productive fields along different lines today and smile at former methods, but we are still a little bit shy on the amount of fertilizer added to our soils.

Here is a report from the Monthly Crop Reporter of the department of agriculture, in which reference is made to the fact that far more fertilizer is being used this season than last, and we note that California is not even in the "also present" class. Use of fertilizer in the various states is tabulated by the department as follows:

	Fertilizer per acre where used—pounds.			Value of fertilizer per acre.
	1917	1916	Usual year	1917
Virginia	400	290	330	$7.30
North Carolina	400	303	397	6.25
South Carolina	350	270	410	5.00
Georgia	225	198	253	3.60
Florida	200	160	230	3.00
Alabama	175	180	250	2.50
Mississippi	180	170	219	2.40
Louisiana	200	185	210	2.60
Texas	160	.....	.....	2.25
Arkansas	160	163	185	2.50
Tennessee	190	175	186	2.40

The San Joaquin Valley Dairymen's Association held a convention in Porterville April 15.



The movement to better Cars in which Maxwell shares

OBSERVATIONS recently made among farmers show a marked tendency to buy better automobiles. They want a little more luxury, and at the same time don't care to waive the consideration of economy.

For a motor car to a farmer is a piece of time-saving, comfort-giving, dollar-saving machinery.

Hence the tendency toward Maxwell has a good reason behind it.

For this car has not only a self starter, and demountable rims, but other points of luxury that make it popular on the boulevards of the big cities.

Still it is not a "boulevard" car. For it is built to stand the gaff of rough and ready use, good roads and bad, mud and concrete, a trail as well as asphalt.

It is built to be everlastingly reliable. And that is how reliability has come to be its middle name.

Five years ago a very simple chassis was designed. Simple so that it would be easy to build, easy to run, free from trouble; and simple so that it would have no "grand opera moods."

Today 300,000 Maxwells have been built on this original chassis plan. More than 1000 improvements have been made; but never one single radical change in design.

There is scarcely a greater business monument to the policy of doing one thing and doing it well than the product of the Maxwell Motor Company.

It saves you money three ways and returns you a sum of satisfaction on which you can draw interest for 100,000 miles.

$895 f. o. b. Detroit.

Maxwell

More miles per gallon
More miles on tires

MAXWELL MOTOR COMPANY, Inc., Detroit, Mich.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Turkeys—Poor Hatch

I have been raising bronze turkeys for four years and this spring bought a prize yearling tom at the poultry show and mated him to my three year old hen. I set six and am getting very poor hatches. The last I waited two days over time and then broke the eggs. There were 12 perfect turkeys but none had life enough to live more than two or three days. Yesterday another should have hatched and this morning I broke two. The skin inside seems dry but I sprinkled twice and the night before hatching time put the eggs in warm water. As soon as I broke the skin the blood ran. I have dipped them again but have not much hopes that they will hatch. The turkeys set on the ground and I have houses I put over them. We have had so much rain it seems impossible it could be lack of moisture. Can you suggest anything?—Subscriber, Saugus.

The slowness of the eggs to hatch would seem to indicate that they were too old before incubation was commenced. The sooner after they are laid turkey eggs are put under the hen the better they hatch. Turkey eggs require a good deal of moisture. A turkey expert with whom I talked recently sets hers on the ground, making the nest quite moist, and then sprinkles the ground around it occasionally during incubation. On the 24th day she sprinkles the eggs with warm water. This is the only sprinkling she gives them. It is possible, of course, that some lack of vigor in the parent stock is responsible for the apparent weakness of the poults, but if your male is a prize bird I would sooner think it due to the age of the eggs. Moisture conditions should not make very much difference in such a cool season as this. Next time sprinkle the eggs the 24th day and then leave them alone until you are sure they are not going to hatch, even if they should be late. The two dippings may have injured the second lot.—J. A. K.

Bean Rust

I have been troubled with bean rust on pole beans. I have tried sulphur, arsenate of lead, etc., with no effect. Could you suggest some effective cure, as I am anxious to curb this disease? —Subscriber, Santa Ysabel.

Your dry sulphur should prove successful with this trouble. The warmer sun of the present will probably make this remedy more effective. Bear in mind, rust which is already in evidence will not be removed, but its spread may be largely prevented by light powdering of high grade of sulphur. Do not attempt to do this work with a cheap grade. The arsenate of lead would have no effect on the rust.

Spraying on Bloom

Would spraying on orange grove for red spider when it is in full bloom injure the bloom or interfere with the setting of the crops?—Subscriber, Glendora.

Growers of apricots, peaches and some other fruits always regret to see even a light sprinkle when trees are in full bloom. This seems to seriously affect pollenization and bring a lighter crop. With oranges, specially with navels, however, growers usually prefer to spray with lime-sulphur whenever it is needed. There is a wider range of blooming period, and in any case some growers believe that the lime-sulphur is beneficial in preventing action of the fungus which specialists maintain is cause or partial cause of the June drop.

SURFACE IRRIGATION

16 FEET 6 INCHES LONG — DOUBLE LOCK SEAM — ONE PIECE BODY

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AMERICAN STEEL PIPE & TANK CO.

P. E. Building, Los Angeles, Cal. Branch at Fresno

CORRUGATED AND PLAIN TANKS

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Tuberculin Test

Would a farmer who keeps three or four cows and makes butter for customers on a small scale have to have his cows tested for tuberculosis? If so, whom does he notify to have this test done?—Subscriber, Roosevelt.

Under the act to prevent the sale of impure and unwholesome milk, it is provided that it is unlawful for anyone to sell for human consumption, except to manufacturers of food stuffs only, the butter produced from milk from cows which have not passed the tuberculin test until it has been pasteurized. Butter offered for sale must be marked "From non-reacting tuberculin tested cows" or "Pasteurized" or "For cooking and baking only". The act provides for the establishment of local inspecting departments throughout the state, and further provides that any dairyman not operating under such inspecting department, who desires to sell milk, may file with the state veterinarian a written request that his cows be tuberculin tested. After the filing of such request the dairyman can operate and sell milk until such time as the state veterinarian shall be able to make the required test.

Storm Water Diverted

A and B have adjoining ranches with county road between. A has dug a deep ditch at the base of a hill to gather the run-off of storm water. This ditch collects all the run-off from the hill, turns it from its natural course and empties it at the high point of a low ridge on the county road. The stream thus produced crosses into B's land and is starting to cut away the soil. B's land is set with 18 year old Valencia oranges, is light soil and cuts away. Can A be made to fill the ditch and return the water to its natural channel, and can B collect damages for injury done?—Subscriber, El Cajon.

It is the settled law of this state that a land owner cannot protect his own land to injury of another's land by turning the storm or surface water, which would naturally flow thereon, away from his own and into the lands of another. Unquestionably if the water has been diverted from its natural course by A and B has suffered any damage therefrom, he can recover for such damage as has been suffered and enjoin A from maintaining the ditch, and require this ditch to be filled up and the water restored to its former natural course.



"I Began Right"

GOING to the root of the matter—the seed bed from which the roots take their food—you get at the principal source of crop success or failure. That's why a wide awake farmer, when asked the secret of his bumper crop, pointed to his International disk harrow and said, "I began right. I built up, not down."

No matter how rich your soil, you cannot expect big yields unless you give your seed bed a square deal. Get a good disk harrow—one built by men who know every angle of the business through long experience and study. You have too much at stake to buy an experiment.

The 1919 International line of disk harrows is the most complete we have ever offered. You know your soil. Whatever its needs, we have the type of disk harrow suited to them. If a sandy, loose loam, the two-lever type answers every requirement. If hard, stony, or trashy ground, the three-lever type, with its center depth regulator, insures a firm, compact seed bed. If you use a tractor, see our leverless tractor disk. Whatever your power equipment, we have a size that utilizes it to best advantage. Ask your local dealer to point out to you the exclusive features of each type.

Every implement in this line is built to serve fully some particular farm purpose, to save your labor and time, and make you money. The line includes open end, closed end, and flexible peg-tooth harrows, spring-tooth harrows with single and double end teeth, and one-horse cultivators with every kind of tooth and shovel equipment.

Check over the list of machines in this advertisement and write us for full particulars about any that may interest you. We will, on request, supply you with a catalog, showing full details of construction and operation.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines
Binders Push Binders
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Tedders Loaders (All types)
Baling Presses Rakes
Sweep Rakes Stackers
Comb. Sweep Rakes & Stackers
Bunchers

Belt Machines
Ensilage Cutters Corn Shellers
Huskers and Shredders
Hay Presses Stone Burr Mills
Threshers Feed Grinders
Cream Separators

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Motor Trucks
Motor Cultivators

Corn Machines
Planters Motor Cultivators
Drills Ensilage Cutters
Cultivators Binders Pickers
Shellers Husker-Shredders

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Cream Separators (Hand)
Cream Separators (Belted)
Kerosene Engines
Motor Trucks Gasoline Engines

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Straw Spreading Attachment
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Turlock is shipping two cars of spinach daily.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Bitter Butter

Please tell us what to do for a cow whose cream makes bitter butter. She is fed bran, beet pulp and alfalfa. She is kept in a barn. The milk and cream are good and have no bitter taste.—Subscriber, San Dimas.

You say that the milk and cream are not bitter so the trouble must be with the handling of the cream and not with the cow. If the cream is allowed to stand too long before churning and more cream added from day to day it is apt to make bitter butter. Also milk and cream set in open pans will absorb odors from vegetables or any other substance that may be near. In a damp place cream will start a mould on top and while hardly noticeable it will make the butter taste bitter. All utensils used in making butter should be thoroughly sterlized and the cream kept only long enough to be well soured.

Cow With Diarrhoea

We have a cow that has a running off from the bowels. She was on pasture until about two months ago and has since been staked on green alfalfa. She is giving milk.—Subscriber, San Dimas.

So many things may cause diarrheoa that it is difficult to guess what may be the cause in this case. See that the drinking water is right and that no spoiled feed is given. Try this: Four ounces of powdered gentian, two ounces of salicylate of soda, two drams of tannic acid and six ounces of corn meal. Mix and divide into 12 powders. Give one powder in the feed once a day.

Milk Stopped

We have a fine Jersey cow that we let go dry six weeks before she came fresh. She has the best of feed, is in fine condition and seems to be in the best of health. She gave birth to a calf about a week ago but is giving no milk. Can you tell us the cause and the remedy?—Subscriber, San Fernando.

This is one of those cases that can not be accounted for. Feed her sloppy feed and at the regular milking time rub the udder and pull at the teats as though milking. By keeping this up regularly you will probably get the milk started and in a short time be getting a fair amount. The more rubbing and milking you do the sooner the flow will start. Sometimes this fails and we have to give it up.

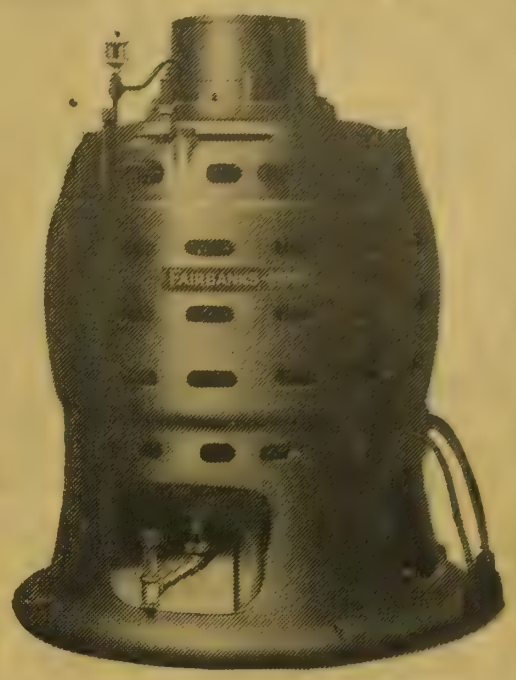
Lambs Ailing

I have several lambs that I wish some advice about. There are both ewes and wethers weighing from 60 to 70 pounds and between three and four months old. Their trouble started by showing weakness in the hind legs and gradually getting worse until they are unable to get up or stand. They eat and drink well. A neighbor dissected one and found the kidneys and liver in good condition but the muscles of the legs appeared blue. What can be done for them?—Subscriber, Wasco.

The symptoms you describe are not common with sheep. At this time of the year they need a bitter tonic. Give each one five grains of aloin and five grains of powdered nux vomica. Mix it with a tablespoon of raw linseed oil. Repeat this once a day until it acts as a physic. Change the feed as there may be a weed in the hay that is causing part of the trouble.

The Efficient Power For All Kinds of Pumps

as shown by their successful service on hundreds of important irrigation projects. See them at work



FAIRBANKS-MORSE Ball Bearing Motors

Rigid Cast Frame—Solid Metal Rotor Winding—Positive lubrication—means steady operation with little attention—low upkeep—low maintenance cost.

"Y" Engines also give Economical Irrigation Power

Fairbanks, Morse & Co.

Los Angeles San Francisco Portland Seattle Spokane

Announcement

During the war, on account of labor conditions and shortage of materials, the L. M. Davenport Co., implement factory was closed. It has been sold to E. N. Warr and R. M. Davenport, son of L. M. Davenport, reorganized and reopened to do business under the firm name

Davenport Implement Co.

Factory and Office Santa Fe Yards and East First Street, Los Angeles.

We are manufacturers of the following dependable implements all of which are well known and have done duty in California for many years.

Western Star Hay Press
Western Special Power Press
Triumph Buck Rake and Hay Stackers
Davenport Tractor Disc Harrows
Davenport Reversible Discs — Horse Drawn Discs — Orchard Extension Discs
Davenport's Cyclone Weeders
Chisel Cultivators, Tractor Type and Horse Drawn
Orchard Cultivators and Chisels
Disc Plows
Fosmir and Stockton Plows
Beet and Bean Cultivators
Bean Planters and Harvesters
Portable Pole Saw Outfits

Full line of repairs carried for the lines formerly manufactured by the L. M. Davenport Co.

In addition to the lines above enumerated we are equipped to fill special orders for heavy duty special design deep tillage implements.

A 5 per cent. discount will be given to those answering this advertisement if purchase is made before May 31st, 1919. Write for prices and particulars.

Davenport Implement Co.
E. N. WARR, Manager. R. M. DAVENPORT, Supt.
Office and Factory — First Street and Santa Fe Yards — Phone 12728
Los Angeles, California.



The JERSEY

THE Jersey is famous for the little money it costs to keep her compared with the big yield she gives in return. Owning a Jersey is like having money invested with sure interest. It has required 200 years to develop her perfection—to-day she is supreme. Write breeders for prices and pedigrees and let us give you valuable facts, *free*.

The American Jersey Cattle Club
322 West 23rd Street New York City

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right
S. F. WILLIAMS
ORLAND, CAL.
Member Orland Jersey Cattle Club.

Venadera Herd
REGISTERED JERSEYS
Young bulls from proven dams in Register of Merit
GUY H. MILLER
MODESTO, CAL.

ALL MY RECORDS
are made under ordinary dairy conditions. The farmers cow is
The Jersey
YOUNG BULLS FOR SALE
C. D. HAYWORTH
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Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
W. J. HACKETT
MODESTO, CAL.

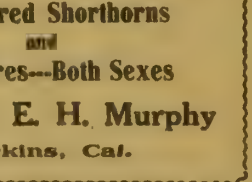
Get One of My Jersey Bulls
to increase the production of your herd. They are rich in the blood of the great cow, Gertie of Glynllyn.
Visitors Welcome Correspondence Invited
A. A. Jenkins
R. R. Box 46 Tulare, Cal.

The Keep On Herd
REGISTERED OF MERIT JERSEYS
Young Animals for Sale
DR. H. W. HAND - - - Orland, Cal.

Carruther's Shorthorns and Berkshires
Choice collection of breeding cows—mostly Scotch—and representing the leading families, headed by Count Glory, grand champion at the last three state fairs, and Hallwood Villager. Bulls for sale at reasonable prices. Berkshire herd headed by the noted boar Ames' Rival 100. Correspondence invited.
W. M. CARRUTHERS, Live Oak, Cal.

Brighton Farm Herds
Registered Shorthorns
and
Berkshires—Both Sexes
H. L. & E. H. Murphy
Perkins, Cal.

THE SELF-OILING WINDMILL
has become so popular in its first four years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil, preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load.

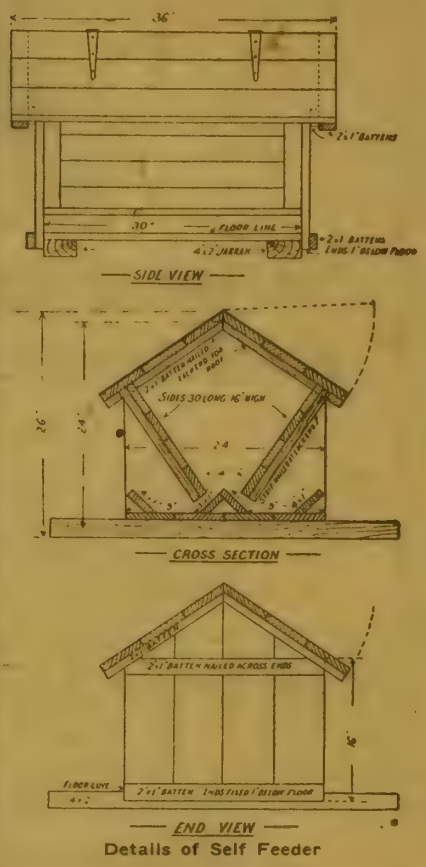


We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.
Write AERMOTOR CO., 2500 Twelfth St., Chicago

Automatic Feeders for Pigs

THE Journal of Agriculture of Victoria, Australia, suggests a method of construction of self feeders, one of which, as will be noted by the engravings, is a barrel adapted by the construction of a simple pyramid with holes about the lower end of the barrel. It seems to us that the construction may be somewhat simplified, but from this suggestion California talent and materials may evolve a satisfactory hog yard appliance. The suggestion was originally made by R. T. Archer, senior dairy inspector of Victoria. Of course, jarrah, which is one of the eucalyptus family, may not be had in California, but Oregon pine, while not so durable, will answer well. The Journal says:

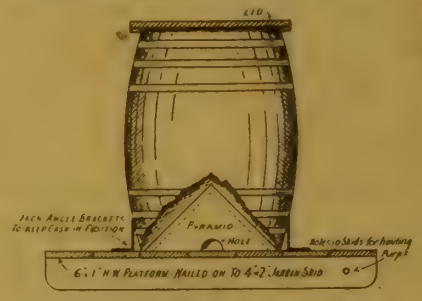
The illustrations show self feeders for pigs. The feeder is 30 inches long,



Details of Self Feeder

24 inches wide, and 26 inches from the peak of the roof to the ground. One-inch hardwood boards should be used, except for two sleepers of jarrah, two by four inches, placed beneath to prevent the feeder being upset, and to keep it off the ground. Ends, sides, floor and roof can be made separately and pieced together. Each roof slope is 36 inches by 18 inches. For a slope three six-inch by one-inch boards three feet long are held together by nailing two-inch by one-inch strips 18 inches long across each end. The ends are 24 inches wide, 16 inches high at each side and 24 inches high at the peak. Take six-inch by one-inch boards two feet long, nail a two-foot strip two inches by one inch two feet long, nail a two-foot strip two inches by one inch across one end and another across the boards 16 inches higher. Measure 24 inches in the middle and 16 inches on each side from the end with the strip. Draw a line from the 16-inch mark on each side to the 24-inch mark in the middle, and saw along these lines to make the ends the proper shape. The sides are 30 inches long and 16 inches high. For each side take four four-inch by one-inch hardwood 30 inches long and nail a two-inch by one-inch strip across each end. The floor is 24 inches wide and 30 inches long, and may be made by nailing four six-inch by one-inch boards, or six four-inch by one-inch boards 30 inches long to the four-inch by two-inch sleepers. These sleepers should be at the ends, so that the ends of the feeder may be nailed to them, and they should project nine inches on each side. When everything is ready to be put together except the peak in the floor and the sides of the troughs, put the floor peak in. This is 30 inches long and is made by nailing together four-inch by one-inch and three-inch by one-inch boards, trimming the edges to meet the floor and nailing to the floor with each edge nine inches from the sides. This will put the peak in the middle. Then attach both ends, running the lower end an inch below the flooring, and nailing to the sleepers flooring and peak. Next nail the sides between the ends, standing them in from the upper outer edge of the ends towards the middle of the floor, thus leaving a space between the sides of the floor and floor peak for the mixture to feed through. Nail four-inch by one-inch boards 30 inches long to the floor and ends, planing the lower edges to fit the floor, for the sides of the trough. The roof, which should be covered with some waterproof material, is put on last. After the edges have been planed to fit properly at the peak, one slope is nailed down, and the other is hinged to it.

Of course, the feeder may be made longer than specified above and otherwise altered to suit circumstances.



A Barrel on A Platform With A Pyramid in the bottom To slide the Grain to openings cut in 3 or 4 sides of the Barrel

Barrel Type of Feeder

Another cheap and convenient form of automatic feeder is a barrel as shown in engraving. The illustration does not require much explanation. The outlet holes may be made on four sides, and the size varied according to requirements. The pyramid or cone causes the grain to run out more freely and completely. Three-inch by two-inch hardwood boards might be nailed to the platform a foot or so away from the barrel, so as to prevent the food spreading too much.

Produce Cleaner Milk

MANY dairymen will remember the excellent work done by Professor C. F. Hoyt of the United States department of agriculture, and regularly located at Salt Lake City, at the California state fair, and also at the Liberty Fair held in Los Angeles. Professor Hoyt has referred often to the high quality of milk produced in California dairies. Especially has he complimented dairies supplying the city of Los Angeles and the Los Angeles Health Board in its effort to secure pure milk for that city. The department of agriculture now issues statement regarding some of Professor Hoyt's work in California as follows:

Mr. Hoyt has been engaged in making a study of the milk supply of the city of Los Angeles. He found that more than two-thirds of the distributors, representing more than 90 per cent of the supply, had an average bacteria count for the four month period of December, January, February and March of less than 10,000 per c. c. There are many dairymen also who deliver to pasteurizing plants, milk with less than 10,000 bacteria per c. c. It may perhaps be better understood that these counts are very low for the milk supply of a large city if it is recalled that the medical milk commissions allow a count of 10,000 in certified milk.

These results indicate, as indeed is the case for all seasons of the year, that in this city the dairymen suffer practically no loss from souring. They appear to be due, not to elaborate and expensive equipment nor to expensive methods, but to simple cleanliness in handling and to the convenience and suitability of equipment which renders easy such cleanliness of handling.

On a large number of these dairies one notable feature is the character and location of the milk house. These milk houses are small and are located on the windward side of the barn and very close to it. There is a passage way between the barn and the milk house of perhaps six feet and the floor of the milk house is extended to the barn door. This nearness to the barn makes it easy for the milker to empty each cow's milk immediately after milking and removes the temptation to allow the milk to accumulate in the barn. Further the milker does not have to wade through mud and dirt to reach the milk house, nor does he carry such mud and dirt into the milk house on his shoes.

The floor of the milk house is of cement, so inclined as to drain properly. The inclination is such that the drainage passes directly into the gutter behind the cows and out of the barn at the far end. The interior walls, at least for the lower three or four feet, are usually of cement on metal lath and they are faced smooth with cement plaster so that they can be readily washed. Frequently the interior walls, both wood and cement, are painted. The exterior is of thin boards, there being an air space between the two walls.

The most distinctive feature of these milk houses is the system of ventilation. On the windward side near the floor there is an opening about a foot wide extending perhaps half the distance of that side. On the opposite side near the roof there is a similar opening. They are both well screened. By allowing the floor to be damp, the current of air entering at the lower opening and leaving at the upper opening causes evaporation and a notable lowering of the temperature. Cans of milk covered with wet burlap may be placed near this lower opening in the evening and by morning attain a much lower temperature than similar cans placed in a water tank.

It is believed that dairymen would do well to adopt the ideas expressed in this type of milk house.



C. F. Hoyt

C. F. Hoyt, market milk specialist of the United States department of agriculture, located at Salt Lake City, and well known to Californians because of his serving as judge at California State and Liberty fairs.

BIG TALK

Orville Wright, at a dinner in Dayton, talked of his early struggles.

"We had, my brother and I," he said, "lots of oral encouragement. People talked big, but they would put up nothing. With their mouths full of millions and their quite empty hands, they reminded me of a barber I once knew.

"This barber said one day as he shaved me:

" 'That's a fine pup of Wilberforce's. I'd give anything for it.'

" 'Well, it's for sale, isn't it ' said I.

"The barber burst into harsh, sneering laughter.

" 'Oh, yes, it's for sale,' said he, 'but Wilberforce, the scamp, wants $1.50 for it.' "

Lankershim, Los Angeles County, one of the newer dairy sections, claims over 1000 dairy cows within three miles of that center.

Here Are Two Savers

Simplex Silos

save the crop that would be wasted in the fields.

All silos are savers. Here are 4 big reasons why the Simplex ranks above all other silos as savers of feed:

1—It does not leak air nor ensilage juices.

One-piece unspliced Oregon Pine (Douglas Fir) staves keeps the ensilage juices in and the air out. The result is a perfect siloing process.

2—Its sides remain round and straight.

The Crissell Tangent Top Device keeps them so. It insures the strength and stability of the silo by keeping it round under all conditions.

3—It survives the strains of pressure and of weather.

The weight of many tons of ensilage demands strong construction. Wind and frost must be met. The Simplex is bound with hoops of clean new steel and anchored by a double interlocking system of heavy cables. It is built to last.

4—All parts of the Simplex are built equally well.

The steel re-enforced doors save time in handling. The roof is made to resist weather and save repair bills.

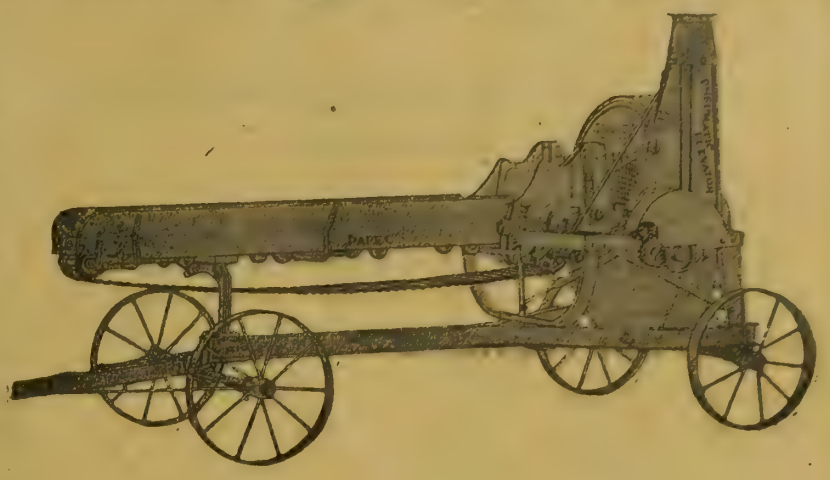
Sooner or later you will build a Silo.

Send for the folder.

Papec Ensilage Cutters

Save Power

Papec cutters throw the ensilage as it leaves the knives. Thus less power is required on the blower. Here's part of the Papec guarantee: "We guarantee that ANY Papec Cutter will cut and elevate more ensilage with the same power than any other blower cutter."



Save Repairs—

A one-piece steel frame keeps the knives in line. Papecs are built for rough treatment and all the work that you can pile into them. Our guarantee—any part that shows faulty workmanship or material replaced free.

Save Crops—

With your own cutter you can fill your silo when the crop is ready. As the silage settles you can fill it again. Only with a cutter right at hand can you make your silo do its full duty.

Save Time—

Dependability is mighty important in any farm machine. You can depend on the Papec. It will perform heavy duty without breaking down and all of its work will be well done.

Some Reputation

Oakley, Cal., Nov. 19, 1918.
Santa Fe Lumber Co.,
San Francisco, Cal.

Gentlemen: Three seasons ago I replaced an —— with an L-16 Papec Cutter from your stock at Brentwood, Cal., your distributing point, and I have had excellent success with it. In fact, the reputation of your cutter has gone all over this delta country and was the cause of a sale to one of my neighbors; also another neighbor has promised to buy a machine next year when his old machine is out of commission. At any time I shall be glad to boost for the Papec. E. H. FOX.

The "Why" of the Wheel



An ensilage cutter with four or less fans requires an elevating pipe large enough to receive at least one-fourth of the ensilage cut at each revolution of the cutting wheel.

A Papec—with its six fans—requires a pipe large enough to receive only one-sixth of the ensilage cut at each revolution of the wheel.

Thus the Papec, with its **SIX** fans and **SMALL** pipe, "throws and blows" a steady stream of ensilage with a force more concentrated and with a pressure much greater, than a cutter with four or less fans and a larger pipe.

Papec Ensilage Cutters Require Less Power and Elevate Higher.

Let Them Save For You

Mail the Coupon Today

Santa Fe Lumber Co.

16 California St., San Francisco, Cal.

SANTA FE LUMBER COMPANY,
16 California St., San Francisco, Cal.

Please send me folder describing Simplex Silos, also information about Papec Ensilage Cutters.

Name .....

Address .....

C. C. 4-26-19

Greatest Producing Herd

IN THE WEST

This has been said many times of

McAlister Sons' Famous Holsteins

To Be Sold at Auction, May 21 and 22, on Their Farm Five Miles South of Chino

90 Heavy Producing Cows

5 with records over 30 pounds butter in seven days.
28 with records over 25 pounds butter in seven days.

50 Sweet Heifers

Six out of 30 pound cows.
Daughters of It and Granddaughters of the 40 pound sire King Korndyke Sadie Vale.

40 BULLS

Including It and King Paul Korndyke Vale. Four other 30 pound bulls, two 34 sons of It. On account of the large number of bulls to be sold we predict a bull feast. Every bull buyer should make it a point to be present at this banquet.

Not tuberculin tested ***Guaranteed to be breeders***

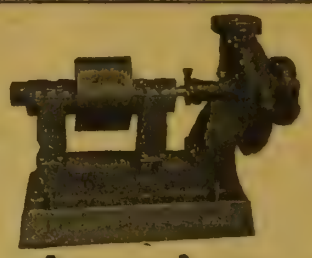
CHAS. L. HUGHES, Sacramento, Cal., Sales Manager.

COL. B. A. RHOADES, Auctioneer.

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—for the items in which you are interested. Send to us and you will receive complete catalogs by return mail.

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Electric Motors
Louden Barn Equipment
Hay Tools



American Centrifugal Pumps

It's a satisfaction to buy a pump that is absolutely guaranteed to the limit—your purchase is then a centainty and not a gamble. American Pumps are so guaranteed — by the manufacturers as well as by ourselves—guaranteed to meet all conditions specified, to perform the work efficiently, and to be free from defects of workmanship or material. Don't experiment—buy an American.

WRITE FOR ILLUSTRATED CATALOG

It describes the entire American line and contains much valuable information for the irrigator.

We have some open territory for live dealers.

American Pump Co.,

73 Fremont St. San Francisco
422 E. Third St. Los Angeles

Your Best Cow May Die

from milk fever. Attacks heaviest milkers—50 to 60 per cent succumb quickly. Yet the new air treatment saves nineteen out of every twenty cases. With the Pilling "Easy to Use" Milk Fever Outfit you can give instant treatment—no dangerous wait for veterinarian.

PILLING *Easy to use* **CATTLE INSTRUMENTS**

Best made, last longest. Backed by 100 years of service.

Write today for our 48-page book showing treatment for milk fever, bloat, garget, hard milkers, etc. Shows and prices all needed instruments.



Case No. 2 contains $3.50 milk fever outfit and 8 other "Easy to Use" Cattle Instruments.

$15.00 Value for $10.00

G. P. PILLING & SON CO
2234 Arch Street Philadelphia

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Live Stock News Notes

Fine Ones at Tulare Sale

Allen Thompson, who for the past 15 years has been breeding Duroc-Jersey swine on his ranch near Tulare, is busy preparing 15 sows and gilts for the breeders' sale to be held in Tulare during July. They will all be bred to his two herd boars, Joe's Orion Cherry King 5th and Lord's Orion Cherry King. He also has 11 sows with litter at side from which he expects to select his futurity candidates Recent sales include two bred gilts to Robt. K. Gilbert, Bakersfield.

Big Type Polands

On Sunnyside Farm, R. F. Guerin, Visalia, is being developed a herd of big type Poland-Chinas. Mr. Guerin states he expects to maintain a larger herd in the future and place it on a par with the Holsteins he has been developing the past few years. He has selected for his herd boar Big Bone Leader of Sunnyside, a son of King's Big Bone Leader. Three of his children have entered the Tulare County pig breeding contest with Poland-Chinas of spring farrow.

Some Fine Gilts

W. J. Stewart, Visalia, one of the younger breeders of Duroc-Jerseys, states that it is not his intention to maintain a large herd but that he will confine his efforts to eight or ten high class sows. He expects to have four last spring gilts in the coming Tulare Duroc-Jersey breeders' sale.

From the East

S. A. Williamson, Duroc-Jersey breeder, Visalia, has recently received a young boar, Jumbo's Illustrator, from the herd of Cramer & Son, Monroe, Iowa. He will have in the Tulare sale four gilts bred to his present herd boar, Orion's Defender.

Fulgram's Durocs

W. J. Fulgram & Sons, Duroc-Jersey breeders of Visalia, will in the near future receive a shipment of a number of sows and gilts from the East. They will also show this fall especially in the futurites. For this show they will probably select the litter by Ideal Pathfinder out of Royal Critic 2nd, a sow purchased at the mid-winter sale of Otto Linninger for $800. The dam of this sow, Royal Critic, was grand champion at the 1917 National Swine Show and sold for $2600.

Proved by Test

Ninety head go to make up the herd of Jerseys on the ranch of A. A. Jenkins, Tulare, of which only 19 are at present in milk. Of these seven are in the R. O. M. and the remaining 12 have all qualified but have not as yet finished their yearly test. The 19 head are returning their owner a little better than $25 per head per month. Recent sales of young bulls by the herd sire, Smith's Mermaid, are: A. B. Sherwin, Tulare; E. L. Hafgraves, Tulare; Chas. F. Holverstart, Earlimart; and Mr. Nichols, Delano.

Tilly Alcartra Begins Another Year

With a total of 156,776.1 pounds milk and 6141.36 pounds butter to her credit for her first six lactation periods, Tilly Alcartra, the greatest dairy cow the world has yet known, dropped a fine heifer calf by Sir Aaggie De Kol Acme on April 8 and is just now beginning her seventh consecutive year on test. She is in as good condition as she was a year ago apparently, possibly not carrying quite so much flesh, and while she has only just started on official test she promises to hit the 100 pounds of milk per day mark within a few days and is already going around a 30 pound butter gait. However her past performance shows that she is comparatively slow to reach her high point in production and thirty days from now will give a better line on her. She will be bred to Carnation King Sylvia, the famous $106,000 bull owned by Carnation Stock Farms, Seattle, Washington.

A Wonderful Two Year Old

Miss Aaggie Acme Burke, sired by Segis Pontiac De Kol Burke and out of Aaggie Acme of Riverside 2nd, who holds the world's strictly official record for butter produced in one year, recent-



Disinfect!

Destroy foul smells, keep disease away, clean up around your premises with

Dr. Hess Dip and Disinfectant

Remember that warmth, moisture and dirt make a great breeding place for disease germs. Dr. Hess Dip and Disinfectant purifies the air and establishes health conditions.

Use in garbage cans, sinks, stables, pens, cesspools and bad-smelling places.

Always uniform, full strength, no matter where you buy it.

One gallon makes 70 to 100 gallons solution.

Pint bottles quart, half-gallon and gallon cans and barrels. The household size has handy take-off and put-on stopper.

Sold only by Dealers—28,000 dealers in U. S. If your dealer does not handle it, write to

DR. HESS & CLARK
Ashland Ohio

GARBAGE



Calf Scours

Save every Calf. High meat and milk prices make control of Calf Scours more necessary than ever before.

Scouring calves indicate a germ infection that is likely to run through your entire herd with serious losses. The loss of one calf is bad enough, but nothing compared to your loss when the infection spreads, as it will unless checked. Then your year's work in building up your herd is wasted and your profits lost.

B-K, the powerful germicide and disinfectant will promptly stop scours and finally banish it from the premises. B-K contains no poison, acid nor oil. When used internally it destroys germs, heals inflamed membranes, relieves irritation, restores healthy action. B-K may be given freely in milk and drinking water.

The B-K plan is simple and practical. It is giving wonderful results. Send for "evidence."

FREE BULLETINS: Send for our valuable bulletin No. 136, "Calf Scours," also information on other farm uses and our "Trial Offer." If your dealer does not have B-K, send us his name.

GENERAL LABORATORIES
3168 So. Dickinson St., Madison, Wis.

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Calf Enemies

WHITE SCOURS
BLACKLEG

Your Veterinarian can stamp them out with **Cutter's** Anti-Calf Scour Serum and **Cutter's Germ Free** Blackleg Filtrate and Aggressin, or **Cutter's** Blackleg Pills.

Ask him about them. If he hasn't our literature, write to us for information on these products.

The Cutter Laboratory
Berkeley, Cal., or Chicago, Ill.
"The Laboratory That Knows How"

Imperial Valley cattlemen are now shipping to Kansas City.

ly freshened at the age of 27 months in the A. W. Morris & Sons herd of registered Holsteins, Woodland, and made 26.18 pounds butter from 488 pounds milk in seven days, and in 30 days made the splendid record of 2322.4 pounds milk and 106.53 pounds butter, the latter a California record in class. This wonderful two year old has milked as high as 89.5 pounds in one day and bids fair to make a great yearly record.

More Yearly Records in Morris Herd

De Kol of Valley Mead 3d recently completed a yearly record of 19,090.4 pounds milk and 845.11 pounds butter in the A. W. Morris & Sons herd at Woodland, while her herd mate Zaza Tuebie Prophetess made 21,582 pounds milk and 885.22 pounds butter in one year as a junior four year old. The grand old cow Aaggie Acme of Riverside is making around 70 pounds butterfat in her eighth month and in 254 days has to her credit 756 pounds butter with every indication of crossing the 1000 pound mark for the year.

Will Handle Herefords at Dixon

W. D. Duke of Likely, proprietor of the Alamo herd of Herefords, is making his plans to transfer his pure bred operations to a ranch he is developing near Dixon. Duke will probably hold a sale of Herefords some time this fall.

Famous Shorthorn Herd Moved to Sacramento

Edward Cebrian of San Francisco, who recently purchased the famous Paicines herd of Shorthorns, has bought a large ranch near Washington Lake just west of Sacramento and expects to move his Shorthorns to the new location as soon as suitable buildings can be erected.

This herd of Shorthorns is one of the best bred collections in the West. It was founded a number of years ago by J. King Macomber and a few years ago was greatly augmented when nearly all the famous Elmdorf herd from Kentucky was added to it.

Tulare Durocs Sell July 16

R. C. Sturgeon of Tulare states that the Duroc breeders of that section will hold a combination sale at Tulare, July 16. Sturgeon expects to consign 12 bred gilts sired by or bred to Golden Col. and California Cherry Chief.

The sale held at Tulare last January was highly successful and in view of the character of the offering now being prepared it is expected that the forthcoming sale will surpass the January event.

Brighton Shorthorns to Harrison

H. L. Murphy of Perkins has recently sold to Thomas Harrison of Santa Rosa two Shorthorn cows and calves. One of the cows was a Duchess of Gloster and the other was Miss Utility, a Frantic cow, descending from the old time Ashburner herd. Murphy says that both the Harrison purchases are extremely strong milkers and that he considers the Frantic cow to be one of the best milking Shorthorn cows in California. The Murphys, Harvey, George and Elmer, belong to a family that has been identified with pure bred live stock about as long as any California family.

Carruthers Visiting Eastern Herds

W. M. Carruthers, Live Oak, is now in the Middle West visiting the leading Shorthorn breeding establishments. While east he expects to select a herd bull prospect and perhaps a few high class females.

Carruthers will be away about a month, returning in time to prepare the offering he will sell at public auction July 10. The place of sale has not been definitely decided, but will probably be at the State Fair grounds, Sacramento.

Carruthers declares that it is his intention to assemble an offering that will be the sensation of the year in Western Shorthorn circles. The sale will consist of between 50 and 60 head, most of which will represent the get of Count Glory, the grandson of Avondale, that was champion at the State Fair of 1916, 1917 and 1918, and Hallwood Villager, now senior sire in the Carruthers herd.

Head of Jersey Herd

F. W. Elleby of Modesto has recently received from C. I. Hunt & Son of Nunda, New York, a young bull that he has selected as a future herd sire for use in his herd of registered Jerseys. This richly bred calf is sired by Oakland of Nunda, a grandson of Noble of Oaklands and Royal Majesty. The calf's dam is a daughter of Pedro of Bleakhouse 2nd. She is now on a yearly Register of Merit test and promises to make a highly creditable record.

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John Deere Tubular Steel Elevators are furnished in two types—the John Deere Portable—a 23-foot mounted outfit—and the John Deere Pony—a 17-foot unmounted outfit. Your selection depends upon individual needs.

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R. J. Yates, Orland, Cal.

It Pays to Grow Shorthorn Beef



H. M. Hill, Lafontaine, Kan. sold 18 yearling pure-bred Shorthorn steers at Kansas City, weighing 1300 pounds for $224.60 per head.

Two Shorthorn grade calves, 6 months old, sold at Pittsburgh, Pa., March 31 at 18 cents, weight 660 pounds each, $108.90 per head.

Two yearling Shorthorn steers on the Pittsburgh market in December brought 25 cents, weight 1350 pounds, price per head $337.50 and five short yearlings weighing 900 pounds brought 20 cents, $180 each.

You get quality and weight both with the Shorthorn.

American Shorthorn Breeders' Association
13 Dexter Park Ave., Chicago, Ill.
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For sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.

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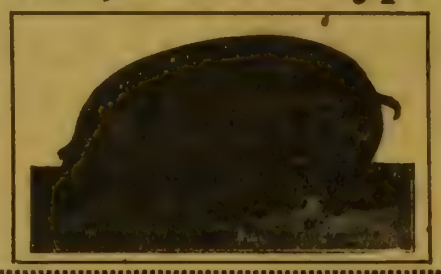
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GIVES GREATEST VALUE FOR LEAST MONEY
IT MAKES THEM FAT
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Wakeen Herd
Big Type Poland Chinas
King Big Bone Leader herd sire. The Grand Champion boar of the state. More sons at the head of good herds than any other boar in California.
One or two for sale.
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Cattlemen Propose to Make Cooperative Shipment East

About a year ago representative cattlemen met at the University Farm, Davis, at the suggestion of L. A. Nares, president of the California Cattlemen's Association, and at the time a member of the live stock commission of the food administration for California, for the purpose of determining upon a satisfactory and workable plan of organization. Nares outlined the plan he had in mind, which was based on a zone plan embracing county, zone and state organizations. The plan was adopted and a permanent organization effected last winter. The first convention of the new organization was held at the University Farm April 8 and 9.

The main purpose of the meeting was to discuss the marketing problems affecting live stock producers of this state with the hope that some definite constructive improvements could be introduced.

In opening the meeting President Nares stated that a fair degree of progress had been registered, but frankly told the delegates that the association could in no way expect to make the most of its opportunity or to function as intended until the membership included at least 51 per cent of the cattle of California and that as an association they should represent no less than 75 per cent of the industry before they could really act as a stabilizing force. Nares pointed out that one of the most disastrous periods of the year, from the marketing standpoint, occurred in May and June when Coast markets experienced a heavy run, amounting to a glut, occasioned by the flood of grass fat stuff. As a result of the peak movement prices usually broke and the producers caught in the jam were forced to take bargain counter prices. Nares felt that if this annual feature of the market could be avoided that the entire industry would benefit. From this suggestion the market committee offered a plan under which several train loads of grass stuff would be sent to Missouri River and Eastern markets during the May and June run. The committee stated that they had perfected arrangements with Eastern commission firms to handle California cattle and that an advance of 11 cents per pound would be made the shippers and the final sales adjusted by either adding to or reducing the price accordingly as the cattle sold. The committee announced that they had already received notice that many outfits would take advantage of the plan suggested.

Gilbert J. Waller, who founded the successful cooperative Hawaiian Meat Company, told of the conditions that led up to the establishment of that concern, the plan of operation and the results obtained by the Island producers. Waller pointed out that the isolated location and other unusual conditions made such a plan practical in the Islands and that such a plan would perhaps be more difficult to operate on the mainland.

The delegates looked with favor on the plan recently announced whereby representative Eastern producers, packers and government experts proposed to form a Conference Committee on the Live Stock Industry, for the purpose of bringing about a better understanding between the various interests, and steps were taken to establish such a conference in the Coast industry. The following men were appointed to represent the association in the event such a plan is inaugurated: N. D. Lack, Redding; O. B. Fuller, Los Angeles; Howard Jack, Chalome; J. W. Guiberson, Corcoran; O. G. Meyers, San Francisco, and Owen Duffy, Napa.

O. M. Plummer, general manager of the Pacific International Live Stock Show, Portland, told of the organization of that show, how it was financed and what it hoped to accomplish for the Northwest.

Plummer stated that the Northwest had raised a quarter million dollars for a permanent building and that the show classification would distribute $65.000 in prize money.

The show was financed by raising 50 per cent in the 35 counties of Oregon and 50 per cent in the city of Portland. Each county raised a fixed sum based on the live stock population. Plummer declared that city organizations should not regard live stock shows as means of bringing outside money to the city housing the show, but that they should regard such shows as powerful aids in developing the resources of the state and thus the city would profit through the increased prosperity of the state as a whole. He said he hoped that Los Angelees and San Francisco would establish shows this fall and each become a part of a Western circuit.

W. T. Sesnon, president of the California International Live Stock Show, stated that he felt he could assure the live stock interests of the West that San Francisco would establish a permanent show.

Judge Peter J. Shields of Sacramento, who has long been identified with live stock development in this state, told of the pioneer organizations and the men who blazed the trail for better live stock in California.

The more important resolutions adopted by the convention follow:

Indorsing the establishment of a live stock show at San Francisco.

Favoring the return of the railroads to private ownership and protesting government service.

Favoring the taxing of non-resident owned sheep and cattle.

Favoring increased appropriations for the college of agriculture.

Endorsing all resolutions adopted by the National Live Stock Association, especially memorializing congress in regard to proposed packer legislation, favoring the Kendrick bill and opposing the Sims bill.

Endorsing Dr. A. L. O'Banion for the office of assistant state veterinarian.

Protesting the shipment into California of government owned horses for disposition by public auction.

Notes on the Shorthorn Sale

(Notes of the Shorthorn sale held at Davis April 8 and which we were unable to include with account and list of sales given in last week's Cultivator.)

Frank W. Harding, secretary of the American Shorthorn Breeders' Association, attended the sale and in a short talk delivered at the opening of the sale declared that there was never a more opportune time to enter the business of producing Shorthorns than exists at the present time. Harding stated that the big force back of the active demand for Shorthorns throughout the corn belt section was furnished by new men who were entering the business in a small way, but who had become convinced that the better the foundation the more certain the profits.

He predicted a rapid expansion of Shorthorn breeding operations in California, and pointed out that there was an immense territory tributary to this state that would always furnish a market for surplus bulls.

Harding also stated that an extensive shipment of Shorthorns bound for the Argentine and Uruguay had been assembled and was waiting on transportation. He was also of the opinion that the establishment of union stockyards and live stock shows would prove powerful factors in the live stock advancement of this state.

C. G. Hopkins, manager of the Conway Ranch, Woodland, who purchased the top bull of the Pacific Coast, announced that it was the intention of the Conway people to establish one of the first herds of the West and that they proposed to select a herd of females of sufficiently high character to mate with the $5500 bull. The Conway Company is developing a tract of over 20,000 acres and in their plan of development live stock will be given a large place.

It looked like old times to see Senator Benj. F. Rush of Suisun bidding

on the good females of the offering. Senator Rush is one of the veteran Shorthorn breeders of California and a few years ago cattle from his herd were prominent in Western show rings. Senator Rush bought his first Shorthorn cow in 1868 and he says that he cannot get away from his first love. His purchases were made with rare discrimination.

The London Estate, Glen Ellen, furnished the top consignment to the sale, aside from the University lots. Five females of attractive Scotch breeding averaged $1090. Almost from its inception the herd has been under the direct management of Mrs. Eliza Sheppard, sister of the famous author.

California women are becoming actively interested in the live stock game. Among the good buyers at the sale were Dr. T. T. Purkett of Willows, who secured three head; Mrs. J. C. Todd, Monterey, two head, and Miss Lillian Julian, Montague, one head.

J. W. Salz, Bloomfield, was one of the heaviest buyers. Salz selected three females and the good young bull, September Knight, consigned by T. S. Glide, Davis. For the latter he paid $850—the second highest price paid for a bull. Salz is laying the foundation for a pure bred herd that he expects to make a factor in the breed's advancement in this state.

R. Parson of Hilt made a nice buy in the roan two year old heifer, London's Lavender, for which he paid $1025. She is by Roselawn Choice and out of a Lavender dam.

If an early start presages success Master John Elmo Montgomery of Davis will be about as famous in the Shorthorn business as his father, Elmo Montgomery, is in the light horse world. Master John bought the first heifer offered, Roan Butterfly, a daughter of Gibson's Goods consigned by Dr. Elberg, for $375, and so determined was he to own her that Col. Reppert had to watch that he did not raise his own bid.

Frank Brown of Carleton, Oregon, a Shorthorn breeder of note, judge at the 1918 International and Western representative of the American Shorthorn Breeders' Association, attended the sale and always bid on the top lots. Brown is regarded as one of the leading Shorthorn experts of the United States.

This year the University authorities anticipated an increased crowd of buyers, and although nearly twice the seating capacity of last year was provided, the acommodations proved entirely inadequate and many buyers and spectators were forced to stand. It is to be hoped that by next year the University will mature plans that will satisfactorily take care of the increasing crowds. One doesn't feel in the mood to buy after standing all day.

$100,000 Shorthorn Appropriation for This Year

At the January meeting of the board of directors of the American Shorthorn Breeders' Association it was voted to appropriate $100,000 for Shorthorn prizes at the fairs and shows throughout the country for the current year.

This generous attitude on the part of the directors embraces also county fairs, a special championship bull award being offered at 400 of these, the prize being $25, the entry being owned within the county in which he competes for the prize. The purpose also is to recognize state and district association sales where a show is combined with the sale and all animals entered in the show sold in the sale. A graduated amount is set apart for these combined shows and sales, depending on the number of animals entered.

A departure in the way of a herdsman's prize is offered at a number of the leading fairs and shows for neatness and general appearance of their exhibits. The details of this contest, which is a most useful one, will be announced in due time.

The usual appropriations for the established fairs and shows were made with a number of important additions. As these are based on the plan of one dollar from the Shorthorn Association for two dollars from the fair or show association, it becomes apparent that there will be available as a prize fund for the Shorthorn exhibitors of the country an amount reaching well up toward the $300,000 mark.

Never before has such a gigantic sum been set apart for distribution among the patrons of any breed of live stock, nor was there ever a more general or more equitable distribution of a prize fund. The beginner and the small breeder are considered in these appropriations. The boy and girl in the calf club have their opportunity to win a share in the prize money. It is an open contest with the best interests of the largest possible number considered.

This action on the part of the Shorthorn directors is in line with the adopted policy of progressive service to the Shorthorn fraternity as a whole. It is a long stride forward in the direction of the improvement of Shorthorn standards and encouragement of Shorthorn trade. It is evident that those who cast their lot with the Shorthorn will not lack for organized support of a most substantial nature.

$5000 BULL SOLD FOR $50

When a certain farmer a few years ago sold his registered Holstein bull to his local butcher no records had been made by any of the bull's daughters. Within a year 11 of the daughters freshened at the ages of two and three. Records were made of milk and butterfat production, and to the astonishment of everybody the average milk production was 14,502 pounds and the average butterfat production was 573 pounds.

But before these records were available the bull was dead and his hide had become leather. Because there were no records, a $5000 bull had been sold for $50. The cow testing association tests the dams and daughters, and the bull association makes it practicable to keep a bull until his daughters have been tested. These two associations would have saved that bull.

Registration alone can not guarantee production. Registered dairy bulls should be backed by good production records. Without record backing they may be very well bred, but there is nothing to prove it.

GLENN COUNTY POLAND BREEDERS ORGANIZE

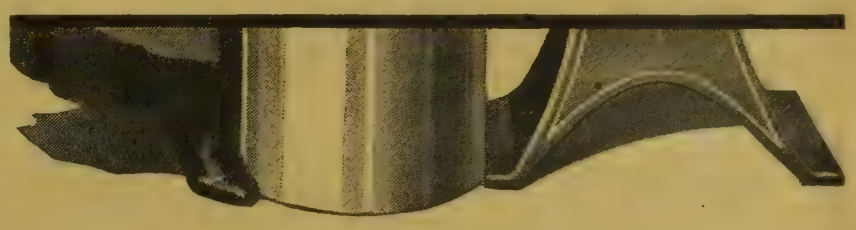
Twenty-five Poland-China breeders of Glenn County have formed the Glenn County Poland-China Breeders' Association and elected the following officers: President, R. J. Yates, Orland; vice president, J. M. Leonard; secretary, Leonard McKaig; treasurer, Charles Temple. The directors are: S. F. Williams, D. H. Ward, Alec Lake, M. Penfield and W. S. Gurnett.

The purpose of the organization is to further the cause of the breed in Glenn and neighboring counties. Glenn County boasts of having more Berkshires and Durocs than any county in the state and the new organization proposes to make the statement include Poland-Chinas.

An organization of farmers producing hay has followed closely the Hay Congress held recently in Phoeniix, Arizona. This will be known as the Salt River Valley Ranchers' Association and has been incorporated under the state laws. The activities of this association will be confined at the present to hay, but later may extend to take in other products.



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Why take chances at all when you come to select a machine that may mean so much in increasing the profit from your cows?

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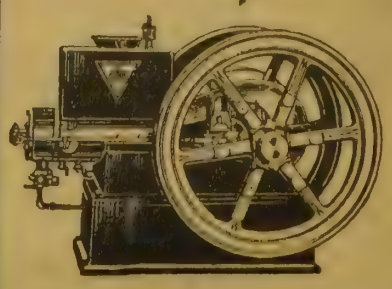
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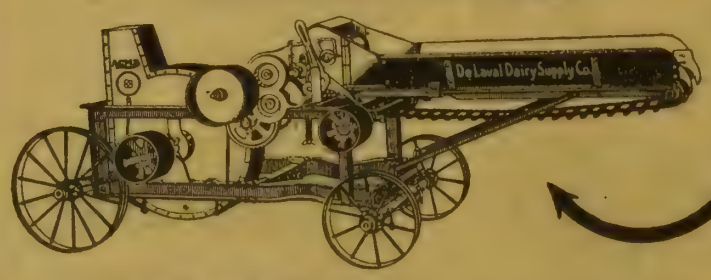
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Introduce this blood into your herd at small expense. Buy pigs and grow them out. Mills Berkshires are utility Berkshires — bred for constitutional vigor and prolificacy. We must be satisfied they are good pigs before we ship them. Price very reasonable. Write today.

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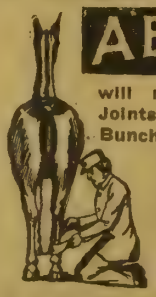
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LIVE STOCK INTERESTS START CONSTRUCTIVE PLAN

By Frank B. Anderson, Director, California Swine Breeders' Association

A CLEARING house of live stock, packing, retail, transportation and consumers' interests was launched at a meeting of live stock representatives and packers held in San Francisco last week, the purpose of which will be to attempt to solve some of the problems of the meat industry affecting all concerned from the producer to the consumer. Ralph P. Merritt has been invited to head the new organization.

The plan was launched as the inspiration of a meeting called to confer with Louis D. Hall, head of the bureau of markets of the United States department of agriculture and in charge of the supervision of stock yards control for the government. Hall outlined the work his bureau is doing throughout the country and how it is endeavoring to better handle the problems of the stock growers and those handling meats. Many marked improvements in marketing conditions have been brought about under his supervision and a better understanding secured between producers, packers, retailers and consumers.

After hearing Hall, as well as remarks from various cattle, sheep and hog men, and packers, the sense of the meeting, which was presided over by Prof. Gordon H. True of the University of California, was that steps should be taken to form a permanent organization whereby the various interests could be represented. Many grievances, real and imaginary, occur from time to time, but nobody seems to be in a position to handle them. This new organization can hear the complaints of the different interests, weigh the evidence and if any condition needs correction, be in position to recommend the remedy.

The meeting voted to have the new organization made up of five representatives each from the California Cattlemen's Association, the California Swine Breeders' Association, the California Sheep and Wool Growers' Association, the packers, the retail butchers, five representative consumers, one from the animal husbandry department of the University of California, one from the division of rural institutions of the university and one from the transportation companies.

As soon as the various live stock organizations name their representatives and the packers, retailers, transportation interests and consumers are heard from, a meeting will be called for San Francisco early in May and steps taken to perfect the association.

Hall commended the California interests for taking this step and assured them that the bureau of markets would be glad to cooperate with them in every undertaking, and would put at the disposal of the new organization any data or service required.

During remarks by a number of stockmen, the proposition of a union stockyards was advocated, many explaining that for years they have consistently opposed a stock yards, but believe that the time is not far off when such a method of disposing of live stock will be necessary. Los Angeles and San Francisco were the points mentioned as logical stock yard locations. It is likely that the outgrowth of the new organization will be to seriously consider the question of securing stock yards at either or both of these points.

Many veteran stockmen stated that they have been attending meeting after meeting for years, but were of the opinion that the plan launched at this joint session would be more fruitful of good results than anything of the kind attempted in the past. Each different branch of the live stock industry will remain intact and not have any of its functions absorbed by the new organization, but the problems which cannot or are not handled by any one branch of the industry can better be disposed of by the organization. It will be furthermore unique in that it will have representatives of consumers, which has not been attempted before.

Santa Barbara will hold a horse show May 2 and 3. There was no exhibition of this sort in the United States during the war. Many thoroughbred horses are owned in Santa Barbara and Montecito. C. K. G. Billings, who lives there, has agreed to show Uhlan, the world's unbeaten trotting champion. Other notable entries are coming from all up and down the Pacific Coast. As it will be an equestrian show, polo ponies will be featured. Various well known strings, such as the Hecksher, Fleishman, Hammond, etc., are owned here.

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They can be inspected any time before the sale and will be sold on

Wednesday, April 30,

10 A. M.

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SACRAMENTO, CALIFORNIA

BRINGS CHOICE BULLS FROM THE EAST

R. M. Dunlap of Sacramento, who has long been identified with the beef cattle industry of this state, has but recently returned from an extended trip through the Middle West, where he selected a shipment of Shorthorn and Hereford bulls for California breeders.

Three Hereford bulls were purchased for H. H. Gable of Esparto, and among them was the good bull Don Perfect. This bull is a son of the International champion, Point Comfort 14th, and was secured from C. C. Griffith of Iowa, in whose herd he made a splendid record as a sire. He was bred by the late J. M. Curtice of Independence, Missouri, and according to Fred Reppert, the noted Hereford auctioneer, he was counted one of the best bulls in Iowa. He is fronted with a well nigh perfect head and horn, in no wise coarse, but full of character. He is exceptionally thick and well balanced from front to rear; wears an excellent coat of hair, and stands on plenty bone. The other Gable bulls are strong, thick fleshed, heavy boned fellows that will be used in the range herd.

Dunlap also brought out a Hereford bull for S. R. Crowe of Haywards. This bull, a short aged two year old, was bred by Irvin Spooner of Mondamon, Iowa, and was shown by him quite successfully as a junior yearling. He went through the Spooner sale as a yearling but was later repurchased and used extensively in the Spooner herd. He is strongly bred Beau Donald on his sire's side and is rich in the blood of Corrector on his maternal side. The Spooners recently refused an extremely long price for his sire. He is described as being hard to fault in any particular and is particularly well headed and of extreme quality combined with plenty of bone.

Ten head of Scotch Shorthorn yearlings went to Creps Bros. of Wheatland and will be held over for 1920. These youngsters are good, thick reds and roans. The same firm also secured a choi e roan junior yearling by King Avondale, and out of Hampton's Myrtle, and a Cruickshank Lavender, a grandson of White Goods, calved June, 1916.

Dunlap also delivered five roan and red yearlings, principally Scotch breeding, to William Foster of Redding. Most of the Shorthorns in the shipment were selected from the Hopley Stock Farm at Atlantic, Iowa, and a number of them are sons of the famous Village Beau.

James L. Hamilton, Exeter, received three Polled Durhams, two reds and a roan. The latter is an exceptionally high class bull. He has a double cross of Whitehall Sultan back of him, as well as some Choice Goods bloods. Hamilton has been using polled bulls on high grade Shorthorn cows and has succeeded in having most of his calves come without horns.

In speaking of his recent trip Dunlap said: "After being away from California since February 3, I am more impressed than ever with the future of the state as a cattle producing center. After coming from the snow and cold of the Middle West and Mountain states and suddenly dropping down into the Sacramento Valley, with the orchards in bloom and cattle knee deep in grass, one can reach just one conclusion, and that is that here is a cattle paradise. If one really wants to appreciate California let him spend March most anywhere else. It is interesting to watch the actions of the cattle when the train leaves the snow sheds and they get their first whiff of green grass—they at once take on a new look and apparently lose any homesickness they might have."

Dunlap says that he has never known a more active interest in better cattle than exists in this state at the present time.

Dispersal of McAlister Herd

May 21 and 22 will be the big red letter days in the history of Holstein cattle in California, for they will mark the days of the McAlister & Son's herd dispersal. This herd has been one of the oldest and most prominent in the entire West during its exstence for the last ten years and in 1917 achieved the distinction of having broken more state butter records than any other two herds in California, yet in 1918 even larger records were made. The main idea has always been kept in mind to build a herd composed solely of large milk and butter producing Holsteins which would be profitable throughout the year. In the three time string the average production per cow has been over nine gallons per day while the two times have done proportionately as well.

There will be sold without reserve 27 cows that have given over 25 pounds of butter in a week and a large number of their daughters by the great sire "It", the only bull in the world to contain 100 per cent the same blood as two cows that have given over 1000 pounds fat in a year. Never before in the West has a herd of 200 head been dispersed where there has been given the opportunity to every dairyman to buy such uniformly great producing cows at his own price.



Buena Alta Aaggie Ormsby

Freshening at two years six days, without a pound of grain before freshening, she made an official record of 19.13 pounds butter in seven days. Owned by R. C. Sturgeon, Tulare.

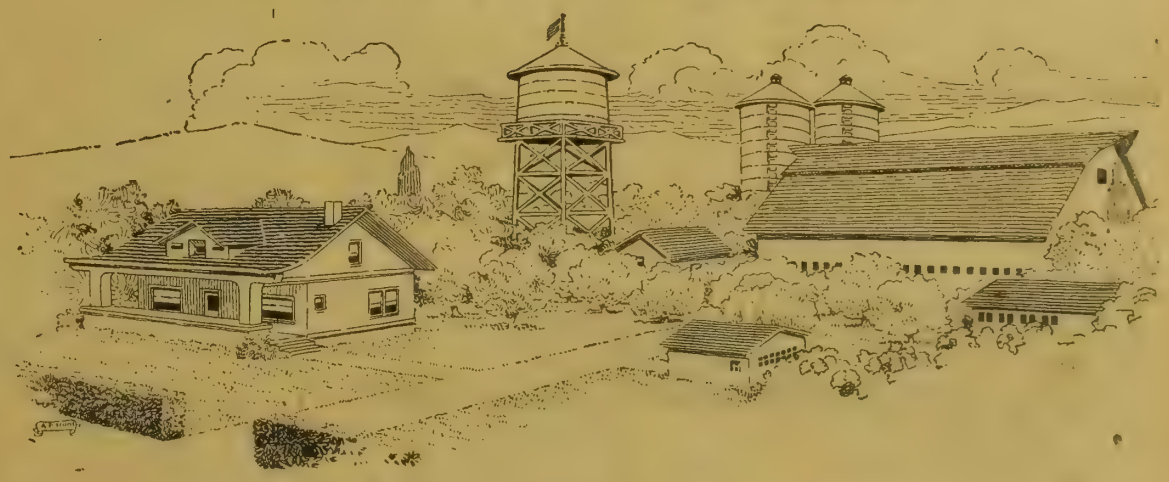
Edinburgh Scotsman: The professor of a certain medical college asked a student how much of a certain medicine should be administered to the sufferer.

"A tablespoonful" promptly answered the young man. In about a minute, however, he raised his head and said:

"Professor, I would like to change my answer to that question." The doctor took out his watch.

"My young friend," he observed gravely, "too late! Your patient has been dead forty seconds!"

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In case of fire you will need the Pacific Tank. It's for home protection.

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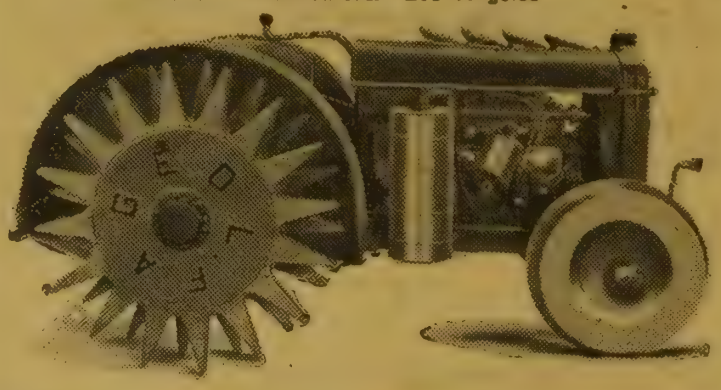
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The Farm Flock of 100 Hens

By Jean A. Koethen

HENS on the farm are a side-line. Whatever the main line may be, fruit, grain, stock, or a diversity of crops, the hen belongs. She lives on the waste fruit and vegetables, the scattered grain of the stubblefield, the grass and weeds along the roadside. Not only does she live; she turns these waste materials into a most perfect finished product, for which there is unlimited demand and for the farmer always a fair price. And when her usefulness as an egg machine is at an end she provides the best of Sunday dinners. What other crop will do as much? Heat, cold, drouth, insect pests, any one of these may spoil the fruit crop, and still the tree must be watered and pruned and fertilized. The grain crop is always uncertain in California because of uncertain moisture conditions, and when it fails the time and money spent in preparing and planting the land are a total loss. There is no total loss with a hen. Summer and winter, in drouth and frost and rain, she lays right on, and if she does happen to be a slacker, which she never need be, she can still hatch layers and fryers and fill the pot herself.

But the little farm hen is not always a side line. Many a farmer has been surprised to find, when frost took the oranges and drouth the barley and cholera the pigs, that his hens had suddenly become the main line, the one crop that could be absolutely depended on. Many another has found, when he balanced his accounts at the end of the year, that his hens, kept under farm conditions, were his best paying crop.

Two years ago when we suddenly found ourselves at war, the government turned to the farmer not only for wheat and corn and pork and beef, but it also politely requested him to increase his flock of hens to 100 and to try to persuade them to lay more eggs, a reasonable request, surely, and one entirely justified by farm conditions of production. Especially is such a request reasonable in California, where, according to Edward Brown, the whole state keeps only one-tenth of a chicken to every acre.

In spite of the fact that California is not a grain state, like the states of the Middle West, California has built up a poultry industry second to none in the United States. Specialty poultrymen have always labored under great disadvantages, yet they have won out by sheer force of grit and will power. It remains to be seen whether farmers the state over will as thoroughly live up to their advantages.

The farmer has his tools and implements; he has his land, and all the rain there is, and he can always raise something "on the side" for his fowls. Incidentally, the feed needed for chickens and turkeys does not differ materially from that required for hogs, and a good many farmers have found it more profitable to turn the grain into meat on the place than to sell it to some one else to turn into meat.

A great deal can be done with poultry on the desert homesteads that dot the eastern portion of the state if only prospective settlers will remember that before they can raise either chickens or turkeys they must have something to feed them. "It used to make me sick", said a woman who had spent several years on a desert homestead, "to see new families come in bringing their chickens, before there was a green thing on their land. They soon got tired of buying feed, and many gave up and went back to town, declaring there was nothing in it. If they had gotten their alfalfa up first, and a few acres of milo or kafir, they could have made a beginning with a few chickens and increased the flock as they grew more feed. As it was, the entire venture was a failure." The desert is a fine place for turkeys, as not a few energetic women have proved, but turkeys cannot live on sage and yucca. They must have real grain and alfalfa.

Housing the Flock

Probably the chief reason for setting 100 as the size limit for the farm flock is that this is as large a number as it is usually best to keep in one house. A house for 100 hens should be about 16x20 on the ground, with either shed or gable roof, seven feet high at its highest point and about five feet at its lowest. The front should be open, with feeding trough about a foot from the ground and nests above. The rear half of the house is devoted to roosts with droppings-board beneath, and the front half is covered with straw for scratching. The simplest form of house has a dirt floor, but either wood or cement may be used, if preferred. The yard used with this house may be of any size. If I were planning for such a flock, I would try to place my house at the intersection of four fields, with a gate into each. In this way the hens could be run in the orchard, the alfalfa field, the garden or the grain at will. A flock that has some range can pick up a good deal of its living. It is not customary, I know, to cross-fence farms in this way, but the keeping of poultry would be simplified greatly if it were done. One lot could thus be given over to coops for the young chicks, another to turkeys, and the hens could range wherever it suited. It is absolutely necessary to have small yards so that all poultry can be confined when necessary, but there is much to be said in favor of letting them range as much as possible. Whatever plan is followed, it is absolutely essential that they be kept out of the garden and the front and back yard of the house. Chickens that go where they please invariably become an insufferable nuisance. It might be more convenient on some farms to fence in the yard and give the poultry the run of the rest of the farm, but there are always times when they must be kept away from the grain or the alfalfa, and these are the times when their presence in the orchard or vineyard would be desirable. In their war on insects, their scratching out of weeds and their scattering of manure hens play a useful part on every farm, aside from their value as producers.

Another reason for making the farm flock number 100, and not many over or under, is that this number can be easily handled by the women and children of the family.

Sensible Business View of the Poultry Industry

ANSWERING some of the attacks which have been made upon the poultrymen as profiteers, T. D. Cornell of Los Angeles makes a most business-like and sensible statement of conditions as they actually confront egg producers, in a recent number of the San Francisco Bulletin. We give the communication entire:

"The Bulletin has printed letters and statements concerning the cost of egg production in this state in which it has been made to appear that the compilations and charts made for the Producers' Association of Southern California by me are based on inaccuracies and false assumptions and designed to prove a position rather than to reflect facts.

"It appears to me as fair that, as I am the author of these compilations, equal publicity be given an explanation of the theory and purpose of these charts as follows:

"California is an exporter of eggs and should and will be a great factor in the egg market of the nation because of peculiar advantages. Being an exporter the usual conditions are reversed here. In California in excess of fifty per cent of the whole egg crop is produced by commercial plants, in the East 90 per cent of the total eggs are produced by the farm and back-lotters, more or less as a

by-product. Here egg production is an industry, there it is an incident. If and when egg production becomes an industry then it should be reduced to a purely business basis to which strict accounting methods must be applied.

Averages Cited

"It has been long apparent that no agreement existed in minds of the producers as to the costs of production, and because of this lack of dependable grand average data it became necessary that an analysis be made which would be a yardstick by which the efforts of the producer could be measured and the error in using the individual experience, good or bad, to measure the industry be avoided. The individual experience is valueless for statistical purposes but the grand average of individual experience is invaluable. Therefore, the assumptions made upon which to base the charts were grand average and taken from the actual experience of individuals over a period of time, involving more than four hundred thousand hens. These assumptions, being grand averages, do not coincide exactly with individual experience, but do reflect the industry.

"These assumptions are: Average annual lay, 120 eggs. The distribution of this lay by months. The annual feed consumption of a laying hen, 75 pounds. Overhead costs, inclusive of interest, taxes, death loss, replacement, labor, etc. If there be any error in conclusions the error is in these assumptions because all else is purely mathematical, and when studiously considered there has been no successful criticism of the fairness of these assumptions.

Money Loss Claimed

"Briefly, the study proves that the average poultryman, measured by business standards, has lost money every year excepting 1918, and in that year the average poultryman made a profit which shows a return for 365 ten-hour days of $786. He received in 1918 $4.60 for the product of each hen or 46 cents per dozen, and paid out $3.81 for the maintenance of that hen. In relation to food value and desirability the producer received less for eggs than the producer of any other food staple.

"In the spring and summer months 70 per cent, and in the fall and winter months 30 per cent of the annual egg crop is produced. Consumption should be constant. Therefore to avoid a glut in the spring and a famine in the winter storage must be resorted to. Extremes in the market, low or high, are disastrous to the producer and the consumer because extremes permit of manipulation and speculation. The market price of eggs should move in sympathy with and no more radically than general commodity prices. No private agency is interested in so stabilizing the market and this function is necessarily a cooperative one on the part of the producers, or a governmental one."

RICE FOR POULTRY

Answering request to the Cultivator for information as to feeding value of broken rice Prof. J. E. Dougherty of the University of California sends a ration sheet which is used in the educational work of the college at Davis. We give nearly the entire sheet which has a fund of information besides that concerning rice.

Formula 3—One pound barley, one pound oats, one pound milo.

Formula 4—One pound cracked Indian corn, one pound whole milo, one pound whole barley.

Formula 5—One pound cracked Indian corn or whole milo, one pound whole barley.

Formula 6—One pound cracked Indian corn, one pound whole milo for morning feed; sprouted barley, night feed.

Feterita or Egyptian corn may be used as a substitute for milo in the above formulas; milo, feterita or Egyptian corn may be used as substitutes for all or a part of the Indian corn and plump oats may be used as a substitute for all or a part of the barley.

Paddy or brown rice, with hulls removed, hulled rice screenings and white unpolished rice may be advantageously used in a laying ration, to the extent of not more than one-third by weight of the grain mixture, if such rice can be bought at a low enough price to more than compete with common poultry grains.

Rice bran containing no hulls and not less than 10 per cent crude protein, 6 per cent fat and not more than 15 fiber (guaranteed analysis) as well as rice polish and ground rough rice may also be economically added to the mash mixture, if it can be purchased at less cost than similar and more common feeds during periods of high feed prices. Such rice feeds should not be used to a greater amount than 20 per cent (25 per cent maximum) of the total grain and mash ration, or 20 per cent of the mash alone.

Rice feeds are very starchy and quite fattening in character. They have a high oil content and ground rice feeds are apt to turn rancid in a short time. They must, therefore, be handled and fed with care.

Pure rice bran and rice meal do not moisten readily when spread on the surface of water. If, however, they are adulterated with hulls, the hulls will soon sink to the bottom. Such hulls are practically worthless for poultry feeding, for they not only contain a very large amount of indigestible fiber but are made up of sharply pointed fibers impregnated with silica, and seem to produce an intense irrigation of the digestive tract of live stock.

Whatever changes in the ration are made should be made gradually so that the fowls will have time to slowly become accustomed to the new ration. Wheat has always been considered one of the leading poultry grains. The grain mixtures here suggested have been carefully formulated but we are unable to state positively at this time with the limited data available just how these rations compare with those using more wheat. Our knowledge and experience, however, indicate that they will give excellent results if carefully and judiciously fed.

CONTINUOUS

"Did you know," asked Mudry, "that Miller had married for the fourth time?"

"Well, anyhow," replied the other man, "it demonstrates the truth of an old saying."

"What is that?" asked Mulry.

"'The triumph of faith over experience'," was the reply.

GREETINGS

Traffic Cop—"Come on! What's the matter with you?

Truck Driver—"I'm well, thanks, but the engine's dead"!

The Pride of Petaluma

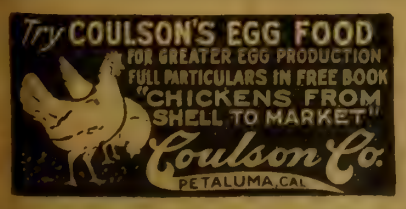


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Chickens Sick or Not Laying?
Most poor layers are "OUT OF CONDITION" or have Colds, Roup, Bowel trouble, Sore head, Chicken pox, etc. GERMOZONE is the best remedy for all these disorders. At dealers or postpaid 75c, with 5 book Poultry Library. GEO. H. LEE CO., Dept. 418 OMAHA, NEB.



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More mileage is actually built into the Ajax Road King by Ajax Shoulders of Strength—those buttresses of rubber that brace and re-inforce the tread. They are an exclusive Ajax feature—a scientific means of putting more rubber where it should be—more tread on the road.

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Closing Out—4000 choice Marsh Seedless grapefruit, Eureka lemons and Washington navels, two-year-old buds in June, thirty cents each in lots of fifty, twenty-five cents each in lots of one hundred. P. M. Bevington, Elsinore, California.

For Sale—Budding Cloth 50c yard; also leading varieties citrus nursery stock. Selected and pedigreed buds. Order quick for early delivery. Cyrus W. Wilhite, Citrus Nurseries, Glendora, California. Box 154.

For Sale—6000 Orange, Lemon and Grapefruit trees, ½ to 1 inch caliper. 50,000 fine sour orange seedlings. Sales Yard, northwest corner East Colorado and Huntington Drive, Pasadena, Paul B. Magee Nurseries.

For Sale — Washington Navels, Marsh Seedless Grapefruit, Eureka Lemons. Late Valencias. All stock strictly first class, prices reasonable. Los Nietos Valley Nursery, Downey, California. Phone Downey Exchange 692.

Florida Sour and California Sweet Seedling Orange Seed—Bed Stock. The time to plant is propitious; order now. SOUTHLAND NURSERIES, 1941 E. Colo. St., Pasadena, California.

Nursery Trees For Sale—Eureka Lemon trees all Shamel selected buds, ⅜-inch and up, 2-year-olds. This stock is A No. 1. Price $1.00 balled f. o. b. Corona. El Cerrito Rancho Co., Corona, California.

For Sale—1000 Late Valencias, one-year-old on three-year old roots. Enterprise Nursery, 1197 N. Fair Oaks Ave., Pasadena, California.

Olive Trees—Mission, Manzanillo, Propagated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, California.

For Sale—Sacks and Burlap for Balling Trees. Write or Phone Boyle 1800. J. Ross, 313 N. Boyle Avenue, Los Angeles, California.

5000 Avacado Seedlings For Sale; will furnish buds for same. West India Gardens, Altadena.

For Sale—3000 select orange trees. Also 3000 lemon trees; first class trees; 20,000 seed bed stock. A. R. Rideout, Whittier.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—Eureka Lemon Stock well rooted 2-year buds. Charles Brooks, Sierra Madre, California.

BUDDED AVOCADOS
MATHER'S AVOCADO NURSERY, 137 N. Fair Oaks Ave., Pasadena, California.

For Sale — Choice, young, thrifty Citrus Trees. W. W. Burns, 631 Security Bldg., Los Angeles.

MISCELLANEOUS

You are Losing Money if you farm without a soil analysis. Write me today for free proof of this statement. I can show you. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, California. Phones: Office Pico 843, Residence West 702.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

For Sale—Fourteen colonies bees, mostly in 10-frame hives with supers in good condition. No reasonable offer refused. Bert Rogers, Box 172, Saticoy, California.

Tobacco For Sale—Home grown Chewing or smoking; pound, 50c postpaid. Randolph Tobacco Farm, Paducah, Kentucky.

Bees For Sale—Golden Italians in patent hives. Address John G. Mee, St. Helena, California.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used, Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches. ARNOTT & COMPANY, INC.
The Yellow Front. Established 1892
112-118 S. Los Angeles St. Los Angeles.

ENGINES

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale at a Bargain—18-35 Yuba Ball Tread Tractor in first class mechanical shape; plows and double disk harrow included. Apply D. P. Corcoran, Gridley. Phone 33-F. 24.

For Sale—40 H. P. Fairbanks-Morse gas engine in first-class condition—used two seasons. P. O. Box 251, Santa Ana, California.

For Sale—9 H. P. Waterloo Boy gas engine; used but a short time. Demonstrate any time. Price, $200.00. L. H. Mueller, Niles, California.

60 H. P. Holt Caterpillar Tractor for sale, exchange, real estate. Smith-Form-A-Truck. W. M. Stansbury, 2025 East First Street, Los Angeles.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 South Los Angeles Street, Los Angeles.

FERTILIZER

EARL A. HOLCOMB
SOIL LIFE
Fertilizer and materials mixed to balance every soil. Bureau of testing and advice free on all horticultural and agricultural subjects. 1022 Washington Bldg., Los Angeles. Phone 62907 res., 16116.

For Sale—Chicken manure in carloads. Cheapest and best fertilizer. MacDonald Sons, phone 101, Watsonville.

SEEDS AND PLANTS

The Garden Beautiful in California by Ernest Braunton, a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant, also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

Seed Corn—Fancy selected Seed Egyptian, Jerusalem, Dwarf Milo, Common Milo, Hickory King, Iowa Gold Mine, Iowa Silver Mine, King Phillip, Amber Cane, Honey Drip Sorghums, Sudan Grass, etc. Write us for samples and prices. FARMERS' UNION WAREHOUSE, Box 420, Tulare, California.

One Row Pays the Extra Cost, Garden Grove, Kansas, variety real Dwarf Milo maize, 6100 pounds threshed corn to the acre grown here last year. 15c per pound. 100 pounds or over 12½c; express paid. D. M. K. Co., distributors, Holtville, California.

Dwarf Milo Seed, Head Selected from a field yielding over seventy hundred pounds of threshed grain to the acre. Six dollars a hundred pounds. F. O. B. San Jacinto, L. S. Cushman, San Jacinto, California.

1000 Wagner's Giant Winter Rhubarb, divided roots, not seedlings, bought direct from Wagner. Cost $20.00 per 100; will take $7.50. Have quit ranching. G. DUNLACH, 835 6th Street, San Diego, California.

Seed Corn, Golden Glow, Yellow Dent. Early, productive, acclimated to Pacific Coast, 6 pounds postpaid, $1.00. Write for quantity prices and cultural directions. J. H. Samuelson, Brownsville, Oregon.

For Sale—Fancy Recleaned amber Sorghum and Sudan grass. Also hand-picked Seed beans; any quantity. Stock pumpkin seed 20c per pound. Aurora Seed Mill, Stockton, California.

Peruvian Alfalfa, Amber Cane, Milo Maize, Sudan Thousand-headed Kale, Artichokes, Seeds. Write for circular. Box 501, Fowler, California.

Onion Plants—1,000,000 California Red, 75c per 1000. Now is the time to plant. Monroe, The Tree Man, Orland, California.

Our New Hardy Hybrid Alfalfa beats the best, don't compare with others, but write for facts. J. L. LAWSON, San Jose, California.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees, Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

For Sale—Red Jersey Sweet Potato Plants, 50 cents per hundred, postpaid. R. M. Plympton, Arroyo Grande, California.

Sweet Potato Plants for sale, yellow variety, 50c per 100 postpaid, $3.50 per 1000 f. o. b. Glendora. We ship with care. P. E. Zug, Glendora, California.

For Sale—Sudan Seed, government tested, 15c per pound or $12.50 per hundred F. O. B. Jamacha, California. G. A. Spencer.

Millions of Tomato, Pepper, Celery and other plants for sale. L. C. Johnson, Pomona.

Dwarf Milo Seed. From field that produced better than 2½ tons per acre. $6.00 cwt. W. L. Helwig, San Jacinto.

RABBITS

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

For Sale — Thoroughbred rabbits, all breeds. G. O. Tetley, 190 Edgwood Place, Riverside.

California's Finest Utility Belgians at popular prices. Sutter Rabbitry, Yuba City, California.

HORSES

For Sale—Team of bay horses and wagon, good workers, 1400 pounds, gentle, fine for ranch work. Owner died. A bargain. 213 N. St. Louis Street, Boyle 466. Los Angeles.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

PIPE

"TESTED" and "GUARANTEED" Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.

PACIFIC PIPE CO.,
Main and Howard Sts., Est. 1906, San Francisco.

EDUCATIONAL

BEST OF BUSINESS TRAINING.
Munson School
for
Private Secretaries.
600 Sutter St., San Francisco.
Send for catalog.

HOGS

DUROC-JERSEYS at IRELAND
The snappiest—big type—fall boars—in Southern California—are now on exhibition and FOR SALE. Sired by Cherry Vol. 2. Strongly bred Orion Cherry Kings. Some of them will be herd leaders. Ranch at Owensmouth. City Office, 1219 Brockman Bldg., Los Angeles.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

MULEFOOT HOGS, LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, Calif.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLITS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

HOGS

FIRST AUCTION SALE

REGISTERED BERKSHIRE HOGS

May 1, 1919

75—Head of Sows and Boars—75

Sired by Iowana Champion Peer 2d, a son of Rivals Champion Superior Emblem, a son of Solano Emblem and Superior Leader, a son of Grand Leader 2d, Grand Champion of the world.

A choice selection from a herd of 500 head. Everything from this herd but the very best are sold for pork. The tops are offered at auction. All registered and of the best families. For catalogs address W. S. Guilford, Superior California Farm Lands Company, Willows, California. Herd is at Monroeville Orchard, six miles south of Hamilton City, Glenn County, California.

C. L. HUGHES, Sales Manager
COL. BEN RHOADES, Auctioneer

CASTLEVIEW

Giant Type Berkshires.

We are booking orders for spring pigs from Grand Champion sows and sired by Mayfield Rockwood, sire of Champion barrow at 1919 Western Berkshire Congress.

Castleview Ranch, Santa Rosa, Calif.

BERKSHIRES BERKSHIRES

ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

Billiken Chester Whites, are all sold except one yearling boar. Am booking orders for spring pigs to be shipped at weaning time. Can still accept a limited number of orders. My boars and sows are of the best blood and most approved type and the pigs I will have to offer will be equal to the best that can be obtained anywhere. C. B. Cunningham, Mills, California.

Grape Wild Farm Berkshires. A few fall Boars by Big Leader Grape Wild Farm Leader and Majestic King, also spring pigs. A. B. Humphrey, Prop., Escalon, California.

O. I. C. BREEDER'S NOTICE
I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Bldg. Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

Lark Meadow Ranch

Berkshires

Geo. A. Stingle, El Monte, California.

Duroc Boars—A son of King the Col. O. S. Larson's great boar and Crimson Lady Wonder, farrowed February 10, 1917. A very fine animal. Also eight of his boar pigs about three months old. Holmes Date Gardens, Indio, California.

For Sale — Berkshire boar Pacific Star Masterpiece 2nd 241131—2½ years old. Nil Goethes Masterpiece 198190, dam Star Belle Betsey 226782. Splendid herd header. J. E. Moltzer, Van Nuys, California. South Sherman Way, corner Rita Street.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Registered Duroc Gilts—Ten Sept. and seven June gilts, two bred sows. Well grown, good breeding, reasonable price. J. J. Prendergast, R. 2, Box 87A, San Bernardino, California.

Young Berkshire Sow—Bred $40. Yearling Berkshire Boar, $50. These are pure breds but not registered. Geo. A. Stingle, Garvey Ave., one mile west of El Monte.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

For Real Good Berkshires, cholera immune, write Frank B. Anderson. Box 724, Sacramento, California.

POULTRY

Baby Chicks for Sale—100,000 S. C. White Leghorn chicks from heaviest laying (Hoganized) stock for delivery every month in the year, at very reasonable prices. Safe delivery of all chicks guaranteed. Shipped safely anywhere West of the Rockies. No money in advance; pay on delivery. Finest hatchery in the world. Established 1918. Further information write Must Hatch Incubator Company, 438 Seventh Street, Petaluma, California.

It's like groping in the dark to attempt raising poultry successfully without some knowledge of the business. Poultry for Profit tells you how to house, feed and raise chickens, ducks and turkeys successfully in California. It contains 225 pages with 18 pages of illustrations and bound in cloth $1.00 postpaid. Cultivator Publishing Co., 115 N. Broadway, Los Angeles, California.

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Standard Bred S. C. White Leghorns—Winners at California Liberty Fair, 1918. We discontinue breeding yards May 15; cockerels heading yards for sale $15.00 to $25.00; hens, $3.00 up. Eggs during May one-half price. ALLESANDRO POULTRY YARDS, Telephone 53511, 523 Rosemont Avenue, Los Angeles, California.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs, $2.50 per 15 eggs. Chicks 30c each; 7 pullets May hatch, laid 12 dozen December, 10 dozen January. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California.

Hatching Eggs—White Leghorns, Light Brown Leghorns, Dark Brown Leghorns, White Rocks, $2.50 per 15; $10.00 per 100. All bred to highest possible standard of beauty and utility. Mahajo Farm, P. O. Box 597, Sacramento, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our speialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

Poultry for Profit—A 225 page book, with 18 pages of illustrations, tells you how to successfully house, feed and raise chickens, ducks and turkeys in California. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 N. Broadway, Los Angeles, California.

Sly's Rhode Island Reds winners and layers. Hatching eggs from high-grade stock scientifically bred for exhibition and utility. Settings $5.00, $3.50 and $2.00. Send for catalogue. Albert Sly, 1644 Middleton Place, Los Angeles.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Light Brahmas, large stock direct from the East. Eggs, $3.00 and $5.00 per 15; Rouen duck eggs, $3.00 per 13; big winners. Seabright Bantam eggs, $2.50 per 15. Emma V. Miller, Farmington, California.

Baby Chicks—Barred Plymouth Rocks, R. I. Reds, Buff Orpingtons, Black Minorcas, Brown, White and Buff Leghorns from Hoganized stock, bred to lay. Tobener Hatchery, Washington Avenue, San Jose, California.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

Baby Chicks—Hatching season ends June 1, except for special orders. A few chicks still available for latter part of May—leading varieties. B. W. Archibald, Soquel, Santa Cruz County, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Pron, Corning, California.

Wanted—1000 Poultrymen to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Imschweiler, Box 70, Inglewood, California.

White Wyandotte setting 15 eggs, $2.00. Mission 281. G. O. Tetley, 190 Edgewood Place, Riverside.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California.

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo. Schmitt, Box 263, Corcoran, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

For Sale—Eggs from Mammoth Bronze turkeys "Gold Nugget" strain. CARRIE ANDREWS, 121 Sonora Street, REDLANDS, CALIFORNIA.

POULTRY

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns. CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGAINZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for 20 years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Baby Chicks Every Week. Order early and get the date you want. White and Brown Leghorns, Rhode Island Reds, Barred Rocks, Anconas; also hatching eggs. Safe delivery guaranteed. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

Finest Hatchery in the World. Chicks, White Leghorns, Rhode Island Reds, 10s, 1000s, hatched right in our $60,000 brick and concrete hatchery from our Hoganized heavy layers. Stock, eggs. Pebbleside Poultry Farm, Sunnyvale, California.

WANTED

Wanted—Reliable man wants to take management of fruit ranch and live on place. Prefer Los Angeles County. Good references. Address Box 26, Cultivator, Los Angeles.

Wanted Working Foreman for ranch, one hundred acres in Alfalfa, two hundred in grain, young pear orchard, herd registered Duroc Jerseys. Address Box W. G. L., California Cultivator.

Duroc Jerseys Wanted—Bred and open gilts and young sows. State price, breeding and when bred. Jersey Queen Farm, San Jose, California.

Wanted—Second-hand Sorghum Mill and Pan; one or both. State size and make and price. Address, B. L. Mussetter, Usona, California.

Wanted to Hear from owner of good farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minnesota.

MACHINERY

FOR SALE—USED RANCH TOOLS. Guaranteed to do as much work as new. WE SELL FOR LESS. CALL AND SEE WINDMILLS — 8 ft., $29 to $35; 10 ft. $39 to $45; 12 ft., $58 to $68; 16 ft., $135.
REDWOOD TANKS — NEW, used, all sizes, 25,000 gal., $135; 50,000 gal., $250.
NEW GALV. TANKS—1000 gal., $42.50; 2000, $53. USED 6000, $125; 7000, $145.
RANCH TOOLS—6 H. Lambert engine, $125; fine Gould jack, $95; 10 ft. grain drill, $95; mower, $45; beet drills, $35; 4-gang disc plow, $120; potato planter, $75; spike harrows, Planet Jr. new potato digger, $20; 2-row bean cultivator, $35; irrigating pipe; sundries.
PUMPS—Pumping Plant: Fine 60 H. Western engine, $1250; deep well Johnson Tannerhill turbine pump, $500, good for 120 ft. well. 1-in. centrifugal, 2-in. American, $35; 2½ B. & J., $45; 4-in. horizontal cent., $82.50; 6 hor., $125; 4 two stage, $150; single Pomona plunger pump $50, many others, 50 brass cylinders. Checks, Liberty Bonds accepted. DEMMITT CO., upstairs, 120 N. Main. Yards, 816 Yale, Los Angeles. Also buy first-class used material.

For Sale—Complete Pumping Plant, $2800. No. 38 Pomona Head—260 feet 10 inch column pipe, rods, cylinder—25 H. P. motor—12-inch leather belt. All in fine shape. Has seen very light duty. Well gone dry reason for selling. Orange, California. Phone 502R1. Hugh T. Thomson.

For Sale — One Bean TrackPull Tractor in first-class condition. Engine recently overhauled and brought up-to-date. A bargain for some one. Holmes Date Gardens, Indio, California.

For Sale—Two Bemis Transplanters, only used once, good as new. Apply to John A. Hill, Box 491, San Jacinto, California.

3-Inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2.

DUCKS

Fawn Runner Duck Eggs $1.25 per setting. Mrs. M. Lopez, Lathrop, California

CATTLE

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced, California.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Ayrshires—Pure bred bull calves ready for service. Redwoods Ayrshire Farm, La Honda.

CATTLE

100 HIGH GRADE HOLSTEIN COWS AND HEIFERS
8 REGISTERED HOLSTEIN BULLS

ALL TUBERCULIN TESTED

AT PUBLIC AUCTION

NAPA STATE HOSPITAL, NAPA, CAL.

SATURDAY, MAY 3, 1919.
Beginning Promptly at 10 A. M.

The famous Napa State Hospital herd of grade Holsteins has been headed by registered Holstein bulls for the past 14 years and has been regularly tuberculin tested for the past 10 years. Last year the 117 milking cows and heifers in the herd averaged 11503.6 pounds milk. Every animal over six months of age in this sale is tuberculin tested.

The cows and heifers in this sale are out of the best grade cows in the herd, only the best producers ever having been retained, and they are sired by such registered bulls as Lord Asa, Prince Rag Apple Imperial Korndyke, and Colony Wadmantje Aaggie, whose dam made 18712 pounds milk and 781.25 pounds butter in one year as a 4-year-old and later made 33.01 pounds butter from 552.6 pounds milk in seven days.

The bred cows and heifers in this sale are in calf to the noted Napa State Hospital registered herd bulls, including Sir Dutchland Colantha of Longfield, N. S. H. Hazelwood Netherland Korndyke, and a son of Raphaella Johanna Aaggie 3rd, who holds the world's strictly official record for milk produced in one year.

A SPECIAL FEATURE—We will sell the twin yearling daughters of the great grade cow N. S. H. Monte who made 20,596.4 pounds milk and 762.28 pounds butterfat in 10 months in the California State Dairy Cow Competition, carrying a calf 5½ months, and they are bred to a son of Raphaella Johanna Aaggie 3d, the world's strictly official yearly milk record cow.

EIGHT REGISTERED HOLSTEIN BULLS, choice individuals and most of them out of official record dams up to over 29 pounds butter in seven days. Some of them are ready for service right now.

Come to the sale whether you want to buy or not. We believe you will be interested in seeing for yourself what the Napa State Hospital is doing to advance the dairy and breeding interests of California. Parties from the interior will find the new paved highway completed all the way into Napa.

Auctioneer—COL. BEN A. RHODES, Los Angeles; Sales Manager, C. L. HUGHES, Sacramento.

COMPLETE DISPERSAL SALE

THE JAMES McGILLIVRAY GRADE HERD

200 HIGHEST GRADE HOLSTEIN COWS AND HEIFERS

TUESDAY, APRIL 29, 1919

SACRAMENTO, CALIFORNIA

The James McGillivray herd of high grade Holsteins is known far and wide throughout central California as one of the heaviest producing herds in the territory, composed of young, well marked, good uddered cows that are the product of many generations of high class registered Holstein-Friesian bulls used on carefully selected dams.

Mr. McGillivray disperses this herd for the sole reason that room is needed for the expansion of his splendid herd of registered Holstein-Friesians which now contains around 250 head of females.

The unusual advantages which this herd of grades has had for many years in the use of the best sort of pure bred bulls is in large measure responsible for the present high character of the young cows and heifers in the herd. A very large percentage of the milking stock is first, second, and third calf heifers, and there is not a hard milker in the herd.

DAIRYMEN if you want real producers and money makers at the pail don't overlook the opportunity to buy them in this sale. They are well worth a trip from Imperial or Siskiyou, for this kind of grade Holsteins is practically never offered in such numbers, and the expense of shipping is only a very few dollars a head to the extreme ends of the state.

THE JAMES McGILLIVRAY RANCH is reached by going south on Twenty-first Street to Sacramento City limits, then continue straight ahead for two miles on paved Freeport Road. Look for sign at ranch entrance.

REMEMBER THE DATE—TUESDAY, APRIL 29.

Auctioneer, COL. BEN. A. RHOADES, Los Angeles; Sales Manager, C. L. HUGHES, 211 Ochsner Bldg., Sacramento, California.

For Sale—35 Head high grade Holstein cows fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch. Hannon Bros., Third Street, Lankershim. Care of Chas. Irwin.

Special Notice—Second farm sale—Shorthorns, Shropshires, Berkshires, Ponies SATURDAY, AUGUST 2, 1919. SHORTHORN CATTLE, SHROPSHIRE SHEEP, Berkshire Hogs and Shetland Ponies. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn County, California. W. P. Dwyer and W. S. Gulliford, Owners.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery Street, San Francisco, California.

MISSION BRAND IN THE MAKING

Continued from Page 571

method of delivery, the stand being beneath the tree and at its lower side so that in turning the row with the cultivator, thorough tilth is kept up underneath the upper side of tree or end of row. This makes it necessary to back the water for a short distance, but the grades are so perfect that this is an easy matter, enabling perfect control of water with least expenditure of labor. In remarking as Mr. Chapman did: "Many of us use too much water", we take it he was simply getting away from the line of action of the party who observed: "Shentlemens, a leedle too much lager beer is shust right."

This year, with the trees of such age and carrying immense crops, there is being experienced some difficulty in securing sufficient size of fruit. An effort is being made to control this by the use of quick acting fertilizers and the giving of proper cultural conditions.

Once produced these oranges are given best of opportunity in the best markets which can be found. This best opportunity, as indicated above, includes care in harvesting, in delivery to the packing house, and in observance of utmost care in every detail as they pass through the house The character of the work done inside the packing house is apparent at the first look at the great plant because of its careful architectural construction and well kept surroundings. The packing house has the appearance of one of California's old missions, and the interior has every convenience for best handling of the great crop which is assured every year on this ranch.

The Tulare Cantaloupe Growers Association has been formed and hopes to increase cantaloupe production in that section.

FARM LANDS FOR SALE

ALBERTA THE WHEAT GRANARY OF THE WORLD AS CALIFORNIA IS THE FRUIT-BASKET.

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For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

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For Sale—320 Acres Alfalfa Land, including water, located in Kings Co. Price, $100 per acre. Will divide, terms. J. A. Elliott, owner, 130 E. 25th street, Los Angeles. Phone 63247.

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For Rent—240 Acres Santa Clara County, 5 room house, cabin, etc. Miss Archer, 204 Fair Oaks Street, San Francisco.

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Belief among many stockmen in the grazing regions of the West that cattle were poisoned by oak leaves caused specialists of the United States department of agriculture to undertake experiments in 1915, the results of which have just been published in Bulletin 767, "Oak Leaf Poisoning of Domestic Animals." It has been found that the continuous feeding of oak leaves produces sickness of cattle, which frequently proves fatal. In order to cause sickness, however, oak leaves must make up a large percentage of the ration. If eaten with other feed the animals are not injured. It was found experimentally that as small a quantity of alfalfa hay as three pounds daily, fed in connection with oak leaves, prevented poisoning. Most poisoning cases occur in the spring, because at that time there is a scarcity of other forage on the range.

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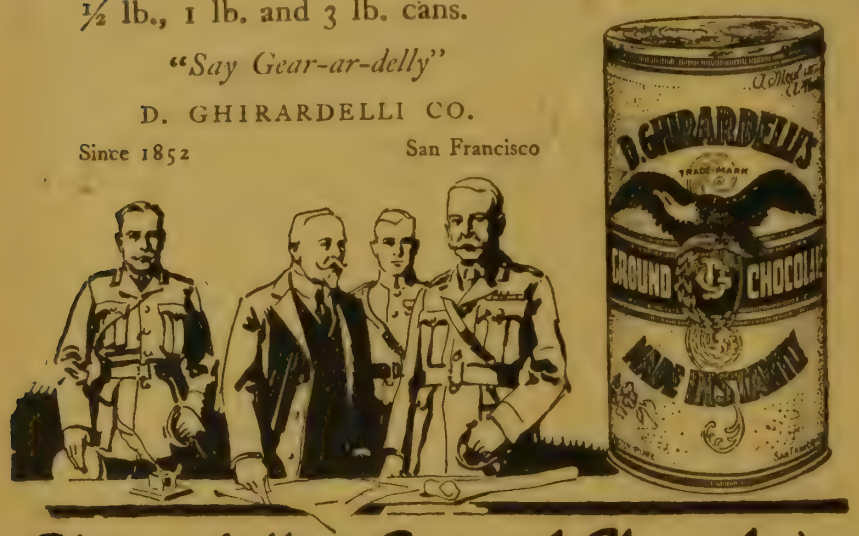
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Household Department

HIS DOG

He also serves who only wags and waits.
I surely sniff excitement in the air;
Perhaps he's coming home, if I could know!
But up and down the street, and everywhere
I've watched about a hundred years or so;
Yet somehow I expect him any day—
With shouts and cheers, as when he marched away.

And when I hear that whistle, and you see
A streak of dog in frenzied happiness—
You'll understand; he'll pat my head and say:
"Hello, Old Pal! you missed me some, I guess;"
I leap to kiss the hand—and then oh, boy!
I wonder if a dog can die of joy?
—Laura Simmons, in Life.

THE SINGLETON OAKS

By Samuel A. Derieux in Youth's Companion

IN KHAKI and leggings and broad-brimmed hat, Arthur Singleton stood halfway between the house and the road and directed three negroes who were plowing deep for cotton. Three months ago he had come home from the state agricultural college to take charge of the plantation; and even in that short time the results of his vigorous administration were visible.

The old hedgerows that had once stretched from the mansion to the big road had been cut; the site of the flower garden had been plowed under; an avenue of half dead trees had been removed and the driveway narrowed. Only the Singleton oaks remained. They bordered the road on either side for a quarter of a mile. Their rugged outlines were softened now by the filmy green tracery of early spring. On the topmost branch of the tallest tree a mocking bird poured out his joy to the morning.

As Arthur's father, Maj. Francis Singleton, came out on the big white columned portico and took his seat in the sunlight, he turned toward him. Then with a final look at the three negroes, who were shouting at their mules and who were plowing faster than they had ever plowed before, he strode toward the house. The major smiled as his son came up on the portico. Arthur leaned against one of the columns and looked at his father.

The young man cleared his throat. "I have decided," he said, "that those oaks out there on the road must go."

The old gentleman grasped his stick tighter and, with challenging eyes, glanced up from underneath his broad hat. "Why?" he demanded.

"They shade the cotton, father. Their roots rob the soil. The lumber company will pay well for them cut and hauled, and we need the money to meet the note for the fertilizer."

"Why, Arthur, do you know, sir, that those trees have been famous for two centuries, that travelers from afar have praised them, that Gen. Marion in the Revolutionary War used to rest his forces beneath them?"

"I know all that, father, but—"

"All these years," continued the major, not heeding the interruption, "they have blessed tired man and beast. Now that the forests are cut, they form an oasis along a blazing road. To cut them, sir, would be sacrilege!"

"That's sentiment, father."

"Yes, sir," admitted the major, "it's sentiment."

"Don't you think that sentiment has cost us enough in the past, father?"

Arthur flushed and checked himself. Perhaps he had gone too far. Under his father's mismanagement the original plantation had sadly dwindled. Notes signed without question for army comrades in need and for distant relatives had consumed hundreds of acres. In Arthur's opinion sentiment had been the old gentleman's besetting weakness, and he had come home firmly resolved to fight it. The fight was on, and he must win.

"You see, father," he continued, "we have to meet that note for fertilizer. You can't meet a note these days with anything except money. As for the oaks, I love them as much as you."

The major smiled a little bitterly. "Do you?" he asked. "You do not remember your mother well, Arthur. She died when you were quite young. She loved those trees. When she was a slender bride she used to walk under them. After you learned to toddle she took you out there." The major smiled. "Such a tiny tot under such giant trees—I see it all again. Those trees are entwined with the life of your ancestors. They—"

"Father!" Arthur interposed, more deeply moved than he would admit to himself. "You are getting away from the matter in hand. The note! I say we must meet the note!"

"Can it not be renewed? I know the president of the bank well. He comes of a good family."

"O father, you know nothing of modern business! A note promptly met means ready credit in the future, and that means everything to us! I have just begun this work. I must, I will, see it succeed—unless you, father, tie my hands with sentiment!"

"Are your hands so easily tied?" asked the major serenely.

Arthur flushed angrily. The impossibility of standing on common ground with his father in these matters stung him to a sort of desperation. He took a step forward and looked straight into the major's eyes.

"I took charge of the plantation under an agreement, sir. That agreement was that in matters of this sort I was to have my way. You said at the time it was a gentlemen's agreement, and—"

"Have a care, young man!" cried the major. "I do not need you to remind me that a gentlemen's agreement is binding. I might remind you, though, that there are certain tacit considerations—that a gentlemen's agreement is not to be pushed to its technical limits If so, it ceases to be a gentlemen's agreement."

"There's the note," Arthur said grimly. "Nothing except money will satisfy the note. I appeal to our agreement."

The major rose from his chair and, straightening his bent shoulders, looked Arthur steadily in the eye. "Do you interpret the agreement as meaning that you have a right to cut those trees?"

"Emphatically I do!"

"Then the oaks shall be cut. Hank!" he called to an old negro who just then came around the corner of the house. "Tell the boys first thing in the morning to get at those oaks along the road."

"What you gwine do wid 'em suh?" asked Hank.

"Cut them down."

"Cut 'em down! Cut 'em!" The old negro's jaw dropped in blank amazement, and his eyes suddenly grew big.

"They shade the cotton, Hank."

"But cotton grow up in a year, suh!" pleaded Hank, twisting his limp hat as if it were a rag. "It takes a t'ousand years to grow dem trees."

"The matter's settled. Tell the boys."

Hank, mumbling to himself, hobbled down the steps. The major went into the house.

Dinner that day was eaten in silence. Old Mandy, the cook, as she waited on the table, now and then cast angry glances at Arthur. Hank always sought the kitchen with his griefs and indignation. Arthur knew that most of the silent rebellions against his regime originated in the kitchen.

"I am going to Charleston this afternoon, father," said Arthur, when the meal was over. "I shall now be able to meet the note. It removes a burden from my mind."

"I am glad the burden is removed," replied Major Singleton. "You have worked hard, my boy."

That afternoon Arthur drove to the station and took the train for Charleston. He was going to attend to business, that was true; but if he had looked deep into his heart he would have discovered that he was in fact running away. He did not want to be with his father that afternoon, and he did not want to see the trees come crashing down in the morning.

Once in the city, however, his feelings changed. Here was life and stir and business. He walked briskly uptown. The sight of the cadets drilling in Citadel Square thrilled him. Like him these were clean-cut young fellows, members of a new generation, practical and efficient. Wtih a touch of pity he thought of his father and

the old generation that had dreamed away their lives.

He had turned into King Street when a touring car, spattered with mud and with a trunk strapped on behind, passed him. The driver turned suddenly and waved his hand to him. It was Fred Graham, an old college friend from the upper part of the state, in whose home he had spent Thanksgiving. Beside Fred sat Mary Graham, with her veil flying out behind. The car turned to the curb and stopped, and Arthur hurried toward them.

"Climb in," commanded Fred, as they shook hands. "We are taking our spring vacation trip. You must eat supper with us tonight."

As the car moved on, Mary Graham turned half around to him. Her cheeks were flushed and her eyes dancing. "You can't guess whom we saw this afternoon," she said. "We saw your father! I'm sure it was he."

A skeptical snort from her brother indicated that he was less certain.

"It was your father, wasn't it?"

"I don't know," said Arthur, laughing. "Where was he and what was he doing?"

Mary turned around and rested her little gloved hand on the back of the seat. "About forty miles back on the road, near Eutawville, we passed him. He and an old negro were walking along the road under a grove of trees. It was your father, wasn't it?"

With a sober face Arthur nodded assent. Mary turned to her brother triumphantly.

"I told you so," she said. "For one thing, Arthur, he looked like you."

At that moment Fred stopped the car in front of the hotel, and the conversation was interrupted. A few minutes later the three went into the large white dining room; they had it almost to themselves, for the winter tourists had departed and the travel to the coast had not begun.

"Now," began Arthur, when they had ordered supper, "tell me about father."—(Continued next week.)

BEAT HIM TO IT

The stranger on a walking tour came across an "old, old man a-sitting on a gate" and asked:

"You are a farmer, I suppose?"

"No, not now. I used to be, but I gave it up."

"Well, you don't seem to be very busy. You have plenty of time on your hands, haven't you?"

"Lots of it."

"Ever do any work?"

"Once I did."

"What do you do now, if I may ask?"

"Don't do nothing. Hain't done nothing for nearly ten years."

"So? Why, you're in luck! If I had done nothing for half that length of time I should be in the poorhouse."

The old man's face beamed with a glad surprise, and then, as one who knows his rare good fortune and values it at its just worth, cried delightedly:

"That's where I be!"—Pittsburgh Chronicle-Telegraph.

CALIFORNIA RAISIN RECIPES

Prize Raisin Bread

Soak one yeast cake in one and one-half cups of potato water; mix in enough flour to make a stiff batter; beat five minutes. Let stand over night. In the morning scald two cups of sweet milk, into which put one rounded teaspoon shortening, one tablespoon salt, three tablespoons sugar. When milk is lukewarm, mix with the yeast; add enough flour to make a stiff batter; beat about ten minutes; let rise. When sufficiently raised, add two cups seeded or seedless raisins; mix; add more flour and knead until dough is smooth; let rise. Make into loaves and bake one hour. When baked wet top of loaves with sugar and hot water to prevent the crust becoming hard.

Raisin Brown Bread

Two cups graham flour, one cup molasses, two cups corn meal, three cups sour milk, one teaspoon salt, two teaspoons soda, dissolved in two tablespoons hot water, one-half pound California seeded or seedless raisins. Mix well, put in mould. Steam two hours.

Raisin Spice Cake

Dissolve one teaspoon soda in one tablespoon boiling water and add to one-half cup molasses. Add one cup thick sour cream, one cup brown sugar, and three and a half cups flour. Beat thoroughly. Add one tablespoon each cinnamon and allspice and one pound California seeded or seedless raisins chopped fine and well dredged with flour. Bake in moderate oven one hour.

Raisin Cookies

One cup each butter and sugar rubbed to cream; add three eggs beaten thoroughly, two tablespoons thick sour cream, one-half leveled teaspoon soda, spoonful salt. Flavor to suit. Three cups California raisins, one cup crushed walnut meats. Add cup flour to raisins. Mix with other ingredients, then add flour enough to roll. Bake in moderate oven.

Selma Raisin Pie

Wash thoroughly two cups each seeded and seedless California raisins; soak several hours in cold water. Stew until tender. Then add one cup crushed walnut meats, one-half cup sugar, two tablespoons butter, two tablespoons cornstarch; rub to a cream with juice and rind of one orange and one lemon and part of grated rind, and cook until slightly thickened. Cool, and bake with a double crust.

Fowler Raisin Pie

Beat yolks of three eggs and white of one, keeping the remaining two for frosting. Add one cup sugar, one cup cream, sweet or sour (sour preferred), one-half teaspoon cloves, one cup seeded or seedless California raisins. Bake in rich pie crust in slow oven. When done, beat whites of two eggs until stiff; add two tablespoons granulated sugar. Place in oven and bake until light brown. This will make one pie.

Sanger Raisin Pie

One and one-half cups each California seeded and seedless raisins, three cups water, two tablespoons butter, juice of lemon, juice of one orange, one-half teaspoon cinnamon and cloves mixed, one tablespoon flour dissolved in water. Bring all to a boil, add flour dissolved in water. Sufficient for two pies.

Clovis Raisin Pie

Chop one and one-half cups seedless or seeded California raisins, one tart apple, one-half slice stale bread. Put in saucepan with one and three-fourths cups boiling water, one-half scant teaspoon salt, one-half cup sugar into which has been stirred one heaping teaspoon flour, one-half teaspoon cinnamon, one-fourth teaspoon cloves. Let cook ten or fifteen minutes, and before putting in crust add juice of a small lemon or sour orange.

Raisin Sandwich

Chop one cup California raisins and one cup walnuts very fine; add three tablespoons mayonnaise and one teaspoon lemon juice. Mix into paste, spread on thinly buttered bread. Splendid luncheon sandwich.

Raisin Ice Cream

There is no finer fruit ice than California seeded raisins added to ice cream of any flavor. Thoroughly dissolve finely chopped or ground raisins in the milk before putting in freezer. Use one pound raisins to each one-half gallon cream.



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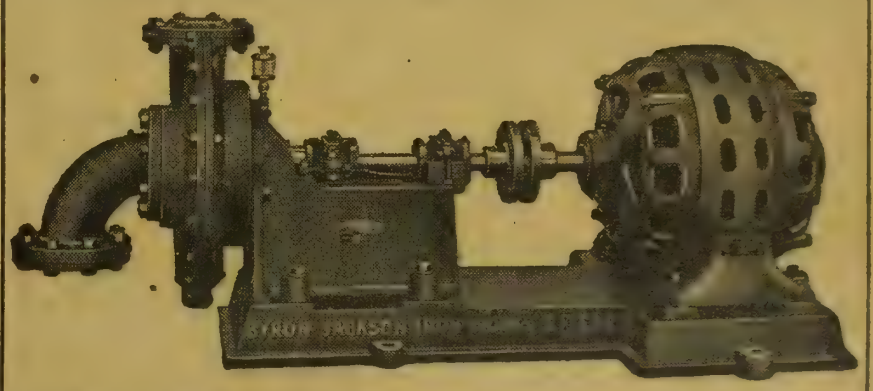
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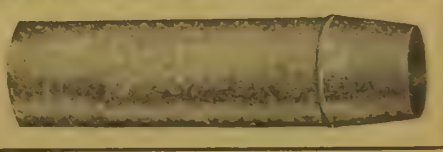
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Los Angeles Market

Los Angeles, April 23, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 52 lb.; prices to retail merchants in 1-lb. squares, 55@56.

Dairy exchange prices last week on extras:

Apr.	16	17	18	19	21	22
'19 ...	51	51	51	..	52	52

CHEESE

Brokers' prices:
California fresh, lb., 29; price to retail merchants, 31@32.

EGGS

Fresh extras, Produce Exchange closing price; 46 doz.; price to retail merchants, 49@51 doz.; case count, Produce Exchange closing price, 44 doz.; price to retail merchants, 47@49 doz.; pullets, Produce Exchange closing price, 45 doz., price to retail merchants, 46-48.

Dairy exchange prices last week on extras:

Apr.	16	17	18	19	21	22
'19 ...	45	45	45	..	46	46

POULTRY

Prices to producers: Hens, 33@34; broilers, 26@30; fryers, 40; roasters, 40; old roosters, 14; capons, 42; ducks, 35; ducklings, 36@37; geese, 32; turkeys, 30@40; squabs, 50.

Belgian hares 15.

LIVE STOCK

The undertone of weakness manifest in the market for dressed beef in Los Angeles is reflected in the prices now paid producers for live cattle. Forty-seven cars of fat steers left Los Angeles County last Saturday for the Kansas City market where good prices are now obtainable. Many more cars will follow in the near future.

It is hoped that when the local market is relieved of this surplus of cattle that better prices will be obtained locally.

Hog supplies are light. Prices are higher at this writing than ever before in the history of this state.

Liberal supply of spring lambs has tended to weaken the market on this product.

Ewes are scarce and those of good quality are commanding a premium.

Live stock prices April 9:

Good steers	12.00@12.50
Medium steers	11.00@11.50
Common steers	9.00@10.00
Good cows	10.00@10.50
Medium cows	8.00@9.00
Common cows	6.00@7.00
Hogs No. 1, 175-225 lbs.	18.50@19.00
Hogs No. 2, 250-400 lbs.	17.00@17.50
Feeders	13.50@14.00
Spring Lambs, each	7.50@8.00
Fall lambs No. 1	15.50@16.50
Fall lambs No. 2	15.00@15.50
Wethers No. 1	11.00@12.00

POTATOES AND ONIONS

These are the actual prices obtained April 22 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.

Demand and movement slow. Prices slightly lower. Stockton. Burbanks, quality generally good; sacked per 100 pounds, extra fancy, 3.75@4.00; resorted, 4.10. Idaho Russets, quality and condition fair, 2.50@2.75; Rurals, 2.40@2.50. Oregon Burbanks, fancy 2.75@3.00. New stock: Homegrown Red Rose and White Rose, 2.50@2.75 per lug box.

Sweet potatoes: Lug box best, 1.40@1.50; sacked 4.50@5.00 cwt.

Onions: Demand and movement moderate. Little change in prices. Stockton, sacked per 100 lb.; Browns, best from cold storage, 4.25@4.50; White Globes, 11.00@12.00; Homegrown green onions 15 bunch. Imperial Wax, 5.00 cr.

VEGETABLES

These are the actual prices obtained April 22 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz. 45@75

Asparagus: Northern, green, extra fancy 12; fancy, 8@9; local best, 12½ lb.

Beans: Local Wax 25 lb.: Kentucky Wonder, 35 lb.

Cabbage: Sales to retailers, best, cr. 4.00@4.25.

Carlots: Prices slightly lower, market firm. Carloads f. o. b. cash track, Early Winningstadt, California, best 90.00 ton, Winesaps, 3.75@4.00.

Carrots, doz. 45@50

Cauliflower: Best in cabbage crates, 2.75; poorer, 2.35@2.50.

Lettuce: Sales to retailers, best lettuce in cabbage crates, 95@1.00.

Carlots. Demand slow, little change in prices. Market weak, carloads f. o. b. cash track, Los Angeles district, shipments mostly rolled unsold. Iceberg in California crates, best mostly 1.25@1.50. Imperial Valley stock, no sales reported.

Parsley, doz. 20

Peas: Local (San Pedro) best, 11@12½.

Radishes 25

Rhubarb: Local Giant Strawberry, 1.00@1.10 packed box. Crimson, 1.75@2.00 box. Northern Strawberry, extra choice 2.00 box.

Spinach, doz. 20

Tomatoes: Quality and condition generally good. Mexico, best 3.25@3.50 per lug box. Poorer and small, 75@1.00 per lug box.

Turnips, doz. 30

FRUITS

These are the actual prices obtained April 22 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtowns, fy. medium size, 3.50; loose 7 lb. Oak Glen, Rome Beauties and Pearmains, 3.75@4.00; White stock strengthened to 4.50@5.00.

Pears. Winter Nellis, lb., 6@7.

Pineapple, lb., 20.

Strawberries: 3.50@4.50 per 30 basket crate.

Lemons: Fy. packed, 4.00@4.25; local pack, 3.00; loose, some tree ripe, 1.75@2.00.

Oranges: Navels, medium and large size, fy., 5.25@5.75; local packed, 3.00@4.00; Tangerines, 7@7½.

Grapefruit: Local fy., 2.50@3.00 bx.

HONEY

Supplies exhausted. No sales reported. Continued dry weather indicates probable light yield of sage honey, new crop.

BEANS

Demand improving, movement moderate. Market stronger. Carloads f. o. b. usual terms, choice recleaned, sacked per cwt. Limas, 7.25; Henderson Bush, 6.75. Warehouse cash to growers, choice recleaned, Small Whites best undamaged, 6.25@6.50. Large Whites best 6.00@6.25. Blackeyes wide range in prices, best undamaged 3.50@3.75; ordinary 3.00@3.25; damaged 2.50@3.00. Tepary no sales reported.

Producing sections reported a generally slow demand with prices steady to firm. Michigan White sacked hand picked basis, held at 6.00@7.00 cwt. cash to growers. Scattering sales in New York producing sections were reported at 7.75 f. o. b. Eastern hand picked sacked White pea beans were irregular but firm in most consuming markets, ranging 7.50 to 8.00 with slow demand. Southern California sacked Small Whites were steady at 6.25 to growers in producing sections and were firm also in consuming markets, ruling 7.25 in Kansas City and 8.00 in Boston. California Limas were firm ruling 6.75 f. o. b. shipping points and continued steady in terminal markets at 8.00@8.50. Northwestern White stock strengthened to 4.50@5.0 cash to growers in producing sections. Colorado Pintos were firm at 4.00@4.25 in bulk cash to growers, and nearly steady in consuming markets, ruling 5.75 in Kansas City. Shipments again increase, with 156 cars compared with 135 cars last week.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat	19.00@24.00
Barley	17.00@20.00
Alfalfa	16.00@19.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy	26.00
Standard dairy	24.00
Standard alfalfa	22.00

You Can Take Hills on High Without A Knock

If you will keep your motor free from carbon. That knocking in your engine—the difficulty you have climbing hills—poor pick-up—lack of power—noisy motor—pre-ignition—in fact 80% of your engine trouble is caused by carbon. Clean it out with

JOHNSON'S CARBON REMOVER

and your engine will run like it did the first 500 miles—quietly and full of "pep". And your gasoline consumption will drop 12% to 25%.

You Can Do It Yourself

For 65c—five minutes' time—no labor—and without laying up the car, you, yourself, can remove all carbon deposits. No mechanical experience required.

If you will use Johnson's Carbon Remover every 500 miles, giving carbon no chance to accumulate, you will automatically eliminate most valve trouble and your engine will always be clean and sweet.

For Tractors—Gas Engines

Johnson's Carbon Remover will also remove carbon from the motor of your tractor, giving it greater power and enabling it to work more satisfactorily and economically. It will make your tractor 100% efficient.



Johnson's Carbon Remover is recommended by many car manufacturers including the Packard and Studebaker Companies. Handled by all representative dealers and jobbers. Insist upon yours supplying you. For further information write

S. C. JOHNSON & SON, Dept. CC Racine, Wis.

Made and Guaranteed by S.C. JOHNSON & SON Racine, Wisconsin, U.S.A.

(A)

Citrus Trees of Quality

The buyer of orange and lemon trees should be as discriminating in his selection of trees as the buyer of live stock in knowing the pedigree of his hogs and cattle.

When you purchase of us, every opportunity is afforded you to learn the why and wherefore of their merits as to production and quality.

We have but a few thousand left.

Walker-Hubbard Nursery Company

First National Bank Building, San Fernando, Cal.

San Francisco Markets

San Francisco, April 22, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale dairy produce exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extra	54½
Prime Firsts	Nominal

Prices extras past week and year ago:

Apr.	15	16	17	18	19	21
'19	53	53	53½	53½	54½	54½
'18	..	40	40	40	40	..

Rcts. wk. ending April 21, 493,800 lbs.

CHEESE

Dairy exch. quotations:

Cal. Flats	30
Cal. Y. A. fy.	34
Ore. Triplets	33½
Jack, full cream	25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	50½
Firsts	Nominal
Extra Pullets	47½

Prices extras past week and year ago:

Apr.	15	16	17	18	19	21
'19	47½	47	47	48	49½	50½
'18	..	40	40	40½	40½	..

Rcts wk. ending April 21, 14,010 cases

LIVE STOCK

Cattle—Grass fed, on foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. alive, 12@12½; 1200 to 1400 lbs., 12@12½; second quality, 11@11½; thin steers, 9@10.

Cows and Heifers—No. 1, 9½@10; second quality, 8½@9; common to thin, 4@7.

Calves — Light weight, per lb., 11½@12½; medium, 10½@11½; heavy, 8@10.

Sheep—Lb., gross weight: Wethers, unshorn, 11@11½; ewes, unshorn, 8½@9½; lambs, yearlings, 12@12½; milk, 13@15.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 18½; 150 to 250 lbs., 19; 250 to 300 lbs., 18½; 300 to 400 lbs., 18.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers: Choice, 1050 to 1200 lbs., 12@12½; medium to good, 950 to 1050 lbs., 11@11½; good grass steers, 1000 to 1200 lbs., 11½@12; other steers, 950 and over, 10@11. Cows, 950 lbs. and up, 9½@10; medium to good cows, 8@9; canners, 5@6.

Hogs — Hard, grain fed, well finished, 175 to 250 lbs., 19; 150 to 175 lbs., 18½; under 150 lbs., 17½; 250 to 300 lbs., 18½; 300 lbs. and up, 18.

POTATOES

Per ctl. on wharf: Deltas, 1.75@2.00; fancy, 2.25@2.50; Oregon Burbanks, 2.00@2.40; Gems, 2.00@2.35; Red Salinas, 3.00@3.25; sweet, per 100 lbs., 4.50@5.00; new potatoes, 5½ lb.

ONIONS

Storage, cwt.	3.75@4.00
Garlic, lb.	6@6½

VEGETABLES

Wholesale selling price:

Artichokes, doz.	50@90
Asparagus, lb.	4@7
Beans, string, L. A., lb.	15@22½
Wax	17½@25
Beets	1.00@1.50
Cabbage, Early Flat Dutch, cwt.	2.00@2.50
Carrots, sk.	2.25@3.25
Celery, cr.	1.50@5.00
Cauliflower, doz.	.50@1.00
Cucumbers, hothouse, bx. of 30	.3.00@3.50
Lettuce: Crate, southern, iced, 1.50@2.25; Watsonville, 1.50@2.00; Imperial, 4.00.	
Mushrooms, bx.	15@50
Peppers, Southern	12@15
Peas	8@12½
Pumpkins, sk.	1.00@1.10
Rhubarb, Strawberry, bx.	1.50@1.75
Spinach	50@1.00
Squash—Summer	2.00@2.25
Tomatoes, Mex., cr.	3.25@4.25
Turnips, bag	1.25@1.75

FRESH FRUITS

Wholesale selling price:

Apples: Newtowns, 3.00@3.50; Winesaps, ex. ice, 3.50@4.00.

Bananas	6½@8
Loquats, lb.	8@10
Pears—Winter Nellis	3.00@4.00

Strawberries, Imperial Valley, cr., 2.50@3.00; L. A., 2.00@2.50; drawer, 75@1.00.

CITRUS

Per box: Lemons, 3.00@4.00; lemonettes, 2.00@2.50; grapefruit, 2.50@3.50; mandarins, half orange box, 3.50@4.00; tangerines, half orange box, 3.50@4.00 new navel oranges, 4.50@5.50; Mexican limes, 7.00@8.00.

GRAIN AND FEEDS

Barley: Feed, 2.40@2.45 per cental shipping, 2.50@2.55.

Oats: Red feed, 2.15@2.30 per cental.

Corn: California yellow, 3.20@3.25 per cental. Egyptian, 3.00@3.25 for dry and 2.75@2.90 for rain damaged; Milo maize 2.80@2.90 for dry and 2.60@2.75 for rain damaged.

Rye: 3.50@3.75.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Centra
No. 1	2.20	3.66 2-
No. 2	2.17	3.61 2-
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-
No. 2	2.15	3.58½
No .3	2.11	3.51 2-

Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48¼

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran, 41.00@44.00; shorts, 42.00@45.00; middlings, 50.00@52.00. Rolled barley, 49.00@50.00; alfalfa, 30.00@32.00; scratch feed, 3.50 per cental.

HAY

Under date of April 12, Scott, Magner & Miller says:

Receipts past week 1495 tons. A slight improvement has been noticeable in the market, which is quite likely to show to better advantage shortly. The feature of the week has been the placing by the government of orders for shipment to New York of 3000 tons double-compressed hay, a like amount for Manila and Honolulu. These immense purchases together with shipments to Arizona, New Mexico and Texas during the past two weeks of several thousand tons more are bound to have more or less effect on the local market.

The weather has been most favorable for the growing crops and the cutting of first crop alfalfa as well as volunteer from the early sections is proceeding without interruption. Should we have a late rain however, which is to be expected any time, this early hay would probably be more or less damaged. To sum the whole situation up prospects for holders of hay are much brighter this week than they have been for some time past.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.

Under date of April 19, Scott, Magner &	
Fancy Wheat hay (light 5 wire bale)	21.00@23.00
No. 1 Wheat or Wheat and Oat Hay	17.00@19.00
No. 2 Wheat or Wheat and Oat hay	15.00@16.00
Choice Tame Oat hay	17.00@19.00
Other Tame Oat hay	13.00@16.00
Wild Oat hay	12.00@15.00
Barley hay	12.00@15.00
Alfalfa hay	16.00@20.00
Stock hay	12.00@14.00
No. 1 Barley straw, bale	50@80

Citrus Fruit Market

Los Angeles, April 23, 1919.

Auction markets show a material shading in prices. Conditions are generally fair with good demand for regular sizes.

The lemon market is rather better and higher prices are being obtained.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 16,760 cars, lemons 3901, total 20,661. To same date last season; oranges 5875, lemons 2061, total 7936. Central California this season; oranges 3083, lemons 354, total 3437. Last season to same date; oranges 2384, lemons 115, total 2499. Northern California; oranges 244, lemons 2; last year same date, 202.

AT THE AUCTIONS

April 21

New York: 59 or., 5 lem. Nav. 3.25-5.20 only occasional sale reaches 5.00 mark. Val. 3.40-5.15, Bloods. 3.90-5.10, Mikes. 3.40-5.50, Sweets. 3.95-5.20, lem. 2.55-4.10.

Cleveland: 12 or., 1 lem. Nav. 2.65-5.50, Sweets. 3.75-4.25, Mikes. 4.30-5.15, grapefruit, 3.00, lem. 3.35-4.35.

Pittsburg: 8 or., 2 lem. Nav. 3.60-5.50, Seeds. 3.15-4.15, Mikes. 4.40-5.10, lem. 3.25-4.10.

St. Louis: 10 or., 2 lem. Nav. 2.40-4.00, Val. 5.05, Tang. 3.15-5.05, Sweets. 3.75-4.05, lem. 2.85-4.35.

Boston: 22 or., 2 lem. Nav. 3.75-5.35, Val. 4.30-4.85, Mikes. 4.15-5.35, lem. 2.70-4.15.

April 22

New York: 47 or., 2 lem. Nav. 2.60-5.25, Mikes. 2.15-4.75, Bloods. 2.40-3.45, Sweets. 3.15-4.30, lem. 3.20-4.35.

Pittsburg: 2 or., 1 lem. Nav. 4.25-4.90, lem. 3.85-3.95.

Boston: 13 or., 2 lem. Nav. 3.95-5.75, Seeds. 4.05-4.20, Bloods. 3.80-5.85, lem. 3.05-4.25.

Philadelphia: 3 or., 2 lem. Nav. 2.65-4.75, Sweets. 3.00-4.20, Seeds. 2.65-3.10, Val. 4.00, lem. 2.80-3.75.

Recent sales of American Egyptian cotton to Eastern mills show more activity and prices remain stationary at 50 to 52 cents for Yuma and about 60 cents for Pima. Quotations for Sea Island are about 50 cents.

WEATHER CONDITIONS

San Francisco, California, April 19

Station.	Rainfall: Wk	Season.	Normal	Temp: Max.	Min.
Eureka	2.01	36.12	41.25	64	36
Red Bluff	.06	26.07	22.63	76	42
Sacramento	.02	17.17	18.36	74	42
San Francisco	.02	25.64	20.42	70	50
San Jose	.01	18.82	15.62	78	46
Fresno	.00	6.74	8.55	84	42
San Luis Obispo	.00	7.81	10.71	78	44
Los Angeles	.00	8.22	14.80	72	54
San Diego	.00	8.19	9.41	76	52

Trout Fishing is good

IN THE VENTURA MOUNTAINS

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RATES $3.00 PER DAY UP

OUT DOOR SWIMMING PLUNGE

HOT MINERAL TUB BATHS

ELEVATION 1580 FT.

New Folders just out.

Will W. Wilcox, Mgr.

Up-To-Date Figures on Why Tractors are Displacing Horses on the Farm

If you own a small farm or orchard and are working it with two horses, you have an expense of 75 cents each or $1.50 per day, or $547.50 per year for feed alone, which bill goes on just the same whether working them or not. Besides this your harness bills and shoeing bills which will make the total about $600.00 per year.

COST PER DAY OF HORSES

Original cost of team, $200.00.	
Interest on investment—horses, $200.00 at 6 per cent	$ 12.00
Interest on investment—harness, $100.00 at 6 per cent	6.00
Feeding, shoeing, harness repair	600.00
Depreciation in value of horses at 10 per cent	20.00
Depreciation in value of harness at 20 per cent	20.00
Total	$658.00 per year,

or $2.12 per day for doing two horse work.

TIME CONSUMED WITH HORSES

Then you have to get up an hour earlier to feed, water, curry, clean out stable, harness and then hitch up. At noon, unhitch, water, feed, hitch up, 30 minutes. At night, unhitch, water, feed, bed down, 30 minutes, or 2 hours time per day.

COST PER DAY OF TRACTOR

With an AVERY 5-10 Model B orchard tractor it figures this way:

Original cost, $780.00 complete.	
Cost of fuel, 8-hour day, 6-gallon distillate at 13½c	$ .81
Cost of lubricating oil (best grade), 1 quart	.25
Cup grease and gear oil	.15
Interest on investment at 6 per cent	.13
Depreciation at 20 per cent	.43
Total	$1.77 per day

for doing four horses' work, compared to $2.12 per day to do 2 horse work.

TIME SAVED WITH TRACTOR

Thirty minutes a day is ample time for taking care of your Avery Tractor. Besides the above difference in cost you can sleep an hour later in the morning, and then save another thirty minutes of labor during the day, and then CULTIVATE TWICE THE NUMBER of ACRES PER DAY and RIDE ALL THE TIME you are doing it. Then when you have completed your work you can take a trip to the beaches or to the mountains and not have to hurry home to feed and water old Dobbin. BUY an AVERY 5-10 MODEL B ORCHARD TRACTOR and make more, save more, and get more enjoyment out of life.

Write for special literature—G-K—and find out why.

Avery Company of the Pacific Coast

67-69 Beale St., San Francisco, Cal.

237 So. Los Angeles St., Los Angeles, Cal.

For the Garden or Ranch

Whether for Market or Home

Plant the Right Seed in the Right Season

See Our Catalog

Aggeler & Musser Seed Co.

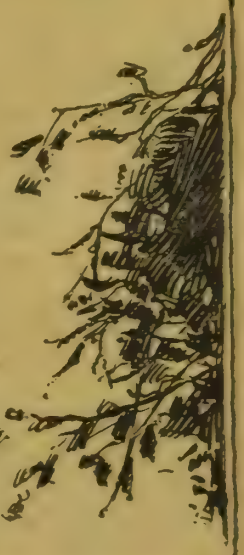
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Some Tires "Climb"

DID you ever wonder why it is often so hard to "stay in the ruts" when driving over poor roads?

Usually you will find the reason in your *tires*. Many so-called non-skid treads tend to "climb" up the sides of ruts—the fancy bumps and ridges of rubber on the sides of the tread act like the climbers which telephone linemen strap to their legs.

HORSE-SHOE TIRES have no such tendency. They are anti-climb as well as anti-skid. They run true and straight on rough roads —and noiselessly on paved streets.



This is just one of the reasons why experienced motorists, when buying tires,

"Remember the Horse-Shoe Tread"

Guaranteed for 5,000 miles but gives more. See your local dealer or write to

Pacific Rubber Co.

433-35 W. Pico St.

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Dealers Everywhere



RACINE HORSE-SHOE TIRES

Uncle Sam Uses Crawler Tractors

Perhaps the most convincing proof of the efficiency of the crawler type of drive is the performance of the "land battleships" in Europe, the war tanks. The way these go through everything and over everything is truly remarkable.

In Uncle Sam's war work he used tractors of the Crawler type because he knew that they have the reliability and pull to get there.

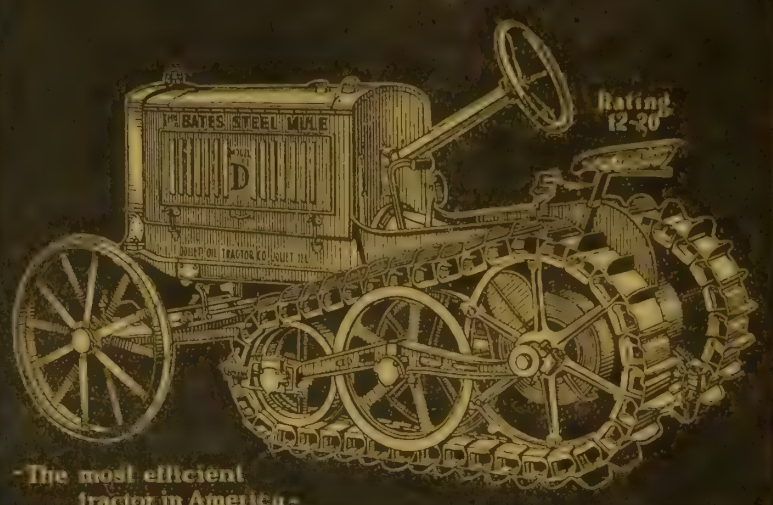
The powerful twin crawlers of the Bates Steel Mule grip any soil with a firm hold so that the heavy duty valve-in-head kerosene motor need not waste an ounce of its power in uncertain traction.

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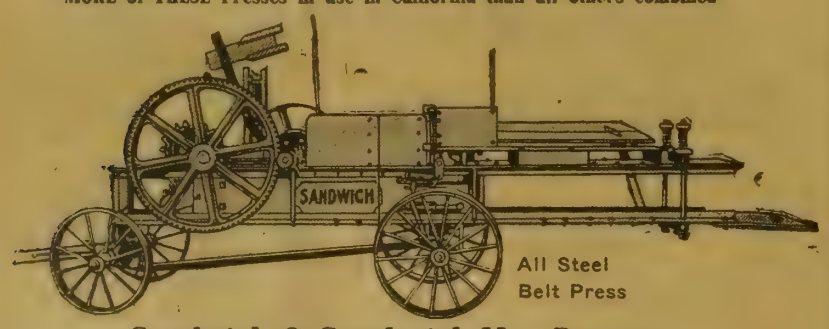
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Tons Tell the Story

MORE of THESE Presses in use in California than all others combined

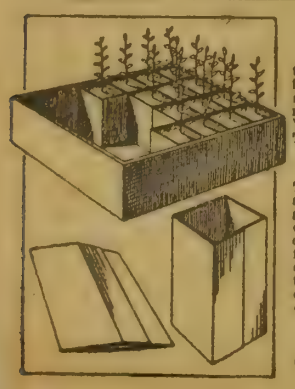


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Sandwich & Southwick Hay Presses

We have the style Press for your requirements.
Write for Special Hay Press Catalog No. 50-C.

DIXON & GRISWOLD, 144-146 N. Los Angeles St., Los Angeles, Cal.



Perforated Tree Protectors

that will keep squirrels, rabbits and gophers from barking your trees and give perfect protection from the hot sun, sand storms, raking bark in cultivation, etc. We make a number of kinds of wraps, among these are the Yucca which has the fastening wire entirely around it. Tell us your pest and we will tell you what kind to use.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour. For starting early vegetables, such as tomatoes, cabbage, egg-plant, cauliflower, cucumbers, cantaloupes and squash. Also, for propagating rose cuttings, geraniums, eucalyptus or olive cuttings. It is the most practical pot on the market today for propagating work. Write us for samples of either pots or protectors. Tell us which you are interested in.



The Expan Co.
935 E. Central Ave. Redlands, Cal.

Bees---Spraying

FRUIT growers generally understand the service which bees render to their industry. It is possible that in some cases there may be injury as a result of their work, especially in the case of drying fruits, but in the main, especially as to pollination, there is but little question of their beneficial activity. The bee keeper likewise is served by the fruit industry. He now comes, however, with appeal for other service to prevent poisoning of his bees which may result from poisoned sprays used at time fruit trees are in blossom, to prevent attacks of such insects as codling moth. A writer in the American Bee Journal, who signs himself F. C. P., discusses this matter at some length:

"Several letters have come to my desk of late which have to do with the poisoning of bees from the spraying of fruit trees while in bloom. In New Mexico it seems that a bill is pending in the legislature which provides a penalty for the application of spray poisons to the fruit trees before 90 per cent of the blossoms have fallen. A few other states have passed similar laws and several others, after considering such measures, have refused to enact them.

"At one time I used my influence for the passage of such a bill, in Iowa, although I must confess that I was not enthusiastically in favor of it. Since that time I have investigated the matter somewhat and now doubt whether such laws are desirable. Here in America we have come to look upon 'laws' as the cure for every ill. Every day we hear somebody say that there should be a law passed prohibiting this or that. Perhaps we will learn in time that the mere passage of a law does not always remedy our troubles.

"In the case of spraying, so many beekeepers report the loss of bees from the spraying of fruit trees while in bloom, that there must be some cause for complaint. However, it seems to me, after looking into the thing, that a law is not the proper remedy. In the first place, the passage of such a law is resented by the fruit growers as being aimed especially at them. Instead of developing harmonious action, it has the opposite effect. The interests of the fruit grower and of the beekeeper are mutual. It is recognized that bees are necessary to insure proper pollination of fruit blossoms. It is also taught by most entomologists and horticulturists that the best time to spray is after the petals have fallen. Not only may the bees be poisoned, but the fertilization of the blossoms may be retarded or to some extent prevented by spraying before that time.

"This being the case, what we need is not a law punishing the man who reduces his own crop and kills his neighbor's bees by improper spraying, but an educational campaign to give proper instruction in the application of the poison.

"The fruit growers ars as anxious to teach the mass of small orchardists to use spraying materials as the beekeepers are to induce every beeman to treat foulbrood. The enactment of a law prohibiting spraying at any time may easily discourage its being done at all. In this case the fruit business has been injured.

"There are few fruit growers progressive enough to spray their fruit trees, who will be purposely disposed to injure the bees on which they depend as an agency in the fertilization of their fruit. Instead of trying to force through a law against spraying while the trees are in bloom, the beemen and fruit growers should meet and agree upon a campaign of education in districts where spraying is improperly done. Such a campaign will result in great benefit to both the fruit grower and the beekeeper and should leave each with the best of feelings toward the other.

"When, as sometimes happens, the legislative committees ask for definite proof of the injury to bees from this cause, the beekeepers find it difficult to prove their case. Our senior editor once served as a member of an Illinois delegation to appear in behalf of such a measure. The chairman of the legislative committee was an extensive orchardist who seemed disposed to be very fair in the matter. He asked for proof of injury to the beekeeper, and when an attempt was made to furnish specific cases which could be laid to this cause, the beekeepers were unable to find them.

"We are a little in the dark as to just how much the bees are injured from this cause, and here is a place where our experiment stations can render some real service to both fruit growers and beekeepers by making extensive and careful tests as to the extent of injury, time when bees are poisoned, and also in searching for a remedy. Judge Taylor of Yakima, Washington, suggests that since the arsenate of lead is said to be sweet, the bees may be attracted to it at times when the trees are not in bloom. He also suggests the possibility of adding to the spray some repellent which is obnoxious to the bees and thus prevent them from taking it at any time.

"From Washington comes the report that the greatest loss is not at the time when the trees are in full bloom, but during the subsequent spraying for the second and third broods of codling moth. The injury seems to be worse in dry sections where water is not easily available, which indicates that the bees in search of water for brood-rearing at times suck up the newly applied poison.

"Until we have more definite information on which to base our demands for legal protection let us appeal for help to the extension departments of our agricultural colleges in spreading information, and from the experiment stations in ascertaining the true conditions."

Corrugated Iron Pipe as Well Curbing

Adaptation of high purity, rust resisting iron corrugated pipe to form a permanent well curbing is one of the unique developments of the last year or so in California, where water development in connection with irrigation projects is so important. The use of this material in the form of road culverts has become a standardized practice, and its adaptability in the sinking and maintenance of wells has indicated it possesses numerous advantages practically equal to its more familiar uses. The ability of corrugated iron pipe to resist external pressure is almost as important in the form of well curbing as in highway and railway drainage. Of course, since the pressures to be met by well curbing are entirely lateral, lighter and less expensive gauges of corrugated iron may be used than for road culverts of similiar diameter. In cases where wells are dug instead of being bored, because of the large cost of assembling well boring equipment and the need for a greater amount of water, which is made possible by a dug well, it is frequently necessary to go to a considerable depth in soil formation of not too stable character. Here the easily installed corrugated pipe forms an inexpensive and safe curbing, preventing cave-ins and delays. Once installed in the well it is a simple and easy matter to fix it in with concrete as a permanent wall.

Easily Handled

In such installations it is customary to excavate for a certain distance, then let down a 10 or 12 foot section of corrugated pipe and continue to excavate, allowing the pipe to settle as the work progresses. When the first section is finally below the surface a second one is placed on end over it, coupled and the work goes on to the desired depth.

Surface water is oftentimes quite objectionable. This condition frequently obtains for a considerable depth. Corrugated pipe as well curbing in such instances is exceedingly adaptable in excluding all the water that does not come from the desired level. Some interesting installations of this type have recently been made in California.

Can Be Watertight

Where absolute watertightness is

Since 1902

Pomona DUPLEX-PLUNGER Pumps

One Pump Will Do Your Work

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

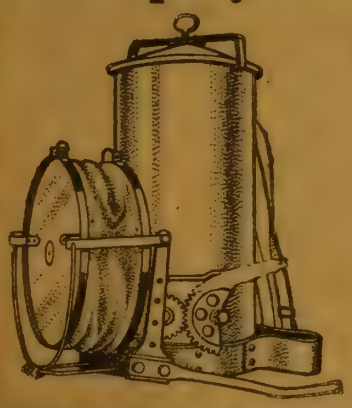
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American Beauty Dust Sprayers



Sulphur Vines Faster and Better than Any Other.

Don't waste time with-- a poor machine.

Standard Size - - $18.00
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BEEMAN

The Inexpensive Tractor For Small Ranches



Motors Equipment & Tractor Co.
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When Writing Advertisers Mention The Cultivator

required the pipe can be close riveted and soldered, but the most desirable and least expensive installation is made where the pit is lined with one-inch planks as excavated, the boards being held in place by iron rings of the proper diameter. Old wagon tires answer this purpose very well. Corrugated pipe of slightly smaller diameter is lowered into the well pit and the space between the iron and the wooden casing is poured full of concrete.

Typical Installation

This well was dug four feet in diameter and 42 feet deep. The pit was lined with one inch by six inch planks running vertically and held in place by old wagon tires, placed at five-foot intervals. To facilitate the installation of the corrugated curbing, a platform was built 14 feet above the bottom of the well pit. The last two feet of the wooden curbing above the platform had been cut away and an excavation made in the walls that tapered outward from the bottom of the remaining board curb and formed a shelf at the height of the platform, extending outward eight inches around the entire circle.

Solidly Concreted

This done, iron pipe, 42 inches in diameter and 28 feet long, was lowered to the level of the platform. Concrete was then poured from the surface to fill the space between the iron and wooden curbings. When the concrete had set the platform was removed. The entire structure which went to make up the well curbing—the corrugated piping, the concrete, and the wooden curb—thus rested securely on the shelf at the 28 foot depth, which was formed by the excavation at the sides of the pit.

In this particular installation it was found that the surface water had not all been excluded and that it continued to find its way into the well below the concrete. To stop this another iron pipe, 38 inches in diameter and 16 feet long, was lowered inside the first one. A similar shelf was made near the bottom of the well and concrete poured in the two inch space between the two pipes, 28 feet from the surface. For convenience in pouring the concrete, a round cover was made to set on the rodded end of the 42 inch pipe, and this was afterward cut down to permit its use on the top of the smaller pipe while the concrete was being poured. The installation has proved satisfactory in service and the well affords an abundant supply of pure water.

1919 STATE FAIR JUDGES

Secretary Chas. Paine of the state board of agriculture announces that he has succeeded in getting the following nationally known experts to judge at the forthcoming state fair:

Professor E. A. Trowbridge of the University of Missouri will judge the various horse classes, both heavy and light. Professor Trowbridge is admitted by all to rank among the most competent live stock judges in America and his work at the 1916 state fair was of such high order that he was invited in 1918, but could not accept.

Professor John Burns, head of the animal husbandry department, Texas A and M. College, will officiate in the beef classes. Burns is a western man who knows the types of cattle the west needs as well as any man.

Burns and Trowbridge judged the Hereford classes at the last Kansas City Royal.

Hugh G. Van Pelt, nationally known as an expert judge of dairy cattle, will tie the ribbons for all dairy breeds.

Van Pelt is the man who bred the Jersey bull Financial Sensation and sold a half interest in him for $30,000.

Secretary Paine is to be congratulated upon the class of men he seeks for judges. The swine judges will be announced later.

It is really surprising how much food in the form of green or salad crops can be grown in the spaces between the plants or rows of the larger or standard crops. For example, all lettuce and radishes required by the average family may be grown between the plants of early tomatoes.

A garden that produces only one crop and idles away half of the growing season does only half of its duty.

MOLINE GRAIN BINDER

Absolute dependability during rush of harvest season, plus service without delays or breakdowns makes Moline Grain Binders popular with every farmer who uses one. For over 50 years, Moline Grain Binders have been giving such service in all parts of the world.

Owners tell us without reservation or condition that Moline Grain Binders are positively dependable—that they are exceptionally light in draft, and that they do good clean work in all sorts and conditions of grain.

Moline Grain Binders give every owner the same dependable service.

There are sound reasons why they do—

Cutting apparatus is the heaviest and strongest made. Heavy guards do not bend or break when striking obstructions in a close cut.

All working parts are direct driven, the work is equally divided, no over strain on any part.

The knotter has few parts, is simple and easy to adjust—a sure tyer.

Triangular driving arm on binder attachment takes place of troublesome, power-wasting, complicated gears, shafts and sprockets.

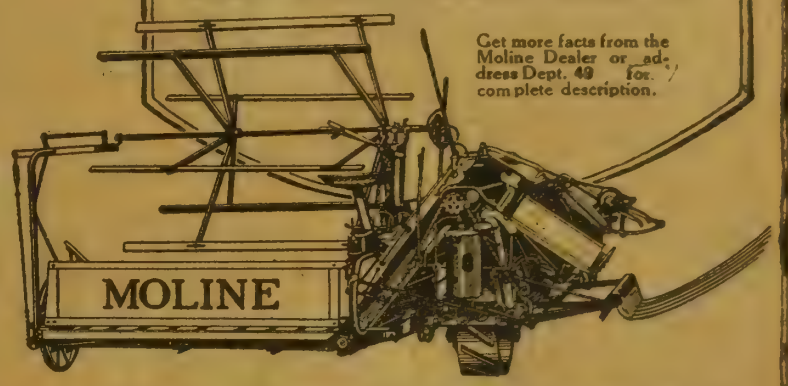
Single lever controls the reel in all operations.

Main frame made of two pieces instead of four.

These are just a few of the many superior features of the Moline Grain Binder.

The more you expect from a binder the better a Moline Grain Binder will satisfy you. Ask any owner.

The Moline Line of Implements
Plows (steel and chilled)
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Stephens Salient Six Automobiles



Get more facts from the Moline Dealer or address Dept. 49 for complete description.

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MANUFACTURERS OF QUALITY FARM IMPLEMENTS SINCE 1865



E-B Quick Detachable Share, applied or removed in a few seconds without wrench or other tool.

E-B No. 102 Tractor Plow

E-B Sharp-Share Plowing Means Big Crops

E-B Sharp-Share Plowing means more soil turned, easier pull for the horses and, most important of all, *better crops*. It also assures more soil turned with less work on your part because of easy handling. **No land side friction—lubricated bearings.** Furthermore, E-B Sharp-Share Plowing allows free air circulation through the soil arteries, eliminates poisons, increases available plant food.

E-B No. 102 Tractor Plows, equipped with E-B Quick Detachable Shares, have yet to be equalled for quick, easy, profitable plowing. One pull of the lever locks or unlocks the E-B Share. It's a matter of five seconds to remove or replace a share. *Ask your dealer to explain the advantages of E-B Sharp-Share Plowing.*

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Dixon & Griswold, Los Angeles, Calif.
Polson Implement Company, Seattle, Wash.
Wallace Corcoran Company, Portland, Ore.

E-B 102 Tractor Plow



Keep the Home Fields Earning!

This year, your car should be a more profitable proposition to you than ever. Europe is still looking to American farmers for food. And there's a ready market for everything you can raise.

Your car's a time-saver—a distance cutter. It will help you keep the home fields earning. But to get its best work, you must give it good tires.

You'd be surprised to know how many hundreds of thousands of folks—both in the cities and on the farms—have decided that United States Tires are the best tires they can buy.

This year the proportion of United States Tire users is even greater than ever. War and war work taught the good judgment of putting good tires under a car or truck.

There is a United States Sales and Service Depot in your neighborhood. There you can get good tire service and sound advice as to the best United States Tires for your own individual use.

United States Tires are Good Tires



Special Tractor Number

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. VII | May 3, 1919 | No. 18

California Tractor and Implement Association



Demonstration, Sacramento, May 6 to 11



HUNDREDS OF THOUSANDS OF DOLLARS WILL BE SPENT BY *AVERY* AND OTHER TRACTOR MANUFACTURERS TO DEMONSTRATE TO THE FARMERS OF CALIFORNIA THE SUPERIORITY AND ECONOMY OF TRACTORS OVER HORSES.

There is no power on your farm that an Avery cannot supply.

The Avery Separator is Made in Eight Sizes

The Avery Tractor is Made in Eight Sizes

The Avery Motor Cultivator is Made in Four Sizes

They will all be shown and demonstrated at Sacramento, May 6th to 11th, inclusive.

This is your opportunity to see the

AVERY

and all other tractors.

If you cannot attend the Tractor Demonstration, *WRITE* and we will supply you with all the information you need on Power Farming.



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California Cultivator

Vol. LII, No. 18 — Los Angeles, May 3, 1919 — One Dollar Yearly

California a Prime Factor in Tractor Industry

WHEN the power of the horse is secured through a combination of steel and gasoline, his bulk is compressed to the size of a small soap box. Storage for the "feed," or to be more plain, the fuel, used in the gas engine is likewise vastly reduced. The reduction in expense, or the economy secured in the use of the power of steel and gas, is vast in theory, and every day sees it



Benjamin Holt

nearer realization in fact. The improvements of the past three years have wonderfully extended the use of farm power, the greatest example of which is the gas tractor.

On another page Mr. De Camp gives some of the early history of the former century's efforts in England and America to secure the use of steam for facilitating farm operations. Following those experiments of the later sixties, which may be said to have been almost complete failures, there was a long period in which power farming was given little impetus. California may well be proud of the fact that it is responsible for much of the development which was finally made of the old steam tractor.

In the first place this state developed the combined harvester and thresher which required the power of 20 to 50 horses or mules to handle. The expense of the upkeep of so many horses, together with the horse killing proclivities of those great machines, naturally caused investigation as to the use of steam power. California factories soon had these big steam monsters taking the place of the horses and so successful were they that they were distributed to nearly all parts of the world.

It is a matter of sufficient interest to justify a bit of the personal history of four brothers who had a large part in the advancement and development of the California tractor. In 1869 Charles H. Holt established in San Francisco a wholesale house handling hardwood lumber, wagon and carriage wheels. This firm under the name of Holt Brothers is still operating in San Francisco. The real predecessor of the present great house at Stockton was the house which was established there in 1883 when Benjamin Holt came to the state and established the wheel factory. This was a partnership formed by the four brothers under the name of the Stockton Wheel Company, with Benjamin Holt in entire charge. This Stockton Wheel Company occupied a building on the northeast corner of Church and Aurora Streets, which is the present site of the main office of the Holt Manufacturing Company.

The firm started the manufacture of combined harvesters in 1885, and in 1892 Benjamin Holt developed the first successful side hill harvester. Going back a couple of years, however, in 1890 we have the year in which the company brought out its first steam traction engine.

Sons of the original Holt Brothers now hold the principal stock in the company. One of these is now a lieutenant in the ordnance department in France and another has resumed work after serving the country abroad. Others after honorable service for their country are now returning to aid in the management of the company's business.

We have asked G. M. Walker, secretary of the company, for information as to the development of the caterpillar type of traction, and Mr. Walker writes:

"The necessity for some other means of traction than is offered by wheels became evident when the big steam engines were sent down into the reclaimed tule lands of the California Netherlands to do plowing and harvesting. Wheels as wide as 18 feet on each side of the machine were used, but even these did not present enough surface in contact with the ground to prevent sinking. Mr. Benjamin Holt therefore developed the idea of a self laying track and invented the first track type of tractor which appeared as a commercial success early in the 1900's.

"The Peoria factory was established in 1910, this offering the first and up to the present time the only big company that has reversed the usual order of things, having been first established in the West and having extended its business and established a factory in the East.

"Mr. Holt is a very modest man, fighting shy of the lime light into which he has been forced by the fame won by "Caterpillar" tractors in the war and by the fact that this tractor furnished the inspiration for the famous British tanks.

From the beginning of the war deliveries of "Caterpillar" tractors have been made to France and England, many hundreds of these having been sent over for the hauling of ammunition and supplies, and principally for the handling of heavy guns through the mud of Flanders and under other difficult conditions where no other form of tractive power could be used successfully. When the United States went into the war it did so with a complete program for motorization that taxed the capacity of the Peoria plant, made necessary large additions to that plant and set a great number of other plants at work making Holt tractors, assemblies and parts.

Mr. Holt is still active daily at the Holt plant, continuing to direct experimental work at the factory and in the field and following with much interest all the tractor shows and demonstrations that offer an opportunity to study the development of the industry. He has held the office of president of the company continuously since the incorporation of the company in 1892.

Every year sees new and extensive additions to the Holt plant at Stockton, and in Peoria additions which were started by the government during the war and now being completed will more than double the size and capacity of that plant.

Each of the two plants of the company today employs in the neighborhood of 2000 or 2500 men. Offices are also maintained at Spokane, Washington; Portland, Oregon; Los Angeles; Wichita, Kansas; San Francisco, and New York City. In Canada the company is represented by Canadian Holt Company, Ltd., and in England by "Caterpillar" Tractors, Ltd. It also has direct service and sales representatives in the Hawaiian Islands and agent representation in practically every country of the world.

* * *

There are in California, or rather were on the first of January, approximately 6800 tractors. There are, however, nearly a dozen other states which have a greater number of tractors than does California. For instance, there are in Illinois, 15,712; Indiana, 10,474; Iowa, 11,173; Kansas, 11,511; Minnesota, 8000; Nebraska, 9000; New York, 6000; North Dakota, 10,000; Texas, 11,000; South Dakota, 7000; other states running lower than California, with a total for the United States of 173,445.

* * *

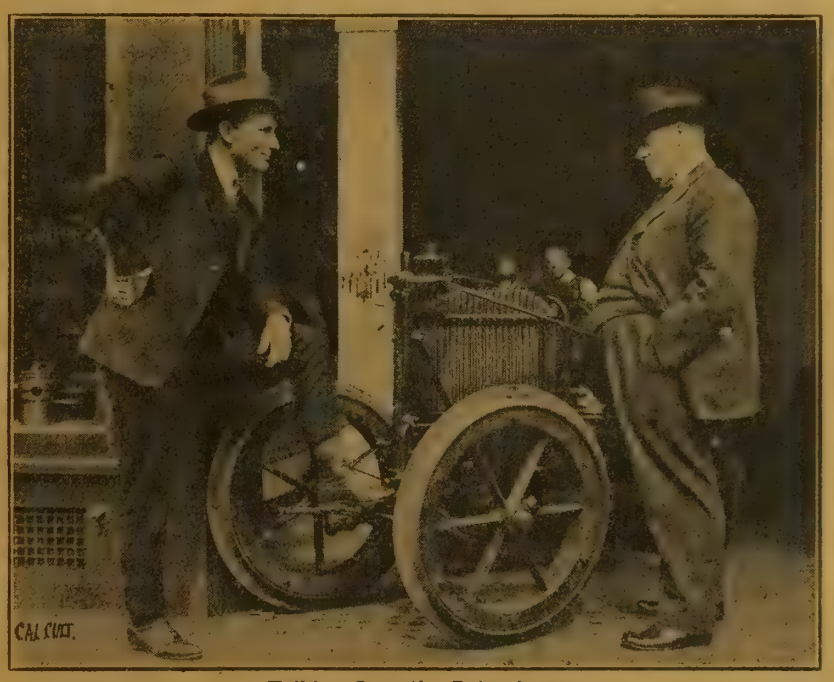
Another most interesting character who realizes California's power farming possibilities and heads a large Eastern tractor factory, which is also located at Peoria, has visited the state so often that he is well known amongst tractor people:

Admires California

One of California's "steadies," J. B. Bartholomew, president of the great tractor company located at Peoria, Illinois. Mr. Bartholomew was here last year at the time of the California tractor demonstration at Sacramento, and from present appearances will be here at this year's demonstration also at Sacramento. It is possible Mr. Bartholomew primarily comes to attend our tractor demonstrations, probably because he like us, more probably because he simply likes California.

Mr. Bartholomew has been with the Avery Company since he was a kid of 16, and for nearly 14 years has been at the head of that great concern. During the first year of his presidency the business of the concern aggregated practically a million dollars and the average increase in that business up to the present time has been another million for every year. In other words, today the business aggregates approximately one million per month. When he went into the institution at the age of 16 there were approximately 50 employees; today there are 3500.

One of the slogans of the institution is, "There is a size Avery tractor for every size farm," from 5-10 to 40-80. In other words, there is an even half dozen of tractors put out. We are not informed as to which is the favorite with Mr. Bartholomew, but from his look of confidence in the little baby one, the 5-10 size, by which he is standing in his photograph, we believe he has a big place in his heart for that "youngest" member of the family.



Talking Over the Baby Avery

J. B. Bartholomew and W. W. Rainey discussing the good points in the baby 5-10. Mr. Bartholomew, president of the Avery Company, is just remarking that "Amongst ourselves we may call it the baby but when it comes to work it does a full size man's job." Mr. Rainey is manager of the Los Angeles house.



Some Load of Hay

This is labor saving when one tractor takes five trailers to market with such a load of wealth.

Agricultural News Notes of the Pacific Coast

Northern California

Placer County reports big fruit crop.

Butte County almond growers state: "Almonds looking fine."

It is now proposed to open the Placer County Fair on Labor Day.

Great crowds attended the University Farm Picnic at Davis on April 26.

Plantings of rice are being made in the red hill land near Oroville, Butte County.

The first bale of cotton ginned in Butte County is to be exhibited at Oroville.

The Eldorado center of the farm bureau held its first big auction sale on April 25.

The alfalfa meal mill at Orland, Glenn County, is now beginning its season's run.

A poultry campaign will feature the May meetings of the Eldorado County farm bureau.

A large planting to rice will be made this spring in Placer County near Lincoln.

Many farmers near Gridley in drainage district 833 are opposing bonds for further drainage.

Contrasts for Bartlett pears have been made in Butte County recently for from $60 to $70 per ton.

Eldorado County last season shipped out to Eastern markets 307 carloads of fresh deciduous fruits.

Members of the Mt. Vernon farm bureau, Placer County, are doing volunteer work on the roads.

Sonoma County will hold a good roads bond election May 31. The proposed issue is for $1,643,000.

The cattle inspection board inaugurated inspection of cattle at shipping points in Solano County on April 25.

C. J. Evans, poultry expert of the federal government, is looking over the poultry situation in Placer County.

Placer County last year shipped out 4394 carloads of fresh deciduous fruits, more than one thousand in excess of the preceding year.

The Mt. Vernon farm bureau has completed plans for the establishment of a central fruit packing plant at Auburn, Placer County.

The Plumas Cooperative Stockmen's Association has elected William Bills and George Ross of Wyandotte, president and secretary, respectively.

The Glenn County Fair Association has named two permanent stock judges: Prof. J. I. Thompson for swine and Frank Brown of Oregon, for beef cattle.

Manager Coykendall of the California Prune and Apricot Growers Association has been discussing work of his association with growers of Solano County.

The California Poland-China Breeders' Association is planning to hold a number of sales throughout the Sacramento Valley to promote interest in their breed.

The postponed annual meeting of the California Wool Growers is being held this week at University Farm, Davis. Fred A. Ellenwood of Red Bluff is president of the association.

An application has been filed with the state water commission for 1000 second feet of water from Feather River canal for irrigation of 12,000 acres in Butte County and 8000 acres in Yuba County.

Central California

Tulare County has just finished construction of 223 miles of concrete highway.

Turlock is to have a sweet potato curing and storing association and warehouse with capacity for 100,000 bushels yearly.

A Norwegian fruit handler has been investigating apple conditions in the Pajaro Valley. It is expected large shipments will be made to Norway next fall.

San Joaquin Valley fig growers are in arms because a New York importer has advised buying of high quality imported figs and refers to "gnashing of teeth among the jobbers who have loaded up on the California kindling wood."

A. F. Wells of Porterville has a small fortune in pomegranate trees under cultivation on a city lot. There are 10,000 of these trees raised by Mr. Wells as nursery stock. They are of the Wonderful variety and are valued at 50 cents each.

An exceptional condition exists in many parts of the valley in connection with the almond crop. Growers are reporting that the trees have set full of nuts but that numberless birds, principally linnets, are destroying the almonds. The birds peck a hole in the young and tender nut and extract the kernel through the opening.

Two cars containing between $8000 and $10,000 worth of yearling Hereford bulls of bluest blooded stock were received last week by Gill Brothers of Exeter, cattlemen who own several large ranges in the Yokohl Valley and in other parts of the northern and eastern part of Tulare County. Two of the young bulls came from Ames, Iowa, the others from Newman, California.

The Kings County supervisors are consulting District Attorney Ferguson about the drafting of an amendment to the county traffic ordinance designed to more strictly limit the weight of loaded trucks that may pass over the county highways. At present the load is limited to four and one-half tons but nowadays the truck weighs more than its load and the supervisors declare that unless something is done the highways may be damaged almost beyond repair.

The breaking of record prices for fat hogs goes merrily on these days. A record of $17.30 per cwt. established at Tulare some time ago was broken a few days later by the receipt of $17.45 per cwt. in Visalia. This record was in turn shattered in Tulare when $18.40 was received by the farmers at a farm bureau auction. Comes now Visalia with a new high mark of $18.45 received at a farm bureau sale the next day. So far as is known this is the highest price ever received for fat hogs in the San Joaquin Valley.

H. E. Wood of the firm of Wood & Stevens, New York brokers of the Associated Raisin Company, is now in Fresno conferring with officials of the company regarding selling the 1919 crop of raisins. Mr. Wood is enthusiastic over the market outlook, declaring that the demand for dried fruit of all kinds is unprecedented. He states that New York will handle enormous quantities of dried fruit this year, wholesale and retail stocks having been practically exhausted by a heavy export business during the late winter and early spring.

Southern California

Redlands expects exceptionally large apricot crop.

Ranchers of Imperial Valley have formed an organization.

Riverside County is planning for a milch goat show in October.

Cannery managers are calling on apricot growers in the Hemet district to thin fruit at once.

The Brawley farm bureau is planning an excursion through the northern end of the valley May 5.

One or two trainloads of cattle are being shipped weekly from Imperial Valley to Kansas City stock yards.

The Hemet-San Jacinto Growers' Association is making improvements to the extent of $30,000 in its cannery

Directors of the San Bernardino County farm bureau have gone on record as favoring the organization of a state farm bureau.

More alfalfa seed was sown in the Imperial Valley this year than any preceding year, according to a large seed dealer of Yuma.

Plans for making the citrus institute a regular feature of the orange show at San Bernardino are being formulated by Dr. Webber.

Walnut spraying to control aphis and codlin moth was demonstrated by Prof. Ralph E. Smith at Tustin, Orange County, on last Saturday.

Spraying demonstration for control of red spider on walnut trees was held at San Juan Capistrano, April 20. It was in charge of Farm Adviser Wahlberg.

Onion growers of Coachella Valley have decided on marketing grades. Examination of the packs will be made by a special onion inspector appointed by the state horticultural commission.

The San Bernardino County Poultrymen's Association reports a rapid increase in the industry in their county. The association has headquarters at 765 Third Street, San Bernardino, and E. Hyles is in charge.

The Riverside County farm bureau is making plans to purchase pure bred Holsteins, Guernseys, Jerseys and Ayrshires to be distributed to members. Farm Adviser Scribner of Los Angeles is aiding them.

Ventura County farm bureau meetings: Camarillo, May 6; Fillmore, 8; Wheeler Canyon, 12; Oxnard, 13; Saticoy, 19; Mound, 20; Moorpark, 21; Santa Paula, 27; Bardsdale, 26.

Fifty carloads of Small White beans were shipped from the Lompoc and Santa Maria fields last week to fill government orders. This is the first of the 1918 crop to be sold from this district. The bean acreage this year will be 7000 less than last year.

The Beekeepers' League of Southern California met at Riverside recently and elected E. J. Atchley, president; H. T. Baudy, vice-president; E. R. Butt, second vice-president; Geo. B. Gibford, secretary; Mrs. Geo. B. Gibford, assistant secretary and treasurer.

To settle the question of whether early or late planting of Limas is advisable careful records are to be kept by the bean men of results this year from the different plantings. Many plantings were made on the Irvine Ranch in Orange County during April.

The Coast and General

Large shipments of sulphur are to be made this season from the Aleutian Islands.

Many people of the United States are exercising homestead rights to lands in Alaska.

Alaska maintains that she has sufficient wealth to pay the entire nation's war debt.

Bellingham, Washington, planted this season extensively to raspberries and loganberries.

Utah dairymen are finding exceptionally fine results from feeding sunflower silage to dairy cows.

The Turkish fig crop in 1918 was 18,000 tons, according to figures by American consul at Constantinople.

The Apple Growers Association of Hood River, Oregon, assesses penalties on members guilty of "disloyalty."

Unusually cold nights in northern Arizona have been unfavorable for young lambs, but ranges and stock are improving in all sections.

The State of Chihuahua in Mexico has shown big yields of all crops for 1918. 935,000 bushels of corn were raised, 700,000 bushels of wheat.

Citrus growers of Florida have organized an association, or protective league, in the endeavor to stop promiscuous stealing of fruit by tourists and others.

Large purchases of Hood River apples have been made by English buyers. A sale of 10,000 boxes has just been reported at an average per box of $1.75.

The secretary of agriculture has approved 105 federal road aid projects during the month of March. This work will cost approximately $14,500,000.

Under the Yuma project in Arizona there are 844 farms. Five hundred and five of these are operated by the owners and 339 by tenants. Dairy cattle number 1875.

Alaska is encouraging more general use of reindeer which were introduced to that country in 1892. There are now 120,000 head in use, mostly by Esquimaux.

There is to be a meeting of live stock men in Salt Lake City, July 21 to launch a formal campaign for federal control of unappropriated public domains in Western states.

A committee known as the Western States Agricultural Committee is circulating west of the Rockies a petition which is to be placed before congress, and will ask that the importation of Chinese labor be permited.

Seven central fruit packing houses have been incorporated in Niagara County, New York, as a result of the activities of the county farm bureau. These seven associations this year will pack approximately 120,000 barrels of apples, 50,000 bushels of peaches, 12,000 bushels of pears, and will sell cooperatively 135 tons of grapes.

C. I. Helm, one of the best known nursery men of Arizona, died suddenly of heart failure April 13. Mr. Helm was a former resident of the state of Washington and served as state senator in that state. He was very much interested in the improvement of citrus fruits and perhaps did more than any other one man in Arizona to secure buds of best citrus trees for propagation.

The Evolution of the Tractor

By James De Camp

FOR the many who are prone to regard the tractor as a product of the last four or five years it is somewhat of a surprise to know that power cultivation was attracting a great deal of attention in the United States as long ago as 1858.

The modern "steel horse" which is revolutionizing present day methods of agriculture is of ancient and honorable lineage. Its forebears were snorting noisily and clumsily across the landscape of several Middle Western states when Thomas A. Edison, a youth in knickers, was conducting dubious experiments in the family cellar, laying the foundation of that wonderful knowledge which later bathed the entire world with the magic glow of electric light. Queer, ponderous prototypes of the tractor were wrestling with the soil while the great Lincoln guided the ship of state through the troubleous times of the Civil War.

Every object in nature, whether animal, plant or human, passes through a spindling, unlovely, uncertain period before it reaches the perfection of usefulness. The natal period of cultivation by power brought forth a fearsome menagerie of queer looking creatures, some almost as large as a bungalow and others constructed in designs so weird that their appearance would make the village toper think he was "seein' things again."

Most of these earlier contraptions soon drove themselves to the junk heap by reason of their weight and limitations, but to them belongs the honor of siring the later types which have gradually become so perfected as to be a necessity to the modern farmer.

In the middle of the nineteenth century the internal combustion engine was as effectually concealed in the mysterious future as the wireless and the aeroplane. The motive power of the day was steam and the designers of the early types of machines were forced to concentrate much of their effort upon devising steam power plants light enough to be feasible for purposes of cultivation.

The efforts of this period fall into two general groups, known as the direct and the roundabout methods of power cultivation. The latter was extensively used in England and consisted of drawing the implements back and forth across the field by means of a cable attached to the drum of a stationary engine, or pair of engines as the case might be.

In some instances the cable was a half mile long, being drawn by engines placed at opposite ends of the field and moved as the work demanded. By using a system of pulley sheaves and alternate drums a one-engine plant could be installed in such manner as to drag the plow or implement about the entire circumference of the field. Before this operation could be repeated it was necessary of course to readjust the pulley sheaves for the next furrow, an operation requiring quite a little time and capable of causing great danger if improperly attended to.

The indirect method called for a staff of engineers and helpers that would have bankrupted the most prosperous establishment. The workers needed were a chief engineer, second engineer, plowman, assistant plowman and two boys. Fifteen hundred-weight of coal, on the average, was consumed by one of these plants in plowing ten acres, the expense and complication causing this method of procedure to fall into early discard with the exception of a few isolated instances.

Turning to what was known as the direct method we come to a closer forefather of the tractor in that this type of plant actually proceeded across the ground to be tilled by means of its own power. The first of these to attract widespread attention was the Fawkes' steam plow which made it debut in 1858 at the Illinois state fair, held in Centralia. This monster unit weighed ten tons and covered a space 18 by 8 feet. On this platform was mounted a boiler six and one-half feet high containing 220 one and one-half inch tubes. The steam was shot into a pair of nine-inch cylinders, the power being transmitted from the pistons to a driving drum which took the place of wheels. The boiler of the Fawkes' invention held 12 barrels of water and required refilling every three hours, a tedious and toilsome operation. Four thousand dollars was the price which Mr. Fawkes set upon his machine and he received an award of three thousand dollars from the Illinois State Agricultural Society for producing the first feasible power plowing apparatus. The huge proportions and weight of this pioneer brought it into early disrepute since it was well night immovable once it ventured upon soil a trifle too soft to support its ten tons.

Two other inventions which clamored for public approval about this time were the Wilkins' steam plow and the A. J. Stevens' steam cultivator. The former was equipped with a murderous looking drive wheel fitted with curved spike teeth. The Stevens was propelled in much the same manner, an elaborate and complicated system of gears carrying the power to the drive wheel. Contemporary to these we must mention A. L. Taveau's steam plow, a creation reminding one of a circus calliope and getting traction from a pair of drive wheels designed to "bite" the ground.

Perhaps the most novel of the bunch was the "Townley and Friedrich's." This queer monster forged ahead by use of a series of gear driven "feet" which exerted a downward and backward pressure on the same principle as the mechanism of walking dolls. The body of the machine was suspended on broad rollers, the whole ambling forward as one set of feet pressed down against the ground while an alternate group were pulled up preparatory to the next "step."

It is interesting to note that a steam machine invented in 1870 by Thomas H. Minnis embodied the endless track principle which is now so popular and which made the "tanks" so effective. In the Minnis machine power was furnished by a 15 horsepower engine driving, by means of chains, an elliptic track gliding over rollers. These tracks could be operated both forward and backward and also singly when the occasion demanded.

Steam tractioneering is said to have reached its peak in 1871, when some 13 arrangements were patented. Several of these were as amusing as a Keystone comedy, one making use of a set of imitation legs provided with blocks shaped like horsehoofs.

Weight, crudity and the difficulty of transporting sufficient water to the scene of action when the boiler ran dry caused these early types to fall into disfavor. While some engineers pursued their investigations undaunted many turned to other lines of endeavor, convinced that "mechanical horses" were impossible because of the great weight of the steam power plant.

The gas propelled tractor seems to have duplicated the experiences of Topsy; it "just growed," hurrying along in the wake of the tremendous progress made by the automobile. The first gas engine tractor was placed on the market in 1893, but was less successful than the steam tractor because of the crudity of the gasoline engine at that time. Most authorities agree that the first really practical gas tractor was produced in 1903.

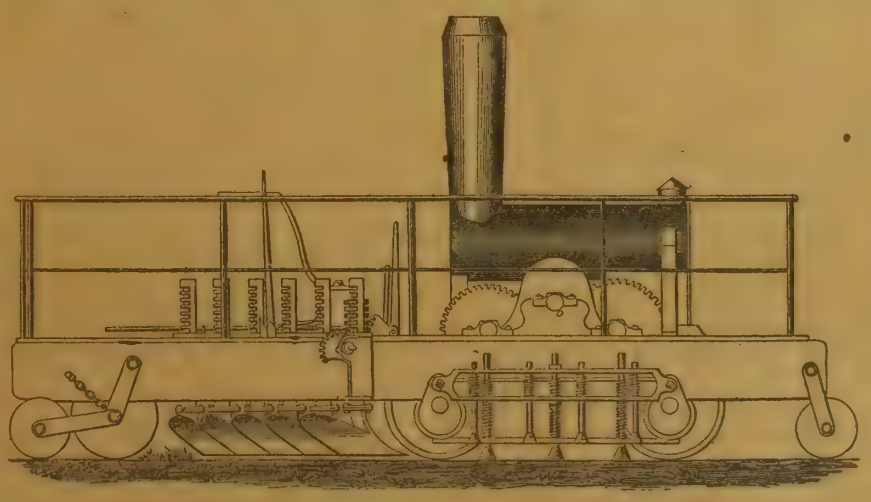
Ever since that time the tractor has offered advantages induplicable by the horse but farmers, ranchers, experts and all concerned seem to have exercised a goodly amount of old fashioned Yankee caution regarding the perfected machine. As late as 1916 the year book of the Department of Agriculture made the following statement: "The position of horses on the farm is being contested by the small tractor and the tractor manufacturers believe that in time they will displace them. * * * This question can be answered only by speculation."

Today it can be stated without speculation that every up-to-date agriculturist in the United States is operating one or more tractors, that many scores of makes are upon the market, that the deliveries each month run up into the thousands, that the tractor has been found an interest bearing investment—in short that the idea born in the minds of Fawkes and others over 60 years ago and expressed in the lumbering models of that day has caught the stride of the times and come into its own.



Sleds In Loads of Wood

Pulling the old "stoneboat" loaded down with green wood is slight work for the tractor. This scene is on the place of C. C. Chapman in Orange County where Mr. Chapman is taking out walnut trees in order to make room for more Valencias.



The Tractor of Yesterday

Today we have our big wheelers, sieve grips, various track layers, among which is the Caterpillar. In the beginnings of steam plows they tried another type of traction. The above is an illustration taken from the Yearbook of 1865 of the Townley & Friedrich Steam Plow, patented April 27, 1869. Description is given in text herewith, but be sure and note the manner of propulsion. Moderns would probably call this the "Centipede" for it is propelled by a series of "spring feet" operated by eccentrics which would give a genuine walking motion.

THE TRACTOR

I sprang from the soil that I till.

I am fashioned from the elements—sired by the roaring furnace and the crucible.

When the gears mesh deep down in my vitals I throb with the strength of Titan and the courage of the ages.

With fuel and oil in my great belly and the hand of a man at my helm hell itself is but a cardboard barrier.

I am the equal of a dozen horses.

I know not fatigue while my great joints are oiled and my tank filled.

But I must have a considerate master. I will disappoint the boor who insults me with ill care and abuse.

I delve deep into the earth, toiling overtime that my master may have money for Uncle Sam's bonds and stamps.

I come of a fighting family.

The tanks are my cousins. They turned the tide of battle back toward Berlin when the Huns were nearing Paris.

Man is barely beginning to realize my usefulness.

Ripping and smoothing the soil is but one of my accomplishments.

I delight in giving power for odd jobs about the farm.

I haul heavy loads to market without rest or whimper.

The joy of achievement is mine.

I am athrill with energy from radiator to tail-bolt.

Where there is hard work to do you will find me.

I am the tractor.

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, May 3, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The poster of the California Tractor and Implement Association has place of honor on the cover of this issue. The tractor and truck people are giving the appearance of a great gala day or, rather, seven days, to the great demonstration which will be held all of next week in or very near the city of Sacramento. We say they are giving the appearance of a gala week to this great event, but in reality it is the greatest business event of the year for these dealers.

The tractor school brings out the educational side and business is strictly taboo, but demonstration is made of every phase of the tractor industry, and every moment of the time from start to finish will be given up to tests of the power of the tractor to do any kind of work which the prospective customer asks to have done, and the proposition is that it will do it so well that a sale is bound to result. In any case, hundreds of tractors are sold at these demonstrations.

MORE ROADS

There was never a period when there was such general interest in highway construction as during the past few months. The post office appropriation bill calls for the expenditure of $209,000,000 in the extension of post roads, and it is estimated that during the coming year there will be approximately a half billion dollars spent from federal, state and local funds in giving employment and in improving our highway system. No state is planning for a greater campaign than is California.

BY THE TRACTOR FOLKS

The Cultivator has much pride in the great amount of space giving tractor information in this issue. Power farming never advanced with such strides as within the past few months, but as great as has been that advancement the coming 12 months will show vastly greater advancement. And in the matter of education of the producer as to the economy and efficiency of power farming, we are glad indeed to give place this week to statements by several of California's tractor handlers. Some of the talks are most informal and have a "just amongst ourselves" flavor; others have taken the farmers into their confidence and give practical workaday suggestions. We believe that we are justified in saying that no similar amount of information has been gathered in this field.

RECLAMATION SOLVED

One of the most important measures that has ever passed the California state legislature is the Purkitt bill which carried in the assembly by a majority of 55 to one and in the senate by a majority of 31 to five.

This bill calls for the expenditure by the state of $3,000,000 for the completion of the by-pass system which provides for the complete control of the flood waters of the Sacramento River.

Over 50 millions has already been spent by the farmers along the river. The passage of this bill is the result of an understanding among all of those interested in agricultural development in 14 of the 52 counties of California. There has been more or less discussion and dissension among the various districts involved, with prospects of litigation and the lack of progress and development that would result from this.

The legislature of California has proven by the almost unanimous passage of this bill that it is anxious to do everything possible to bring about the rapid and permanent development of this rich area. All that the Purkitt bill requires now is the signature of Governor Stephens. The increased revenue that will come to the state because of Sacramento River lands—which will now be provided for—will be enormous.

CONSTRUCTIVE OR NOT?

The Pendergast bill creating a new department of agriculture in which no fewer than twelve separate departments are consolidated was passed by the legislature and the bill now awaits the signature of Governor Stephens to become a fact. As stated, 12 existing departments are combined in one consisting of two branches, namely, a bureau of animal industry, and a bureau of plant industry.

The bill provides that the new department will be under a commissioner of agriculture who is to be appointed by the governor. Fundamentally, the plan is sound and is to be commended, provided that the governor recognizes the opportunity and responsibility resting in his hands to do the agricultural interests of California a real bit of constructive service. The new law may be constructive or destructive to agricultural interests—it all depends on the kind of man appointed.

BUY A "VICTORY"

A year ago today we were reading: "Hun's gun throws shell into Paris;" "Germans smash Allied lines near Hangaard and Somme;" "British and French clinging desperately to lines in Picardy;" "Small units of American overseas army training in quiet sectors."

Twelve months have made wonderful changes and the hearts of Americans are not sinking as they were a year ago. The best of it is we are thankful enough to put a litle more into Victory Bonds which will help pay for the victory won.

THE GRANGE

The National Grange Patrons of Husbandry has decided to make itself more of a factor in national life than it has ever been. This organization, in existence for more than 53 years, has been a power in bettering the condition of the farmer. Almost every state of the Union is represented in its membership. It refuses to allow partisanship to enter its discussions, but it now proposes to be more of a force in national affairs. To that end it has established in Washington permanent headquarters which will be used for the purpose of "inaugurating a practical, if not radical, legislative program". It is asking congress for legislation which will be of benefit to all the farmers of the country. Thomas C. Atkeson, master of the West Virginia State Grange, is in charge of the office.

One of its sincere friends gives the following tribute: "Founded in the first place upon broad ethical principles, standing always for man's best nature, emphasizing the importance of morality, education, kindness to others, it has come down unscathed to the present generation, although at times threatened to be wrecked on the shoals of selfishness of some of its members. It has lived through the dreaded 'boom period', that infantile disease likely to attack all new organizations, has survived the second summer of reaction after the boom, and today is in a remarkably healthy condition both as to membership and finances. That it is by no means full grown is testified by the enormous increase in number of Granges and in membership during the last five years. That the next five years will see even larger growth is the confident expectation of those who are best informed as to the merit of the cause which the Grange espouses."

DRYING WINE GRAPES

The state board of viticultural commissioners is issuing a statement as to the outlook for wine grapes. The commission states that while it is yet somewhat uncertain as to where the industry will be after July 1, they deem it wise to suggest to the growers that, excepting for the small quantity of grapes which may be used in the manufacture of pasteurized grape juice and grape syrup—and both of these the commission thinks of little importance to the industry—the bulk of the grapes be dried in the hope of development of export or other trade for them. The commission advises that it has made investigations and is prepared to give information to growers as to the manufacture of grape juice and grape syrup. The commission reports that several sales have been made of the dried wine grapes at six and a half cents a pound.

TRACTORS IN CALIFORNIA

Answering our request for information as to the number of tractors in California, Prof. J. B. Davidson of the University of California writes:

"In 1917 the state council of defense made a survey of the state, securing from the manufacturers a list of all sales. At that time they determined there were a few less than 4000 tractors in the state. It has been estimated by securing data from the manufacturers that 800 were sold during the last six months of 1917 and 2000 during the year 1918. This would make a total at the close of the year of 6800 tractors."

THE FARM PICNIC

Almost everybody went to the farm picnic at Davis last Saturday. At least it seems so from the photo of the autos parked in the usual green in front of the dormitories. The Cultivator was there with its camera, but this issue is given so largely to the tractor and the truck and power farming that the account of the picnic is deferred until next week.

CHINESE EGGS

New York had her experience with Chinese eggs this year. Eight thousand miles from the hen to the kitchen is certainly long distance shipping and with the facts that these eggs are much smaller than the American produced eggs, the whites weak and watery and candling shows material shrinkage and drying out, it is to be wondered at that they will stand this long and expensive shipment. However, once candled, it is stated that they are sold only about three cents below "Firsts" in New York City. Practically all are bought by hotels and bakeries.

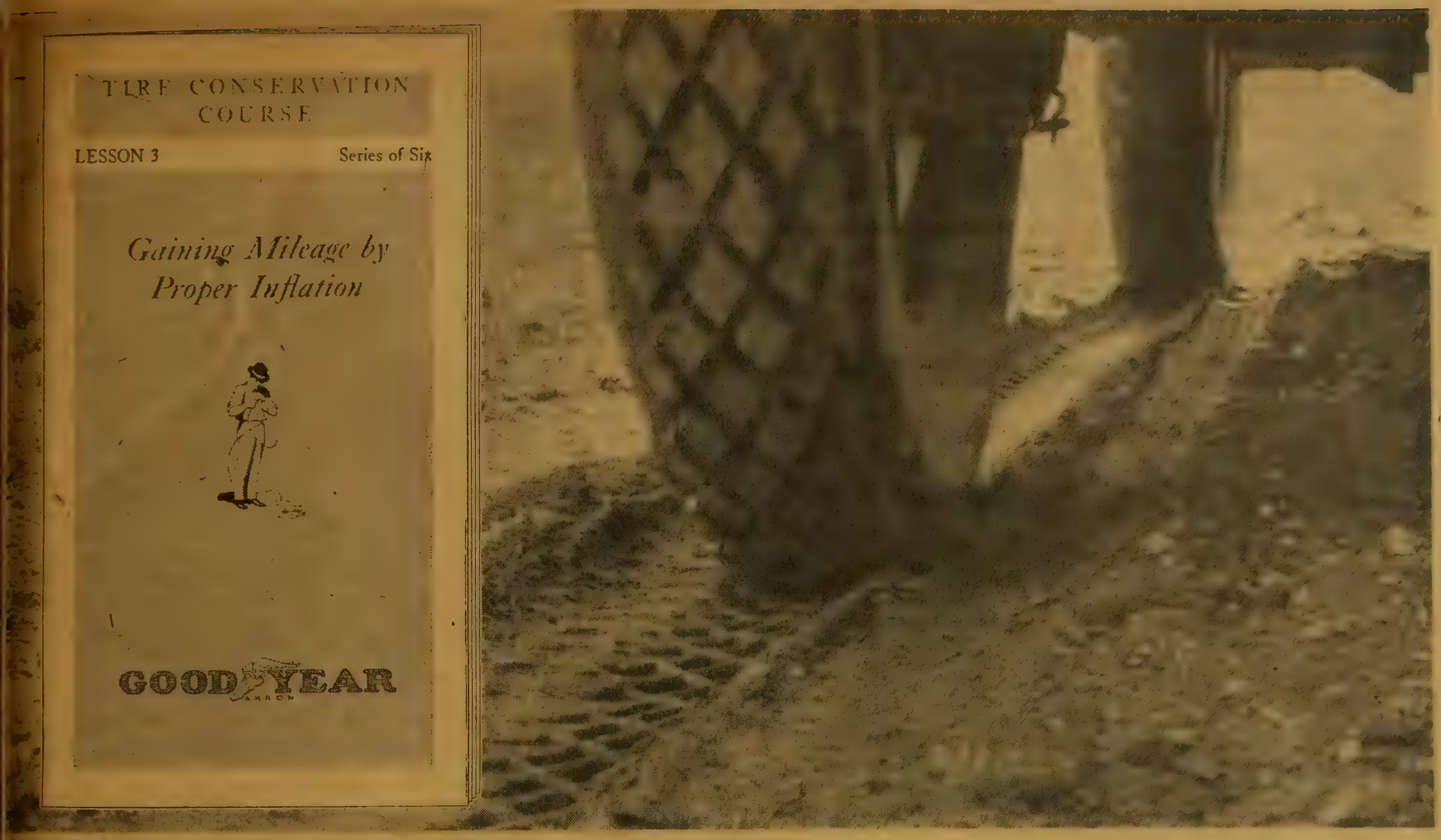
THE LEAGUE OF NATIONS

The constitution or, rather, "covenant," of the League of Nations has been approved by the members of the congress. The articles of the covenant specifically refer to the Monroe Doctrine with, "Nothing in this covenant shall be deemed to affect the validity of international engagements like the Monroe Doctrine for securing the maintenance of peace." This covenant is not entirely acceptable to any one of the nations, yet has been accepted by all who are participating in the congress as the best which may be secured at this time. It is now thought that with the amendments it will be ratified by the senate of the United States.

CROP REPORT

It appears that California will have one of its biggest and best fruit crops in years. More correctly, we should say the blossoms and present conditions promise this. There are still months of varying weather conditions to be considered. The fruit growers, however, are anticipating excellent prices, and presumably the best of care will be given to fortify the trees against any unfortunate weather or other conditions.

Cultivator letters have brought from almost every part of the state information as to present conditions. It will be noted that these show great diversity. Some exceptional sections show as low as 20 per cent of normal crop; others, 120, but altogether the promise is great. This, combined with marketing conditions which will probably prevail means great return to California fruit growers. We say "conditions which will prevail" for papers in many sections of the state chronicle contracts made at blossoming time for prices which should prove exceptionally satisfactory to the growers.



Gaining 6,300 Miles by Proper Inflation

LONG before they had delivered the mileages everyone expects from Goodyears, two tires on a heavy eight-cylinder car blew out. The car-owner, Mr. Ralph Booth, took them to a Goodyear Service Station near his office, on West 27th Street, New York. The Service Station Dealer examined them, asked Mr. Booth to what pressures they had been inflated, and then proved that according to the inflation charts the tires should have carried at least fifteen pounds more air. Mr. Booth wasn't quite convinced, but he put on two new Goodyears and kept them properly inflated. These tires have already given 6,300 MORE miles than the under-inflated ones and look good for as many more. Ask your Goodyear Service Station, or write to Akron, for Lesson 3 of the Goodyear Conservation Course—telling how to gain mileage by proper inflation.

UNDERINFLATION shortens by thousands of miles the life of the best of tires.

Without proper air support the tire walls have to bend and flex sharply and constantly.

The extreme bending and flexing of side-walls without sufficient air-support generates excessive heat at the flexing points.

This heat acts on the rubber in and between the plies, making it lifeless and brittle.

The plies separate on the shoulder of the tire, and from chafing against each other soon lose their strength.

Then the inner plies, which are most quickly affected, are fractured—the tube is pinched between the rough edges of the break, and a blow-out follows.

◇ ◇ ◇

IN certain cases, however, where the damage is not too great and the weakened fabric carcass has not actually broken, Goodyear Service Station Dealers find that by applying a Goodyear Reliner the tire can be made to deliver a thousand and more additional miles.

But consistent attention to proper inflation would save many thousands—at no expense whatever.

Find out just what pressures your tires should carry by asking your Goodyear Service Station—or by sending to Akron—for Lesson 3 of the Goodyear Conservation Course.

The Goodyear Tire & Rubber Co.,
Akron, Ohio.

GOODYEAR
AKRON
TIRE SAVERS



A Tire With Fabric Fractures, Due to Under-Inflation

Ask your Goodyear Service Station, or us, for Lesson 3 of the Goodyear Conservation Course—dealing with Tire Inflation



Goodyear Reliner and Goodyear Patching Cement for Restoring Tires Weakened by Being Under-Inflated

WATCH

International

TRACTORS

Work at the Tractor Demonstration

Sacramento

May 6, 7, 8, 9, 10 and 11



8-16 International Tractor

Hundreds of International Tractors are in service in California. They are built in three sizes, 8-16, 10-20 and 15-30 --- a size to meet practically all requirements.

Write for Catalog

International Harvester Company of America

201 Potrero Ave.
SAN FRANCISCO

831 So. Alameda St.
LOS ANGELES, CAL.



"Watch the Bean"

At Sacramento, May 6-11

Bean Tractor turns inside a 10-ft. circle—pulls its load around the turns just as strong as on the straight away — makes no difference how far off center you hitch.

You steer with the track just as you steer a team — "geeing" and "hawing" in any direction. Ask any of our representatives at the Sacramento Demonstration to demonstrate these features and many others. Catalog 32-B sent on request.

INVEST!

Bean TrackPULL Tractor

Bean Spray Pump Co.

San Jose, Cal.



$35 to $165

2 and 4-wheeled
AUTO WRECKERS
1450 Central Ave, Los Angeles

Kill All Flies! THEY SPREAD DISEASE

Placed anywhere, DAISY FLY KILLER attracts and kills all flies. Neat, clean, ornamental, convenient and cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed.



DAISY FLY KILLER at your dealer or 5 by EXPRESS, prepaid, $1.25.
HAROLD SOMERS, 150 De Kalb Ave., Brooklyn, N. Y.

The Tractor Demonstration

IT would be quite impossible for one to visit Arden Acres, the 650 acre tract adjacent to Sacramento, where the second annual tractor demonstration will be held May 6-11, without becoming greatly impressed and enthused by the magnitude of the effort that is being put forth to make this demonstration excel anything of its kind ever pulled off in the West.

Tractors have not arrived singly. They have arrived by the carload and the mechanics have worked like Trojans putting them together and giving them a try-out. The two big tents are up and the special exhibits are being installed just as rapidly as possible. By next Tuesday, the opening day, everything will be in readiness and there will be no waiting, no delay.

R. M. O'Neill, the manager, has had a corps of men busily engaged for the past month, laying out the extensive auto parking space, building eating houses, rest rooms, etc., preparatory to receiving the biggest crowd that has ever attended a demonstration in this part of the country. And that crowd will include everybody who is interested in tractors that can possibly make a get away. John H. Davis, plow expert for the Holt Manufacturing Company, inspected the field and pronounced it

A further educational feature of t demonstration will be the working a fully equipped machine shop whe one may see the actual boring and grinding of cylinders, and general pair work such as may be requir A Sacramento machine shop is be moved in its entirety to the groun for this educational feature.

A special feature will be the wo ing of Stone's rotary grain clean which is a marvel of power and e ciency. Its main features are vibr ing wires operating without wind, quiring no adjustments, cleaning a separating all kinds of garden see beans and grains. The entire six n chines that will be in operation different grains at the same time w be run by a five horse power mot cleaning one and one-half tons hour. Great interest is being taken this machine, which is being sho for the first time, and visitors fr all parts of the country will make t trip to witness its working.

The preparation for this demonst tion has been done in a very thorou and satisfactory manner. Nothing h been left to chance and everythi will be completely installed and rea for work when the show opens Tuesday morning.

This demonstration has attract



Site of the California Tractor Show

Surroundings of the city of Sacramento. Plat outlined by black square, w right side map above, indicates location of tractor demonstration ground. Headqu ters in the city of Sacramento will be at the Land Hotel on K Street. From headqu ters two heavy black lines show two separate routes to the demonstration grounds

absolutely fit for both machines and spectators. All of the roads leading to the grounds have been put in perfect condition by the supervisors. The hotels of Sacramento are making preparations to handle the visitors to the best of their ability, but the Chamber of Commerce is supplementing the work by obtaining a list of available rooms in private houses. There will be ample accommodations and no one need fear that he will not be able to secure a good place to sleep. Near Arden Acres is McKinley Park, where excellent camping grounds may be had free. There will be no charge for admission to the grounds and the auto parking space will also be free, with free attendance to insure the safety of the machines.

The main tractor program will begin at ten in the morning and last till noon. During that time all of the tractors will be seen on the big open field plowing, harrowing, checking, pulling tractor implements, drawing scrapers and performing a few extra hair raising stunts not on the calendar. This will be a practical demonstration of the value of the tractor in farm work and will show the capabilities of the various styles and sizes of machines.

During the afternoon there will be private demonstrations with the various machines and lectures in the tents. These lectures will form a most important part of the week and will be by men amply qualified to present their subjects in the most comprehensive manner. Professor H. P. Davidson of the University of California will talk on the special features of the tractor and its proper care and handling. Mr. Paul Melcher will discuss the subject of proper lubrication and Dr. Cocanneur will talk on soils and the better methods of farming.

almost world wide attention. T grams have been received from Netherlands, the Dutch East Ind and China. Consuls from these many other countries will attend, will also the chambers of comme from all the Coast cities, boards supervisors and other interested b ies.

The big tents will be crowded w all kinds of accessories, includ magnetos, carburetors, plows, b rows, oils, patent devices of all kin together with a complete line of m ern trucks.

There will be more than 50 dif ent types of tractors in operation a the demonstration can not fail arouse keen interest in more and b ter farming. As an educational f ture it will surpass anything of kind ever held on the Coast. Th who are fortunate enough to be a to attend will be more than paid the time and money spent, for it only at a demonstration that one c secure an impartial judgment u the fitness of any tractor to do on required work.

Special rates are being made on electric lines. Ample auto facilit are being provided for the transp tation of visitors from the city to grounds. The round trip will be cents. The roads are good and w be kept free from dust during the tire demonstration. Every possible fort has been made to insure the c fort of the visitors.

The California Tractor & Imp ment Association is conducting demonstration. Officers: W. H. Ga ner, Marysville, president; C. E. W erell, Stockton, vice-president; G. Walker, Stockton, secretary-treasu Active members of the associat are: Advance-Rumely Thresher C pany, Averill Machinery Compa

Avery Company, Brock & Skidmore, Butler-Veitch Company, Baker, Hamilton & Pacific Company, Bean Spray Pump Company, C. L. Best Gas Traction Company, Bear Tractor Company, Douglas Boswell, W. J. Burt Motor Company, California Tractor Company, California Tractor & Implement Company, J. I. Case Threshing Machine Company, H. V. Carter Motor Company, Dauch Manufacturing Company, De Laval Dairy Supply Company, Four Drive Tractor Company, Holt Manufacturing Company, A. J. Hamilton, Wm. L. Hughson Company, Hunt Tractor Company, International Harvester Company, John Deere Plow Company, Killefer Manufacturing Company, H. G. Knapp & Son, Knight Lee, Maguire & Haddock, Monarch Tractor Sales Company, Oliver Chilled Plow Works, Pacific Coast Tractor Company, Pacific Implement Company, Pacific Whitney Tractor Company, Pioneer Motor Company, Spalding-Robbins Disc Plow Company, H. C. Shaw Company, Schmeiser Manufacturing Company, Samson Sieve-Grip Tractor Company, Union Tractor Company, Yuba Manufacturing Company.

NATIONAL QUARANTINE

The department of agriculture announces the effective date of the quarantine as June 1, 1919. This quarantine will mark the operation of new and strict regulations governing the importation into the United States of plants and plant products. The quarantine order has been promulgated by the secretary of agriculture to check so far as possible the introduction of more dangerous crop enemies. Experts of the department of agriculture estimate that the losses caused by the pests already introduced, for the most part through the agency of imported plants, aggregate half a billion dollars annually.

Important provisions of the new quarantine are as follows:

Requires permits and compliance with regulations for importation of lily bulbs, lily of the valley, narcissus, hyacinths, tulips, and crocus; stocks, cuttings, scions, and buds of fruits for propagation; rose stocks for propagation, including Manetti, Multiflora, Brier Rose, and Rosa Rugosa; nuts, including palm seeds, for propagation; seeds of fruit, forest, ornamental and shade trees, seeds of deciduous and evergreen ornamental shrubs, and seeds of hardy perennial plants.

Leaves unrestricted, except in special cases, importations of fruits, vegetables, cereals, and other plant products imported for medicinal, food or manufacturing purposes; and field, vegetable, and flower seeds.

Excludes all other classes of plants for propagation, including fruit trees, grapevines, bush fruits, grafted and budded roses, forest, ornamental and deciduous trees, ornamental and deciduous shrubs, pine trees of all kinds, broad leaved evergreens (such as azaleas and rhododendrons), and a long list of plant material commonly known as florists' stock.

Excluded plants may still be imported through the agency of the department of agriculture in limited quantities to supply the country with novelties and necessary propagating stock, such entry being safeguarded by the highly developed inspection and quarantine service which has been organized by the department.

Quarantine No. 37 represents years of careful consideration given to the subject by the experts of the department of agriculture and of the several states and of the interests concerned, followed by a public hearing, and subsequent further investigation and consultation with the principal nurserymen and florists of this country. The quarantine, therefore, embodies the best judgment of the plant experts of the department, and of the several states, concurred in by most of the interests engaged in actual plant production. It voices the belief that the policy of practical exclusion of all stock not absolutely essential to the horticultural, floricultural and forestry needs of the United States is the only one that will give adequate protection against additional introductions of dangerous plant diseases and insects.

The Eldorado farm bureau has a grazing association as one branch of its activities. Members have been conferring with the forest supervisor with a view to cooperation in the coming grazing season

Care and Operation of Tractors

By W. H. Gardner

THE successful outcome of an investment in anything that has to work depends upon the four following factors: Construction of machine both from a standpoint of parts and of the machine as a whole; adaptability of machine to perform tasks required of it; method of operation; care taken of the machine.

The first of these points must be very carefully considered at the time the machine is purchased. The farmer who is in the market for a traction engine should avail himself of all the information that it is possible for him to obtain. He should visit farms that are using tractors, talk to the owners, write manufacturers for catalogues and descriptions of their product. He should read in the different journals all that he can find relative to the virtues of the tractor in general in the field and on the farm. In other words he should study the tractor proposition most thoroughly, looking at the question from all the possible points of view before finally signing a contract of sale.

Of course, it is not possible for one to become thoroughly acquainted with any article purely from what information is at hand, but he can get a good survey that will enable him to decide which type is the better for his particular set of conditions and which will fit his pocketbook the best.

Do not stop at this general and superficial study, but if possible visit the factory or at least one of the dealers where a machine can be examined. Look at the material used, look at the general workmanship, examine the appearance of the machine from a short distance. Is it neat in appearance? Is the general appearance pleasing? Has the designer tried to conserve space? Are the proportions consistent? Is the weight well distributed? Is a good quality of paint used in finishing? Is the paint daubed on or is it skillfully placed? It must not be construed that the outward appearance has anything to do with the operation of the machine, but just the same slovenliness in any one part of the machine is very likely to be reflected many places where it is not easily seen. If a cheap grade of paint is used it is not unreasonable to suspect that a cheap grade of steel is also used or that the oil in the crank case is cheap and poor, etc. If the general appearance is not pleasing it means that the space has not been properly conserved, and this poor proportioning may well extend to the gears in the transmission case or to the bearings in the crank case.

Then, before making your purchase, sit down with paper and pencil, tabulate the different duties that you are going to expect the tractor to perform. For example:

Forty acres to be plowed, double disked, drilled to grain and harvested each year on your own home place.

One hundred acres of plowing to be done on contract for neighboring farmers, most of which will be summer fallow.

Two weeks hauling by contract from the field to granaries.

Ten cords of wood to be sawed per year, etc.

Submit your figures to the manufacturers who have experts that can tell you what size and model of their tractor should be used, price, date of delivery, etc. Don't try to make a trac-

Ditching-Draining Grading

Farmers who want to make money and save labor write for our illustrated folder on Austin Farm Ditcher.

THE AUSTIN

Costs Little Does Much

Cuts V-shaped ditch to depth of 4 feet, grades roads, builds terraces or levees. Reversible blade—of all steel construction—the supreme tool for digging draining ditches. Made by firm 40 years the leaders in earth working machinery

Write today for free literature.

F. C. Austin Co. Inc.
Dept. K
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Chicago, U. S. A.



Headquarters for IRRIGATION Supplies
Pumps, Engines, Sprayers, Hoists Etc.
Catalog FREE on Request
Smith-Booth-Usher Co.
Los Angeles

California Cultivator
Costs Only $1.00 Yearly

See the Famous Forkner Cultivator



in action at the Tractor and Implement Demonstration Sacramento, May 6-11, 1919

The remarkable results secured by this cultivator in California are the talk of the entire state.

In preparing seed beds for crops of grain grown under the soil bacteria system or for seed beds in general, it is unequalled, the spring tension teeth cultivating the soil to an even depth and leaving the coarse soil on top and the fine dirt in the root bed. In killing and removing Johnson Grass, Bermuda, tule roots and other pest growths, it is a source of constant wonder. In cultivating alfalfa, orchards and vineyards, it is ideal. In summer fallow work, it makes a perfect mulch and leaves the soil in exactly the proper condition for absorbing rainfall.

It is made unusually strong for tractor work, at the same time being of unusually light draft with a greater cultivating capacity than any other similar implement. A 75 H. P. Tractor will easily pull 45 feet.

It comes in a size and style for every purpose and to meet all conditions of all kinds of soil.

See it at the Demonstration. It will prove a big money-maker for you. Descriptive catalogue sent on request.

A Full Line of P. & O. Tractor Plows, Harrows, etc., Will Also Be Demonstrated

Baker, Hamilton & Pacific Co.

San Francisco, Cal.

Distributors for Superior California.

tor that is suited to a ten acre farm handle 100 acres. Don't try to drive a pump that requires 30 horse power with a tractor that has a belt horse power of 15. Don't get a machine that will not go under your trees nor that will not turn around at the end of the furrow. Don't get a tractor that travels too fast to do good work, nor yet one that will not have at least one good traveling speed when it is necessary to go any distance light.



W. H. Gardner

Assuming now that you have made your purchase and that the tractor is on the place ready to go to work: Remember that you have a piece of machinery representing a pretty fair investment and a servant that you are going to learn to lean on more and more as time goes on, one that has no come back when ill treated other than to refuse to properly perform its functions. Don't lose sight of the old adage, "A stitch in time saves nine," and above all remember that a machine has no power within itself to remedy wear or strain. Don't leave a squeak nor a knock to take care of itself, because it will not do it.

A man that operates any kind of a machine should feel for that machine a sort of pain every time it shows signs of weakness. He should instinctively feel refusals to work, and every quiver of its frame, every noise of its moving parts, every movement of its gears, wheels, or shafting should mean to him that it is either normal or not. The exhaust of the motor, the ease with which it takes its load, its response to sudden loads and grades, its knocks, it grindings, its heating, in fact its every peculiarity must be known to the operator if he is to get all the work out of it that he should. The natural noise made by the machine should be music in his ear just as the noises made by children are music to the ears of their parents, and just as a whine on the part of the child, or perhaps a sneeze, will inject discord into the music of natural joyful play, so should a slight squeak or knock inject discord into the music of the tractor's noise.

There is only one way for the operator to acquire the faculty of knowing these irregularities or discords, and that is through the avenue of study. Study your tractor; know its every part; study the catalogs furnished you; study the instructions and then study the tractor under actual operation. In other words, know your tractor; know its construction; know its materials; know its possibilities; know its requirements; know its peculiarities; and then get acquainted with your engineer.

If you are not going to operate the machine yourself, know the man that is going to, and know that he knows the machine. The more that you know and the more that he knows the better you will be off. Don't turn over such a faithful servant as a traction engine to a man that you would not trust with your finest horse or automobile. Take this man over the tractor; be sure that he knows what should be expected of it, where it can go, how fast it is supposed to travel, and then impress upon him the importance of not overloading, easing onto your load, never jerking, and taking care of breaks and indications of breaks right now.

The following are a few don'ts.

Don't overload.

Don't run too fast.

Don't adjust your implement to the easiest part of the field and then expect the tractor to handle it when the tough spots are encountered.

Don't jerk, nor buck your load.

Don't add patent ingredients to the oils or greases unadvisedly.

Don't try to stop leaks in the water circulating system by the use of dopes in the water. "Whatever will stop a leak will stop a flue" holds here just about as well as it does with steam boilers.

Don't try to economize by using cheap grades of oils. You will find that oil is cheaper than steel any time.

When you have found an oil that is satisfactory stay with it unless it can be definitely shown that another is superior, that is, it will allow the engine to run with less effort and with less wear, but don't change "because it is cheaper".

Don't tinker with the magneto, carburetor, nor any of the delicate parts. If they don't work properly, either get an expert on the job or else go at the trouble scientifically.

Don't neglect evident repairs, though they may seem trivial.

Don't let knocks in the crank case go without investigation.

Don't work with poor tools. Get a set of good substantial tools fitted particularly to the tractor and machinery used.

Don't neglect the tools. Keep them in a good safe place where they can be gotten hold of simply and keep them in good shape so that when you do want to use them they will do the work required of them to the very best efficiency and with the least possible loss of time.

Don't fail to keep the crank case properly filled with lubricating oil.

Don't fail to provide a shelter for the tractor. It will pay you.

Don't be in too big a hurry to call the factory for help. Learn to be as independent as you can as soon as you can.

TRACTOR DEMONSTRATION NOTES

Moline-Universal Tractor

"Every Moline must give satisfactory service," is the demand of the makers. There are 23 Moline factory branches in the United States, and every one is founded on a system of "service." "If any Moline-Universal is not giving satisfactory service, we wish to know immediately."

Avery Tractor

The Avery is made in eight sizes, and the Avery people are spending thousands in demonstrating the power of these machines and their ability to produce more cheaply. Bartholomew and Poss will both be there.

Indiana Tractor

The Indiana tractor made by the Indiana Tractor Company of Anderson Indiana, well known for silo building is represented in California by the Indiana Tractor Company of California Los Angeles. This tractor is the two wheel type and weighs only 175 pounds. The operator handles both tractor and implements from seat.

The Yuba Ball Tread Tractor

"The Yuba is as free from wear and trouble as human ingenuity can today devise." "Let oil and distillate raise your crops" is a suggestion which will be made by the Yuba Manufacturing people to thousands who will see their dependable tractor work.

The Caterpillar

"Caterpillar" hardly carries the idea of enormous power until one has seen the "45" or "75" pulling a great gang of plows across the field. The Holt people motorized artillery to help win the war; they are motorizing plows and all kinds of soil preparing implements and making more effective farming operations.

The "Little Bear" Tractor

The busy little dirt disturber bearing the California emblem is a California product built especially for orchard work and general California conditions. It has demonstrated its ability satisfactorily in conditions that confront all tractors. Manufactured by Los Angeles Auto Tractor Company, Los Angeles.

Cleveland Tractor

One of the interesting and instructive features of the demonstration and one that has always attracted buying spectators at all former demonstrations, will be the performance of the Cleveland Tractor pulling all sorts of farm implements without straining the sturdy little tracklayer. Smith Bros. of Los Angeles are distributors.

Heavy Tractor Implements

The Killefer Company of Los Angeles will display a line of heavy duty

The "LITTLE BEAR" TRACTOR

Specially Adapted to Orchard Work

Built in Los Angeles



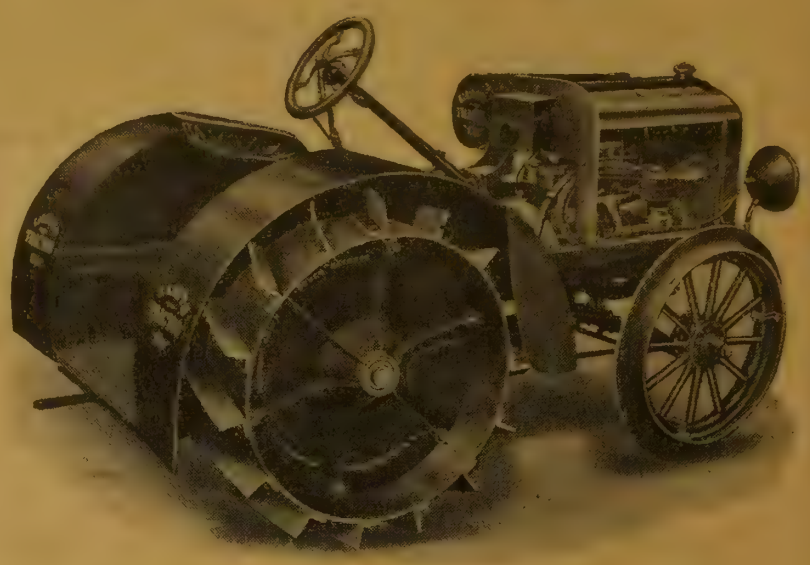
THE "LITTLE BEAR"

Four Horse at the Draw Bar, Forty-four (44) Inch Track, Fifty (50) Inches High, over all. Turns in a Ten (10) Foot Radius. Weighs only 1600 Pounds.

All Gears enclosed and kept dust-proof by a new device used on no other Tractor.

Roller Pinion: The Spool is cut and machined from steel bar—the rollers and pins hardened.

Dust Filter is furnished to clean the air entering the carburetor, keeping the cylinders and pistons free from grit and dust.





THE "LITTLE BEAR"

Fenders are provided to protect low lying limbs and fruit in the orchard. A wide platform and special hitch with swinging draw-bar for close-up work around trees.

Ford Motor and Ford Transmission used, which means you can get FORD parts for repairs. Time and money saved by this feature alone. FORD parts are cheap in price, high in quality and obtainable anywhere and everywhere.

Perfected Cooling System.

Special Radiator.

READ WHAT THE FRUIT GROWERS SUPPLY CO. SAY ABOUT THE "LITTLE BEAR":

Office of Secretary.

To All Exchanges, Associations, and Special Contract Shippers, Members of the Fruit Growers Supply Co., Los Angeles, Cal., April 1st, 1919.

Gentlemen: We have just entered into an arrangement with the L. A. Auto Tractor Co., who are manufacturers of the "Little Bear" Tractor.

We believe that the "Little Bear" is one of the best little tractors of its type on the market at this time, especially adapted for orchard work. If any of your members should be interested in this tractor, we will be pleased to have them make inquiry as to price and demonstration and further information that may be desired; or same can be secured direct from the L. A. Auto Tractor Co., at 52nd and Santa Fe Ave., this city.

Yours Very Truly,
FRUIT GROWERS SUPPLY CO.,
By E. P. Jochimsen.

L. A. AUTO TRACTOR COMPANY, INC.

52nd Street and Santa Fe Ave., Los Angeles, Cal. **Telephone 29347**

implements at the demonstration with a generous corps of service men. Among these are subsoilers and chisels built for the big 75's to handle.

Oliver

"Oliver"—and you think of plows. Oliver plows have been used at every demonstration where dependable implements were desired to test out the power of tractors. The Oliver will be at Sacramento.

Waterloo Boy Tractors

The John Deere Plow Company will not only have a full line of John Deere plows, but in Tent No. 11 on Demonstration Field will give information and arrange to demonstrate with Waterloo Boy Tractors.

Tractor Implements

The L. M. Davenport Company of Los Angeles, which has for many years manufactured a line of deep tillage tools, tractor implements made especially for California conditions, hay balers and hay tools, has been sold to E. N. Warr, former manager, and R. M. Davenport, son of L. M. Davenport. The new firm will be known as the Davenport Implement Company.

Menominee Truck

Tractors produce cheaper; trucks aid in marketing cheaper. The Menominee Truck has high recommendations for efficiency and dependability.

La Crosse Tractor

The La Crosse will be at the demonstration under the management of the California Tractor and Implement Company of Sacramento. It is also handled by Knapp Tractor and Machinery Company, Los Angeles.

Russell Tractor

The A. H. Averill Machinery Company of San Jose will come across with two sizes of tractors and Russell machinery.

Knapp Tractor Disk Plows

A real power lift—just a slight pull at the rope and up comes the plow. A good tractor deserves a good plow. See it operate.

Bacteria

Western Soil Bacteria may not have great draw-bar pull but it sure has pull with leguminous plants. The Westrobac people will be there with abundance of proof of this particular pull. They will not only display living plants of the legumes but ask visitors to observe wheat, barley, oats, etc.

Forkner Cultivators

The Baker, Hamilton and Pacific Company will give some thorough tests of the Forkner Cultivator. It is a magnificent implement for preparation of seed bed for grain or other field crops. The same people will also show full line P. & O. tractor plows and harrows.

The International Tractor

The International people will be at the demonstration with the 8-16 and other sizes. "A size to meet practically all requirements."

Bean TrackPULL

"Watch the Bean." Superfluous advice entirely, for we have seen at these demonstrations, intelligent inquirers watching and asking all kinds of questions as to the Bean.

Allwork Tractor

The Electric Wheel Company of Los Angeles is coming up with a powerful four-cylinder, a kerosene tractor, furnished to pull four plows.

Fageol Tractor

The Fageol people call their tractor the "walking tractor." It has 64 walking legs which secure its traction and at the same time aid in loosening soil. The Butler-Veitch people will walk it around.

Bates Steel Mule

One of the favorite orchard crawler type tractors, the Bates Steel Mule Model D, will again demonstrate to the interested throngs the power and efficiency that can be wrapped up in a compact frame of steel. This exhibit will be under the direction of the J. M. Conley Company, northern distributors, Stockton. F. T. Briles, Los Angeles, is southern distributor.



Show Me Facts!

BEFORE you buy *any* tractor you have every right to say to the manufacturer: "Show me what the USERS of your tractor have to say. *Show me* that it has already proved itself economical and practical in everyday work. *Show me* the *figures* your *users* have given you so that I may figure costs and so determine why I should own one of your tractors."

Here, then, is part of one of the large number of letters constantly received from farmers telling us what their *Cleveland Tractors* do for them.

To begin with, I used my Cleveland Tractor to plow about 305 acres during 1918 and used double discs, two 60 tooth harrows and a heavy wooden drag on one load for fitting.

When I plowed I covered from eight to ten acres a day with a two-bottom gang and covered about 40 acres a day with the harrows.

I harvested 150 acres of wheat and oats at 25 acres per day.

In July I used the Cleveland in loading hay, and got in the crop from 140 acres at the rate of about 35 tons a day.

Besides these things, I used my Cleveland for a great many belt jobs—put in 300 tons of ensilage in 32 hours, on 30 gallons of kerosene, for instance.

I now keep six horses, instead of the fourteen I had before and need two men less than previously.

My Cleveland is in excellent condition, ready for the 1919 season, and counting everything, I haven't spent over $10 for repairs.

F. H. JOHNSON,
New Augusta, Indiana.

Such specific, definite facts tell why the Cleveland is so fully justifying the faith that so many farmers have placed in this compact, powerful Tractor. Write *today* for complete infoumation and the name of your nearest Cleveland dealer.

The Cleveland Tractor Co.

19077 Euclid Ave. Cleveland, Ohio

The largest producers of track-laying tractors in the world

"The Cleveland is the ideal tractor for California conditions—see it in action at the Sacramento Demonstration."

Cleveland Tractor

Mr. C. E. Everett of North Cambridge St., Orange, Calif., writes under date of March 17th, 1919:

"My Cleveland Tractor, bought in June, 1918, has given me every satisfaction. In my opinion it is the only tractor on the market suitable for orchard work, being easily handled, gets closer to the trees, without injury, than with horses. So far my upkeep expense is negligible, while the cost of operation is surprisingly low."

Send for Name of Nearest Dealer

SMITH BROTHERS

DISTRIBUTORS

1626 So. Figueroa St. Los Angeles, Calif.





Power A Plenty

For All Kinds of Field and Belt Work

THE powerful 4-cylinder motor (5-in. bore and 6-in. stroke) built into the *Allwork* Kerosene Tractor is really the type of engine usually furnished to pull *4* plows. We simply claim that the *Allwork* will pull *3* plows through any kind or condition of soil. This means a sure surplus of power for all field and belt work at all times.

The *Allwork* is an all-the-year tractor, equally useful and economical Spring, Summer, Autumn and Winter. Absolutely

Guaranteed to Burn Kerosene Successfully

See the letter from an owner of an *Allwork* in panel at left. Then—*Write for 1919 Catalog.* Sent free for your name and address.

Wonderful Performance

"We plowed from 9 to 10 acres a day with our *Allwork*, burning only 20 gallons of kerosene. The best plowing engine we ever saw. After plowing 150 acres, harrowing, grinding, running ensilage cutter, etc., we inspected the gears and crank bearings and the wear could not be noticed at all."
Herzog Brothers, Atchison, Kan.

Electric Wheel Company
Story Bldg., Los Angeles, Calif.
Box 111 A Quincy, Ill.

Allwork
KEROSENE TRACTORS
BACKED BY 12 YEARS OF TRACTOR EXPERIENCE

Irrigate through this pipe—

Water the High Spots

You can't reach with an open ditch

Your ranch doesn't have to be level if you use Western Surface Pipe. You can carry your stream of water across depressions and onto the high ground you can't reach with an open ditch. There's no waste, either, from seepage or gopher holes.
Western Surface Irrigation Pipe is made from a single sheet of heavy galvanized steel. The seam, riveted and soldered, absolutely prevents breaking of the galvanizing. Write for price list and illustrative booklet today.

WESTERN STEEL SURFACE PIPE
GALVANIZED RIVETED

Write also for prices on: Riveted Steel Pipe, Riveted Well-Casing, and other Irrigation Supplies.

Western Pipe & Steel Co.,
444 Market Street, San Francisco
Fresno Bakersfield Los Angeles

Deliver your water where you want it.

Give the the Tractor a Chance

By C. E. Skidmore

IT SEEMS to the writer that farm tractor distributors and dealers should make a greater effort to impress upon the purchaser of a tractor the necessity of giving his machine proper care and attention and of not overloading it.

Practically all manufacturers send out a well written book of instructions with each machine, and it is comparatively easy to learn about repairs, but the majority of instruction books give little or no space to the subject of avoiding repairs. It is obvious that how to avoid the necessity of repairs is a topic of more importance to the farmer than how to make repairs. This subject, however, is a topic the tractor man, be he manufacturer, distributor or dealer, hesitates to dwell upon because he fears what he may say in cautioning the owner will be understood as lack of faith in the machine he sells.

It is plain that salesmen cannot be expected to do this educational work with the purchaser. Salesmen are optimists or they do not long remain in that occupation. Commodities are not sold by under-statements. The buyer always wants the most he can get for his money and the salesman



Chas. E. Skidmore

always promises it to him. A large measure of enthusiasm for the article sold is necessary in order to create a desire, and often extravagant promises and unduly strong statements are made in order to get the signature on the dotted line. This is only natural and the salesman should not be blamed for his enthusiasm. He has learned that it is necessary to be enthusiastic in order to make sales, and his business is to sell.

But after the sale has been made, the transaction closed, and the bright and shiny tractor is being delivered to the purchaser, someone should have a "heart to heart" talk with him, and impress certain facts indelibly upon his mind. Probably the dealer's service man would be the logical one, but the matter might be covered satisfactorily in a letter from the dealer, or a talk by the service man and a letter might both be used. The writer would suggest a talk or letter along the following lines:

The average farmer has learned by experience that he must take proper care of his automobile or suffer the consequence of large repair bills and abnormal depreciation. If he is starting out on a 200 mile trip he first looks the machine over very carefully and sees that all parts are properly lubricated and adjusted, and on the return from such a drive he goes over it again. At the same time few farmers seem to realize that a farm tractor needs the same care as an automobile. They are inclined to "run her as long as she will keep going," without thought or care, and then when the abused piece of machinery, screaming for oil and knocking for attention, finally refuses to go, they say it is "no account" and that the dealer has "buncoed" them and they are sore if he refuses free service to repair the damage.

No farmer would expect to get work out of his horses or mules if he failed to provide proper shelter, care and feed for them. They must be stabled, bedded, curried, watered and fed daily and even then they are subject to sickness and require exercise to keep them in condition. Proportionate to the work they perform, tractors require much less attention than either horses or automobiles.

An automobile uses on an average about ten per cent of its power; it has only to propel itself. On the other hand a tractor uses on the average 90 per cent of its power; it has not only to propel itself, but also must do its heavy work.

The average automobile motor is geared at a ratio of four to one in high, which is the speed at which it performs its work. The average tractor is geared at a ratio of 70 to one at working speed of two and one-third miles per hour. The work performed by an automobile motor during one hour's driving at 25 miles per hour may properly be expressed by the equation 4 x 25, 100. At a speed of 40 miles per hour, the equation would be 4 x 40, 160. The work performed by a tractor motor during one hour's plowing may properly be represented by the equation 70 x 2 1-3, 163.3. In other words, the work done by a tractor motor at plowing speed is more than that done by an automobile motor in driving an auto 40 miles per hour, because the auto has only to propel itself.

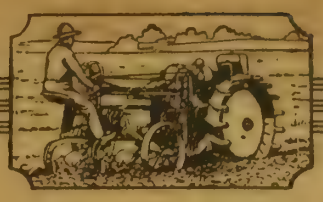
No sane man would run an automobile 40 miles per hour, ten hours per day, without its being gone over daily by expert mechanics. Fortunately tractors are built along huskier lines and will stand abuse that would quickly ruin an auto, but they will not stand lack of grease, oil and necessary adjustments. Often ten minutes' work done in time will save a two hour repair. If you fail to give the proper attention and have to pay the consequences in repair and service expense, do not blame the tractor.

With each tractor a carefully written instruction book is furnished, containing plain directions and easily understood diagrams so that any bright 16 year old boy can in a few hours learn to care for the machine, and if there is anything he does not understand, the dealer will be glad to have his service man explain and give expert advice. If there is any fault or defect of the tractor, the dealer will gladly help you and the manufacturers are bound under their guaranty. But do not expect or ask your dealer to give free service to repair damage that is a result of your own carelessness or failure to follow directions.

Remember that tightening a bearing or grinding a valve when it needs it will keep the tractor on the job when you need it.

And there are some things which it is extremely important not to do. California farmers have a deplorable habit of leaving farm machinery out in the field in all sorts of weather. Machinery will not stand such abuse—it will rust out faster than it wears out, unless it is protected from the elements. Treat your tractor as kindly as you did your horses.

We know of one owner of a 12-20 tractor in the San Joaquin Valley who has been pulling a Stockton gang plow of eight ten inch bottoms for several months and has had no trouble—but he will have. The 12-20 model is designed to pull three 14 inch bottoms on ordinary soil conditions. Anything more is an overload. It is true the machine will pull more, but only at the expense of excessive wear, just as a man can stand up under 16 hours work per day for a while, but no one can keep it up for long, and everyone admits that it does not pay. You may pull an overload for a season or two and "get by", but your machine will not last as long and you will have more trouble with it. The additional work accomplished by overloading is slight and not worth the cost. The United States department of agriculture Bulletin No. 719 says: "Three plows behind a two plow tractor will cover only a little more ground as a rule than will the two plows, because the tractor will travel a little slower, partly because the motor is overloaded and partly because



Every Moline-Universal Tractor Must Give Satisfactory Service

When you buy a Moline-Universal Tractor the transaction does not end there. In addition you buy Moline Service—which is service that satisfies. This means that with intelligent operation you will be able to keep your tractor working to full capacity during its entire life.

Moline Service means exactly what it says—and we have perfected an organization which enables us to furnish Moline Service that satisfies. We can do this because:

1. Twenty-three Moline factory branches in all parts of the United States carry stocks of repairs and complete machines—in charge of an expert service department.

2. Factory branch territories are sub-divided into service territories each in charge of a resident Moline Service Supervisor—whose sole duty is to see that Moline Service is properly and promptly furnished in his territory.

3. Every Moline Tractor Dealer is required to carry Moline-Universal Tractor repairs in stock and have a competent service department to provide prompt and efficient service.

4. Tractor schools of short duration in charge of expert instructors are being held in co-operation with Moline Tractor Dealers, to instruct farmers in the care and operation of Moline-Universal Tractors. These schools will continue to be held as long as there is a demand for them.

5. With every Moline-Universal Tractor we furnish a complete instruction book, giving full information on care and operation of the tractor.

6. Moline-Universal Tractors are simple in construction, have the best materials and workmanship money can buy, and all working parts are quickly accessible.

Therefore we are prepared to back Moline Service to the limit and you are sure of getting constant and satisfactory work from your Moline-Universal Tractor.

If any Moline-Universal Tractor is not giving its owner satisfactory service we want to know about it *immediately*.

The Moline Plow Company leads the Tractor industry—first, in developing and perfecting the original two-wheel, one-man tractor which does *all farm work including cultivating*, and again in announcing a service plan which makes a "booster" of every Moline Tractor owner.

Join the throng of "Moline Boosters." You will be able to do twice the farm work at half the expense. See your Moline Dealer now or write us for full information.

Moline Plow Company, Moline, Illinois

Factory Branches At:

Atlanta	St. Louis	Stockton	Denver	Minot	Indianapolis
New Orleans	Poughkeepsie	Spokane	Kansas City	Sioux Falls	Columbus, Ohio
Dallas	Baltimore	Portland	Omaha	Des Moines	Jackson, Mich.
Oklahoma City	Los Angeles	Salt Lake City	Minneapolis	Bloomington, Ill.	

Service That Satisfies



Mr. Farmer

If you grow Raisins, Prunes, Peaches, Pears, Apples, Apricots, Grapes, you need a

SAHARA DRIER:

Every year your losses run into thousands of dollars because of adverse weather conditions—over-ripe fruits, etc. The Sahara Drier guarantees you against such losses. It is the cheapest and best possible insurance for your crops. You cannot afford to take a chance on early rains such as came last Fall.

WINE GRAPES—Many of the California growers are making ready to dry their 1919 crop. We guarantee our machine to do satisfactory work. Our patented process makes this possible. Prices are $650 and $850 for our one-ton-per-day Drier. See our representatives for particulars:

Cameron & McDonald, Chico.
Clark & Croswaite, San Jose.
C. F. Moon & Co., Fresno.
A. L. Bowman, Lodi.
Chas. F. Wyer, Napa.

California Dried Products Co.,
Home Office 149 California St.,
San Francisco - California.

The Threshing Problem Solved

Threshes cowpeas and soy beans from the mown vines, wheat, oats, rye and barley. A perfect combination machine. Nothing like it.

"The machine I have been looking for for 20 years," W. F. Massey. "It will meet every demand," H. A. Morgan, Director Tenn. Exp. Station. Booklet 26 free.

Koger Pea & Bean Thresher Co.,
MORRISTOWN, TENN.

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In the auto and tractor business, $100 to $300 a month. Learn in few weeks by our system of practical instruction. All modern equipment. Expert instructors. Free $50 tractor scholarship offer now open. Earn board and room while learning. Write for free catalogue. Shows students at work, tells how YOU can make a big success in this business. NATIONAL AUTOMOTIVE SCHOOL, 802 South Figueroa, Los Angeles, Cal.

Farmers at Pullman have raised wages of farm labor to $3.00 per day, an increase of 50 cents.

the drive wheels will slip more."

The low speed is designed for emergency use only and the tractor should not be loaded to a point where it cannot pull the load ordinarily without having to go into low.

The farmer should be informed of the draw-bar pull of the tractor in pounds at the various speeds and can then calculate with some degree of accuracy the pull required in plowing different soils by applying the following rule and table:

Rule: To ascertain the draft of plows, multiply the cross section of furrow in square inches by the resistance per square inch of soil displaced, in pounds.

Average Resistance of Soils

Sand, 2 to 3 pounds per square inch.

Silt loam 3 to 4 pounds per square inch.

Light clay, 6 pounds per square inch.

Medium heavy clay, 8 pounds per square inch.

Virgin prairie, 15 pounds per square inch.

Dry gumbo, 20 pounds per square inch.

Dry adobe, 25 pounds per square inch.

Example: Draft of one 14 inch plow 7 inches deep, silt loam, 7 inches by 14 inches by 4 pounds—392 pounds.

It is just as important to not overload when doing other work as when plowing. The following tables will assist the farmer in learning the proper load. Similar lists for other sizes of tractors can be easily worked out by the dealer.

Three Plow Tractor Loading

Three 14 inch plow bottoms, average conditions of soil.

One 8 foot tandem disk harrow.

One 9 foot tandem disk harrow plus one 10 foot spike tooth harrow.

One 8 foot disk plus one 7 foot drill plus one 10 foot peg tooth harrow.

One 8 foot grain binder plus one 6 foot grain binder.

Two 8 foot mowers.

Two 6 foot hay loaders.

One 14 foot push binder.

One 14 foot header.

Two 12 foot drills.

Two 8 foot cultipackers.

Five Plow Tractor Loading

Five 14 inch plows—average conditions.

One 9 foot cut harvester thresher.

Two 8 foot grain binders plus one 6 foot grain binder.

Two 10 foot tandem disk harrows.

Two 8 foot tandem disk harrows plus one 30 foot peg tooth harrow.

Three 10 foot drills.

Two 10 foot drills plus one 25 foot peg tooth harrow.

There is an old saying about the inadvisability of "biting the hand that feeds you". The farmer will learn, either from his dealer or by costly experience, that it does not pay to abuse the tractor that feeds him. It is far better for all concerned that he obtain this information through the dealer from whom he purchases. In fact it is the dealer's duty to fully instruct him, and the sooner we recognize this fact and act upon it, forgetting our fear that our remarks may be misunderstood, the sooner will a lar measure of tractor trouble be elim nated.

That the tractor has proved a su cess and a paying investment eve under the abuse given it the last fe years, serves to show how indispens ble it will be to the farmer whe more intelligently understood a used.

Tractor in the Making

By S. R. Coffee



S. R. Coffee

The farm tractor was pioneered by manufacturers and farmers on the Pacific Coast. This new era for the production of crops was inaugurated about two generations ago when the grain growers of the expansive California valleys and fertile hill country of the Northwest found themselves unable to cope with the harvesting problem. To handle this great acreage, unlimited horse power was required for the purpose of hauling combined harvesters which transferred the grain in the head to the sack in one operation.

It was the necessity for power to pull these harvesters that prompted manufacturers to experiment with traction engines which would pull these harvesters more hours a day, faster and more economically than horses. The result was the steam tractor which the grain barons welcomed, realizing in it a factor for increased profits.

These old leviathans of the grain fields were manufactured by the hundreds, and not only were they practical for pulling harvesters, but equally satisfactory when the ground was in good condition for the pulling of plows, harrows and other land working machinery. In fact many vast ranches were placed in a position to dispose of numbers of their horses by the old steam tractor which did their work the power farming way.

These old outfits were the real ancestors of the gas tractors of today. Like the steamers, these first gas tractors were crude in design when compared with the tractor of present day manufacture. Air cleaners were unknown in those days; housing gears was considered impossible; in fact virtually every working part of the machine was left to fight out its own existence with the dirt and dust. On account of the construction the ma ter of lubrication was a questio with the result that many bearin went the way of junk.

Today gas tractors are so designe that nearly every working part is pr tected against dirt and dust. Fro the lubrication standpoint virtually e ery bearing is automatically oiled, a it is interesting to note that the pla bearings are gradually giving way the anti-friction roller bearings. Tra tors are now manufactured in whic there are as high as 37 anti-frictio bearings. This is particularly inte esting when it is considered that bea ings of this type were installed onl two or three years ago. They ar taking the place of the old type ba bitt bearing.

With the evolution of the tracto there has been an ever increasing i terest on the part of the farmer. Tra tors are now at work throughout th United States and nearly every othe country on the globe. They hav proved a great factor in promotin power farming.

California can truly take satisfa tion when it is considered that th state is the cradle of the tractor in dustry. California today possesse some of the foremost tractor manufa turing concerns in the country. Th product of many of these concerns used throughout the world.

A teacher was telling her class ti tile stories in natural history, and sh asked if anyone could tell her what groundhog was. Up went a litt hand waving frantically.

"Well, Tommy, you may tell what a groundhog is."

"Please, ma'am, it's a sausage."—Ottawa (Illinois) Citizen.

A former railroad brakeman, no serving in France, was bringing in bunch of prisoners.

"What have you there?" inquire an officer whom he met back of th lines.

"Just a string of empties, sir!" wa his prompt reply.—Frank G. Davis Cartoons Magazine.

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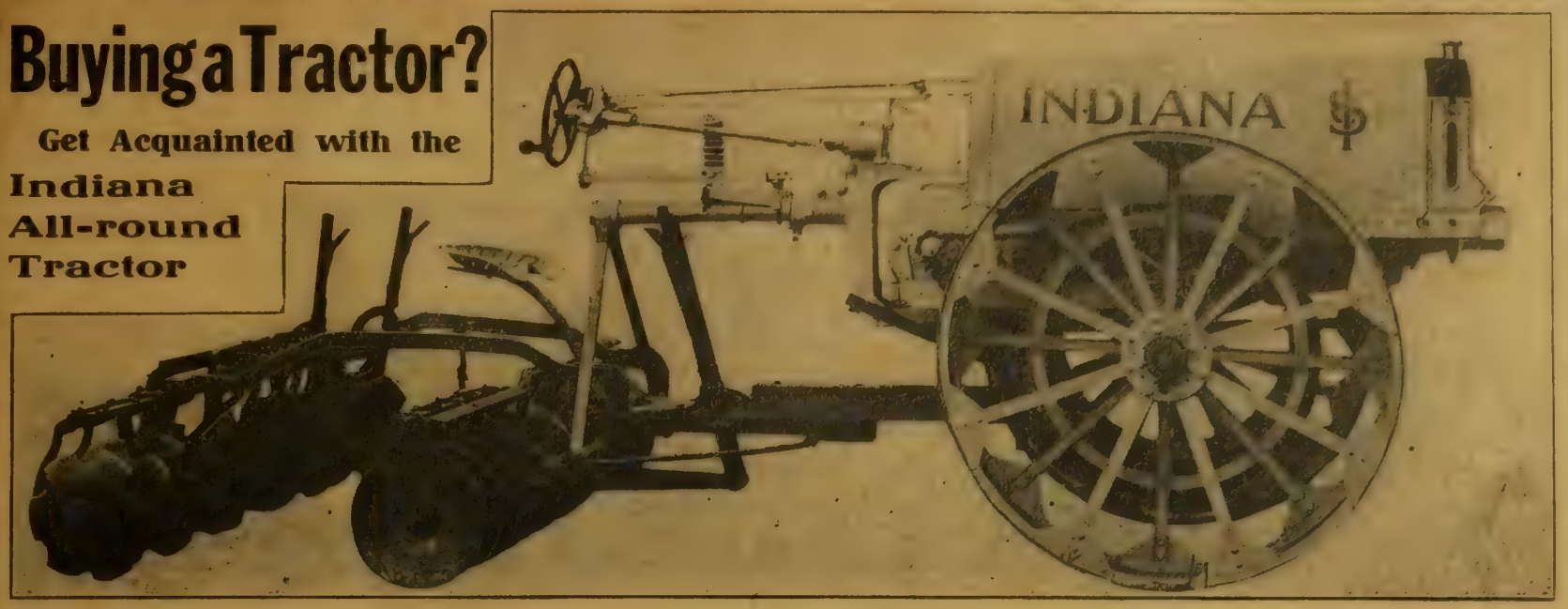
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The INDIANA (made by the well known Indiana Silo Co.) is a light weight, single unit, two wheeler tractor, with direct, closeup hitch. Both tractor and implement can be operated by one man. It weighs no more than one large horse, yet does the work of four. It is just the right size and power to cultivate row crops, to plow, to drill, mow, rake, run an ensilage cutter, hay baler, small thresher or otherwise use as a power unit. There is no excess weight and no waste fuel. The implement is hitched as a part of the tractor and the operator rides the implement and drives the tractor. This is conceded to be the most correct and desirable hitch for a majority of farm operations. It requires less effort on the part of the operator and permits him to see implement and tractor operate all the time.

The Indiana Tractor

combines the greatest principles of efficiency and utility

It is The Lighest Powerful Tractor Sold in California

Your knowledge and experience with tractors and farm power is not complete without full detailed information about the INDIANA.

It is not only right in price, but in design, principle, material and workmanship—a correctness that we have not been able to materially improve in years, although constantly striving to achieve improvement.

Mechanically the Indiana Tractor is Perfect. All parts are as of high quality material as parts of the Highest Type Motor Cars.

When in operation the Tractor and Implement form one complete unit, backing, turning and going forward as one machine, yet being free to operate independently enough to conform to the surface of the ground.

In steering and operating a tractor from the seat the operator sees just what he is doing and can make adjustments if the work is not being done to suit him. This makes a large difference in how the work is done, the speed with which it is accomplished and the ease. Every stop is time and energy lost. Both are valuable.

If you are using horses consider this well:—It costs about $700 to feed four horses for a year and the Indiana will do their work on $250 spent for fuel and oil. No special hitches or equipment are required.

If you do not own a tractor, let us show you in figures that you can furnish yourself, and compute,—that the Indiana will save you money and make m o n e y for you, do more work than you are doing now and do it easier and in less time.

Whether or not you are ready now to buy, let us send you our printed material and you can be thinking it over. Fill in the blank below. We are here to give you information first and demonstrate what we claim. Extensive experiments under California conditions verify all our claims.

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Some Good Territory Still Open

The Indiana serves nineteen of the twenty-one uses to which a tractor might be put on the ordinary California farm. NO OTHER TRACTOR serves such a high percentage of uses so economically and efficiently.

In buying the Indiana you do not have to buy new implements and new hitches, a point often considered too late. However, we recommend a heavier plow than for horses as the tractor will plow deeper.

The Indiana gives you practically 100 per cent of its total weight on the Tractor Wheels. It is the pull of the tractor that counts. The Indiana readily couples to all the top soil working implements, seeding, cultivating and harvesting implements already in use on the farm.

The Indiana's low fuel cost is due to proper engine design and to the fact that there are no dead wheels to push, or excess weight. Power is transmitted through one moving shaft on heavy duty ball bearings running in oil. All speeds are direct. All bearings are dust proof and all parts easily accessible. It delivers the maximum of tractor efficiency with a minimum of tractor weight.

It saves the wages of one man for the reason that it is possible to operate both tractor and implement from the implement seat. In cultivating cotton, corn, potatoes, beets and similar row crops the Indiana is especially desirable. Its light weight prevents packing; the tractor is up off the ground so that it easily goes over any crop that a cultivator will pass over and as the operator rides the cultivator, while driving, he can direct the cultivator shovels just where he wants them.

For cultivating groves the Indiana is small enough to go between narrow spaces and can be driven up close to trees and turned short. For belt work, such as running hay balers, ensilage cutters, saws, etc., it is entirely dependable and economical to operate.

Every guarantee is backed by one of the oldest, strongest manufacturing concerns in the United States. If you want an economically operating tractor the lightest weight, heavy duty tractor sold in California today, come and see the Indiana or write for printed matter.

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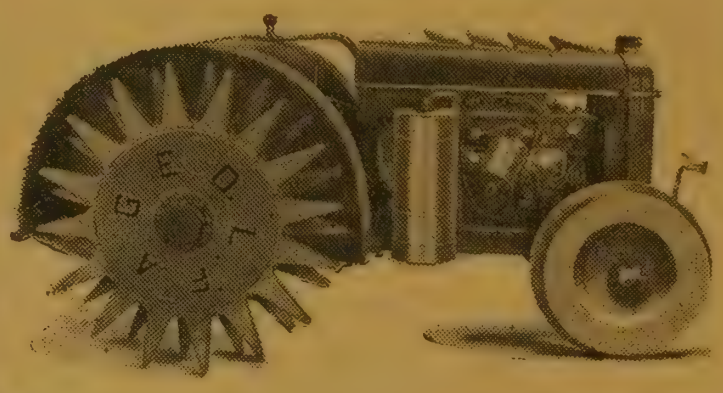
THE Fageol Walking principle is new—yet the Fageol Walking Tractor is a development of more than five years continuous testing under field conditions.

The 64 walking legs of the light Fageol tractor secure traction as sure as do the eight legs of a team of horses.

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Fruit Growers and Farmers to Discuss California Plant Industry

By Geo. H. Hecke

HORTICULTURAL Week in Riverside, May 26-31, is intimately associated with reconstructive work in the development of the plant industry of California. Many times during the past there have been big conventions of fruit growers, but never before has there been such a convention week as that now proposed for the last week in May, to be held under the auspices of the state commission of horticulture. Six conventions are planned, and their programs are being so arranged that there will be very little conflict between the various sessions for those visitors who are interested in more than one of these conventions.

At this time when all the world is talking about the League of Nations, it is very appropriate that California should take the lead in organizing a league of Western states for the protection of the orchards and farms of this state against the introduction of injurious insect pests and plant diseases. The states of the Pacific Coast are fortunately situated, in a measure, owing to the natural barriers formed by the ocean on the one side and the mountains and deserts on the other, preventing the intrusion by natural means of those pests which are causing such great losses in other countries and in other states. Owing to the presence of these natural barriers, the plant pests may be brought into the Western states only by means of some human agency. It is the purpose of this, the first Interstate Plant Quarantine Conference, to devise a policy of uniform quarantines whereby the Western states may gain the fullest possible advantage afforded by these natural barriers. Governor Stephens has invited the governors of all the Western states to send representatives to this conference. He also has invited British Columbia, Lower California, Mexico and the territory of Hawaii to be represented. The chairman of the federal horticultural board, C. L. Marlatt, has already signified his intention of attending this conference, and he will tell of the quarantine work done by the federal horticultural board and advise with the delegates from the Western states in framing their policies.

The Fifty-first Fruit Growers and Farmers' Convention will be attended by these representatives of other states who will be particularly interested in hearing the discussions on matters of local interest by California fruit growers. Every cooperative marketing association in the state will be represented at this convention and a brief talk on their activities will be made by each representative.

For the first time in the history of the organization of the nurserymen of California, that association will meet in conjunction with the fruit growers and county horticultural commissioners. The opportunity afforded by the convention for the nurseryman, who grows the trees, the fruit grower, who buys the trees, and the county horticultural commissioner, who inspects them while in transit from the nurseryman to the fruit grower, is bound to result in a better mutual understanding than has existed in the past. The great development of the horticultural industry of California has been due in no slight degree to the initiative displayed by the nurserymen, and it is a great step in advance that they will convene at the same place and during the same week with the other horticultural interests of the state.

The vegetable growers, profiting by the experience of the fruit growers in standardizing the pack of fruit, have taken great interest in standardization of vegetables. A Vegetable Growers' Conference has been arranged to be held at Riverside on Monday and Tuesday of Horticultural Week for the purpose of formulating plans for applying the standardization law to the packing of vegetables, and for the purpose of discussing uniform rules and methods for the certification of potato seed. Representatives of other states who are interested in these problems will be present and a very interesting program and a fine attendance are assured.

For those interested in entomological problems, it is of interest that the Pacific slope branch of the American Association of Economic Entomologists will hold their annual convention at Riverside at the Citrus Experiment Station during Horticultural Week.

In addition to Horticultural Week at Riverside, smaller conventions are planned to take place some time during the last week in May at Hemet and Yucaipa. At these meetings the program will be limited to the problems of deciduous fruit growers and as many of the representatives from other states are interested in deciduous fruit growing, there is no doubt that very fine programs will be arranged.

Can Not Trust to Foreign Inspection of Nursery Stock

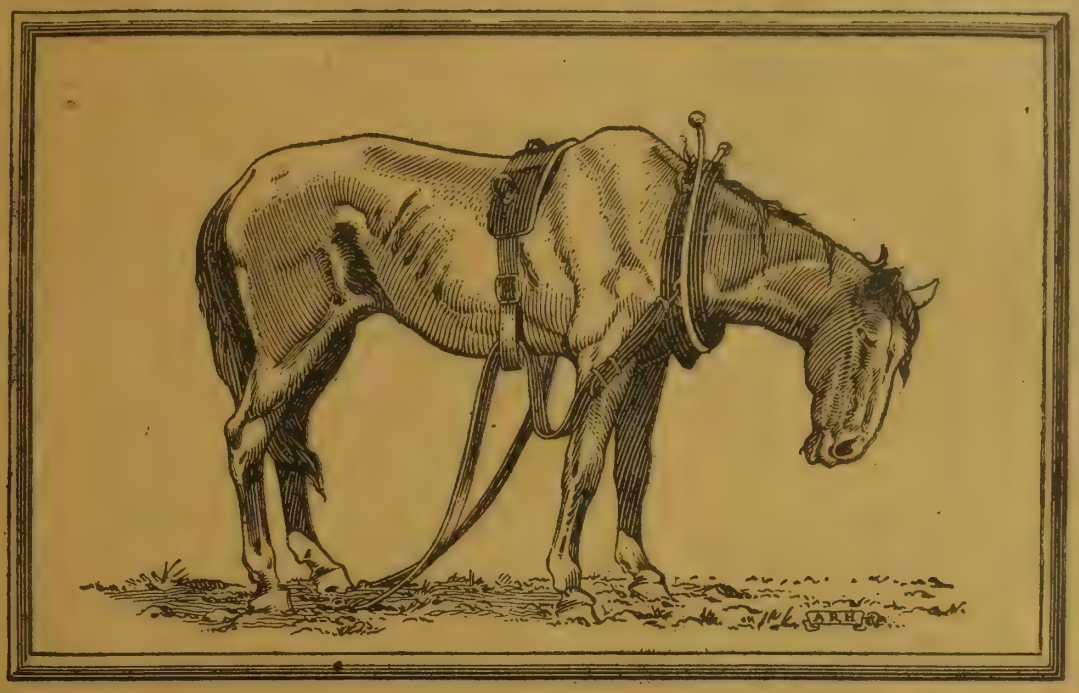
THE main arguments of objectors to Plant Quarantine No. 37, which will greatly restrict the entry of nursery stock and other plants and seeds, beginning June 1, 1919, are that either no pests are brought in on such imported stock or that thorough inspection abroad would eliminate any undesirable insects. There is no question but that the chief exporting foreign governments have given to their nursery stock the best inspection which human skill and science can afford. Failures, says the United States dpartment of agriculture, are due to the human equation and to conditions not subject to change, which make inspection and certification insufficient safeguards.

The inadequacy of such inspection since 1912, when it became operative, is shown by the findings resulting from reinspection of imported material at destination in this country. Data gathered by the United States department of agriculture show that there have been received from Holland 1051 infested shipments, involving 148 kinds of insect pests; from Belgium, 1306 infested shipments, involving 64 kinds of insects; from France, 347 infested shipments, involving 89 kinds of insects; from England, 154 infested shipments, involving 62 kinds of insects; from Japan, 291 infested shipments, involving 108 kinds of insects; from Germany, 12 infested shipments, involving 15 kinds of insect pests. Many of these intercepted insects are not known to be established anywhere in this country and numbers of them, if established, would undoubtedly become important farm, garden or forest pests.

SUPPORTS FAMILY BY CANNING

The sale of her canned fruits and vegetables has enabled a woman in Albemarle County, Virginia, to feed and clothe her eight children the last two years. When war was declared her eldest son enlisted in the navy. In a few months the second son went into the army, and the mother was left to wrestle with the problem of providing three meals a day for the eight younger brothers and sisters. About this time the home demonstration agent of the United States department of agriculture and the state agricultural college was teaching the women in that locality how to can. With a garden which could raise plenty of fruit and vegetables, and with wild fruit to be had for the picking, the mother of ten decided therein lay the solution of her problem. Results have proved that her judgment was right. Thousands of cans of fruit and vegetables have been put up and sold from this country home. One lot the home demonstration agent helped her sell brought $125.

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CROSS THE STREAM FROM HORSES TO TRACTORS IN ONE STRIDE

"A drop of sweat to grow a grain of wheat!"—that was true when perspiring men and lathered horses toiled in sun-beaten fields.

But modern machinery has helped to lift the dreary burden of horse and man drudgery. To-day a drop of oil raises a hundred stalks of wheat!

But make the change from horses to a tractor in one step—not in two! You will soon be dissatisfied with the limitations of a cheap machine. Is it any better to sweat over a tractor than behind a horse?

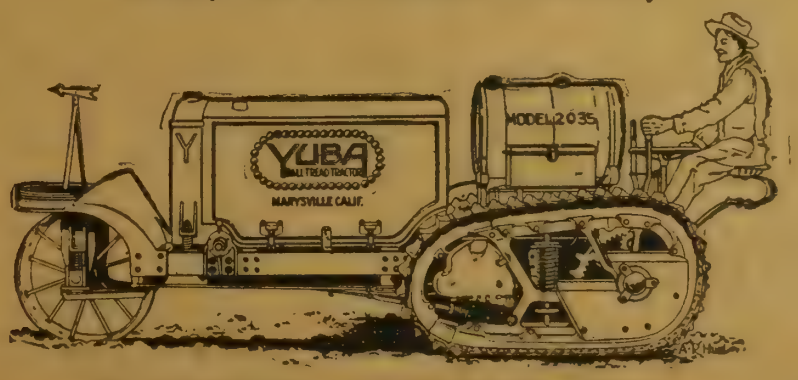
The "*Ball Tread*" has in seven years developed from an experiment to a triumph! Discriminating farmers now buy the YUBA because it relieves them from the worry of field breakdowns—because it makes them independent of soil or weather conditions—because, though not inexpensive, it is a lasting investment.

The YUBA is as free from wear and trouble as human ingenuity can today devise.

Cross the stream from horses to tractors in one stride—not in two! Get the best machine.

Let oil raise your crops—oil and distillate!

Ready for Immediate Delivery



There are three sizes of YUBA Ball Tread Tractors:

12-20 " 20-35 " 40-70

Write us for the catalogue of the size you need; tell us how many acres you farm, and the kind of soil.

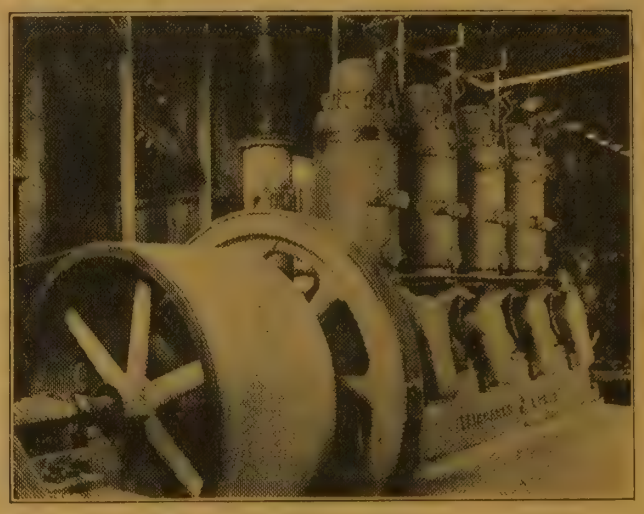
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The War's Lesson for the Farmer

By G. M. Walker, Secretary-Treasurer of the California Tractor and Implement Association

THE war taught many lessons to the farmers of this and every other country in the world, just as it taught lessons to industry and commerce. In a broad sense it has taught all these the lesson of preparedness, of being ready to grasp the big opportunity or to meet the big emergency when it is confronted. The farmers who were prepared to continue and enlarge their work under the handicap of scarcity of labor, horses and mules were the ones who were best able to serve their country's need and to reap increased profits for themselves.

The war forced farmers to a realization of the advantages of power farming, which natural procrastination would have otherwise delayed for years. The shortage of labor and the sending of hundreds of thousands of horses and mules to France left the farmer handicapped at a time when his labor and power resources should have been increased. There was not only the regular work to be done, but bigger crops had to be raised. The world demanded food and war had laid its heavy hand upon so many hundreds of thousands of acres that heavy demands were made of those countries still able to produce. Thousands of farmers who for one reason or another had delayed the adoption of power farming methods were thus forced to an acceptance of this modern aid to better crops and larger profits. And the tractor in the emergency made good as it had already made good for the progressive element who had already turned to power farming.

But the war not only opened the way for the tractor on the farm by increasing the need for it; it also proved in a direct way the tractor's ability to handle the heaviest work, to undergo the most severe strains of severe service, to perform consistently under conditions that were much more severe than are even found in agricultural work. The dependability evidenced by tractors in war work is the strongest possible proof the farmer could ask for of their suitability to his needs.

The tractor was originally and has for years been peculiarly a machine for the farm. Almost at the beginning of the great war it was adopted for military use, and the chapter thus opened of tractor use in warfare is one which will never be closed until warfare itself shall have ceased.

Confronted with the necessity for heavy mobile artillery to offset the initial advantages of the Teutons, the British war department began to investigate tractors at the very beginning of the war. In September, 1914, Holt engineers went to England with a standard farm "Caterpillar" tractor and astounded the British artillery officers with a series of tests covering hundreds of miles over difficult country. Thereupon the "Caterpillar" tractors became a definite and highly important factor in the organization of the whole British army; orders were placed for all the tractors Holt had available, and manufacturing orders increasing quantity continued for four years. All artillery of six-inch caliber and over were hauled by these tractors. The mobility of the allied heavy artillery became infinitely greater than the Teutons; the great value to the allied cause of tractors in 1915 and on was indeed beyond estimate.

England bought thousands of tractors, used them in France, at Gallipoli and Suez, in Mesopotamia, Palestine, East Africa. France bought many and commandeered a number of tractors of the larger size from privately owned big estates in Tunis. Russia likewise ordered a quantity.

A British army engineer had in 1913 or 1914 heard of the "Caterpillar" tractor's performances in some demonstrations near Antwerp; one of his friends had written him that "Here was a Yankee farm tractor that could climb like hell." It had long been a scheme of military scientists to build a mobile field fort or armored protection for infantry in both offensive and defensive against machine gun fire; the traction question was the great obstacle. But when he heard of this tractor he set to thinking; when he realized what terrible toll of British lives was being taken by the countless German machine guns he knew his problem was more vital than ever; when the "Caterpillar" tractor was adopted for artillery use by the British army he saw in this tractor the answer to his problems. The armored fighting machine known as the "tank" was thus inspired by the "Caterpillar" tractor.

The tanks were made under great secrecy. It was noised about that they were water tanks for use in Mesopotamia, hence the name. When holes were cut in the big boxes for mounting guns, the word was given out that they were revolving snow plows for use in Russia. Each one was labeled, "With care, to Petrograd."

They were a complete surprise to the Germans. How well they did their work is common history. The Germans never evolved an adequate defense. Their own brief attempt at tank warfare failed utterly through the crudeness and clumsiness of their machines. The tanks not only cleaned up the machine guns, but they drew the fire that would otherwise have wiped out regiments. Frederick Palmer, war correspondent, says the tanks saved 20,000 lives on the Somme in the fall of 1916 alone.

The smaller, faster two-man tank came along to act as skirmisher, cavalry or destroyer, according to choice of metaphor. Thousands of British, French and American built tanks led the way in last summer's overwhelming rush.

Profiting by the experience of England and France the United States went into the war with a motorized artillery program on a scale that set nearly a hundred plants at work making tractors, assemblies and parts.

As early as 1911 an army officer was impressed with the possibilities in the tractor for hauling artillery. Soon afterward the matter was brought to the attention of the chief of ordnance. It was not until May, 1915, however, that the first army test was arranged at the Rock Island arsenal. It is significant of the country's state of mind with respect to preparedness that even at that date, nine months after the war started, there were such meager funds for army experimental work that the tractor and truck companies participating bore the cost of the demonstration.

Combinations of mud and heavy grades duplicated the conditions to be found on the Western front, and from the results it was decided that "Caterpillar" tractors and four-wheel drive trucks could take guns and ammunition anywhere that teams could handle them. The big "75" easily handled two complete sections of six-inch howitzer material through wet gumbo soil and was pronounced capable of handling at least one section anywhere under war conditions.

This demonstration was of purely commercial types of trucks and tractors, but the report of the tests in the Field Artillery Journal estimated that the saving by motorization of a 4.7 or 6-inch battery would amount to $36,000 in first cost and $30,000 a year in maintenance. This was at current home prices and took no account of the saving in personnel (63 men per battery); the saving in shipping space with machines and fuel as against horses and forage; the saving in road space on the march, or the great gain in speed and endurance.

A tentative decision was made in favor of a tractor to weigh about 13,000 pounds, and a 45 horse power "Caterpillar" tractor was shipped in November for a test at Fort Sill, Oklahoma, by the field artillery board. Colonel Granger Adams supervised the test, which was reported by Captain Bryden in the Field Artillery Journal, as a complete success. Grades of 30 to 40 per cent, according to this report, were negotiated with a complete section—two 4.7-inch guns, caisson, and limbers with filled chests, a total of 17,000 pounds. A gun was deliberately mired until it rested on its trail and apron, but was easily pulled out with a cable.

It was found that the tractor could take its load handily along a railway track and across trestles, which would

be out of the question with horses. The ease with which it handled the ordinary work of two eight-horse teams, even where horses could not be used, led to the decision to motorize our artillery, and the Field Artillery Journal for January, 1916, outlined an equipment of tractors, trucks and motorcycles to displace animals entirely.

Three "Caterpillar" tractors with slight changes for special army convenience, were shipped to Hawaii early in 1916, and later in the year 27 more of the same type followed. The Ninth Field Artillery, United States Army, stationed at Honolulu, became practically one year before we entered the war, the first complete motorized artillery regiment in the world, motorized with commercial vehicles designed and built in American factories.

A five-ton tractor made a non-stop run in June from Detroit to Dayton, 225 miles in 34 hours, elapsed time. A ten-ton model taken from the previous day's production, started from Peoria, October 28 for Detroit, 480 miles, and though geared to only three miles per hour, made a record non-stop run, reaching Detroit in 143½ hours. The motor was then allowed to run up to a total of 151 hours, and the tractor was found to be in such excellent condition that it was started at once for Aberdeen, Maryland, 1500 miles away.

These tests, however, are hardly more severe than those to which tractors were subjected during the border trouble by both the quartermaster and engineer corps. When Pershing's expedition started into Mexico a number of "Caterpillar" tractors were rushed by express to build and maintain roads for the supply trains over the deserts of Mexico. During dry weather the heavy trains incessantly pounded the alkali soil into clouds of dust, and during the rainy season the roads washed badly and became almost impassable with mud. Only by a continual scraping away of the loose material, a reversal of the crowning process, could a firm surface be maintained. Six tractors to 160 miles of road meant almost continuous work, but they were equal to it.

Some of these same machines were used later in hauling quartermaster supplies from Marfa, Texas, on the Southern Pacific railroad to the scattered troop stations along the Rio Grande. Army engineers declared the short cut through Pinto Canyon to be impassable for a tractor train because of its steep grades, sharp turns, rocky passes and deep sand, but the big tractors made regular round trips with loads of 20 to 40 tons.

The tractor's performance in the war is the final proof that even the most exacting farmer could demand. Its record forever classes as a fossil the farmer who revives the ancient criticism: "Well, these tractors are a new fangled contraption and I'm not going to take a chance on them." The tractor has proved its worth. Its place is forever established.

AVOCADO MEN PREPARE FOR ANNUAL

The California Avocado Association will hold its fourth annual meeting, May 9-10 at Hotel Maryland, Pasadena. Friday forenoon, meeting for members only. Informal dinner Friday evening. After dinner addresses by Messrs. Sallmon, Adams, Sharpless, Hardin, Shedden, Elliott, Barbour, Keller, Webber. Friday afternoon, President Sallmon's address; Early introduction into California, Juan Murrietta; Commercial Possibilities, Dr. Eliot Coit; Reports on Frost Damage, Charles D. Adams.

Saturday forenoon, Hillside Planting, J. M. Elliott; Outlook for Industry, C. F. Kimmon, U. S. D. A.; Markets, George S. McClure; Avocados in Mexico, Wilson Popenoe, Agricultural Explorer, U. C.; Exhibit at Liberty Fair, Lester Keller; Committee on Varieties, Dr. H. J. Webber; Proper Maturing, Professor I. J. Condit. Saturday afternoon devoted to discussion of marketing and other problems before the association.

Men will soon be put to work grubbing sagebrush on land acquired by the Washington state college for a state irrigated farm experiment station. Water will be available later in the season from the Prosser pumping plant and the tract will be cropped as soon as possible. Some temporary buildings will be erected this summer.

Fruit Crop Report---Quality, Quantity Finest Ever

FRUIT crops of California will generally be a little later, a little bigger and of higher quality than for many years. This in a word expresses early estimates made by Cultivator readers as shown by short extracts from their letters below. Of course any estimates made this early in the season are subject to revision, therefore we wish to bespeak for those who have aided the Cultivator so generously consideration of the fact that changed weather conditions may materially alter these estimates. There is no certainty until the fruit is in the box.

In connection with these estimates for a generous crop it is gratifying to note that inquiry for fruits to be delivered six months later are keen and that some sales are reported while trees are yet in bloom. On this matter of prices note this from the San Jose Mercury of April 20:

"Why has a persistent offer for 11 cents been made for prunes in this valley? Why has 12 cents been offered in Napa County? Why is it that a few weeks ago, before the blossoms were even out offers of 7½ to 8 cents were made and now, before the fruit is set, the offers make such a spectacular jump? Interesting questions to be sure. The answer:

"Speculation pure and simple!

"Why does the California Prune and Apricot Growers' Association absolutely refuse to quote any kind of a price to anyone, grower or buyer? Why is the association refusing point blank to accept orders prior to May 1, and why are the orchardists 'sitting tight' in the face of the most tempting offers that have ever been made in the whole history of the industry?

"Again the answer is the most obvious thing. Nobody knows what the crop is going to be or precisely what the market is going to be worth. The association has written speculation and gambling out of its working vocabularly. In its stead it has written protection to the grower in great red letters. And having done so, having set the growers' interests as its guide post, the association cannot name a price on its products until it knows what that price is going to be, and it cannot know the price until it knows the crop."

Again, as to quantity of fruit note this as to apricots in Hemet News:

"Unless the Hemet ranchers look after the thinning of their apricots within the next week it will be too late, and the cannery managers are calling special attention to the importance of prompt action.

"The set of apricots was never so heavy in the history of the valley and growers are warned that a tree is capable of producing only a certain amount of fruit, and if the trees are not vigorously thinned the fruit will be small and of less value per pound. Manager House says that many orchards should be thinned fifty per cent in order that a maximum quality of fruit may be produced."

Cultivator readers report:

W. D. Butler, Horticultural Commissioner, Napa County

Apples, 100 per cent; apricots, blighting, 20; cherries, thrips, 75; peaches, curl leaf and blight, 80; pears 100 prunes 100.

Gifford L. Sobey, Secretary Chamber of Commerce, Paso Robles, San Luis Obispo County

Almonds 90 per cent apricots, 75 cherries, 100; peaches, 100; pears, 110 prunes 100

J. C. Metzgar, Secretary Santa Ana Chamber of Commerce, Santa Ana, Orange County

Apples, too early to estimate; apricots, prospects excellent, but somewhat early to judge definitely; peaches and pears little grown.

A. L. Shively, Santa Paula, Ventura County

Almonds, few grown; apricots, indications are 75-80 per cent.

H. J. Baade, Farm Adviser Napa County

Apples, 100 per cent; apricots, 50; cherries, 75; peaches, 90; pears and prunes, 100. Outlook at present very promising.

Chas. F. Collins, Horticultural Commissioner Tulare County

Apples and apricots, good setting; peaches, heavy setting; pears and prunes, few grown but showing good setting.

C. G. Marchus, San Pasqual, San Diego County

Apricots very light. At first we had a full crop set, but owing to cold the

Continued on Page 637

FORD CAR OWNERS!
You Need Goodrich
"Three-Seventy-Fives"

BECAUSE they make more of your car to you and your work, in comfort, economy, and power to do.

"Three-Seventy-Fives"—their name comes from their size, 31x3¾ inches—are built to meet the peculiar needs of Ford cars.

Made bigger than ordinary size tires—more fabric and rubber in them, bulkier through and through, with *wider tread*—they lift a Ford car to a new field of efficiency. They lessen stress and strain on your car.

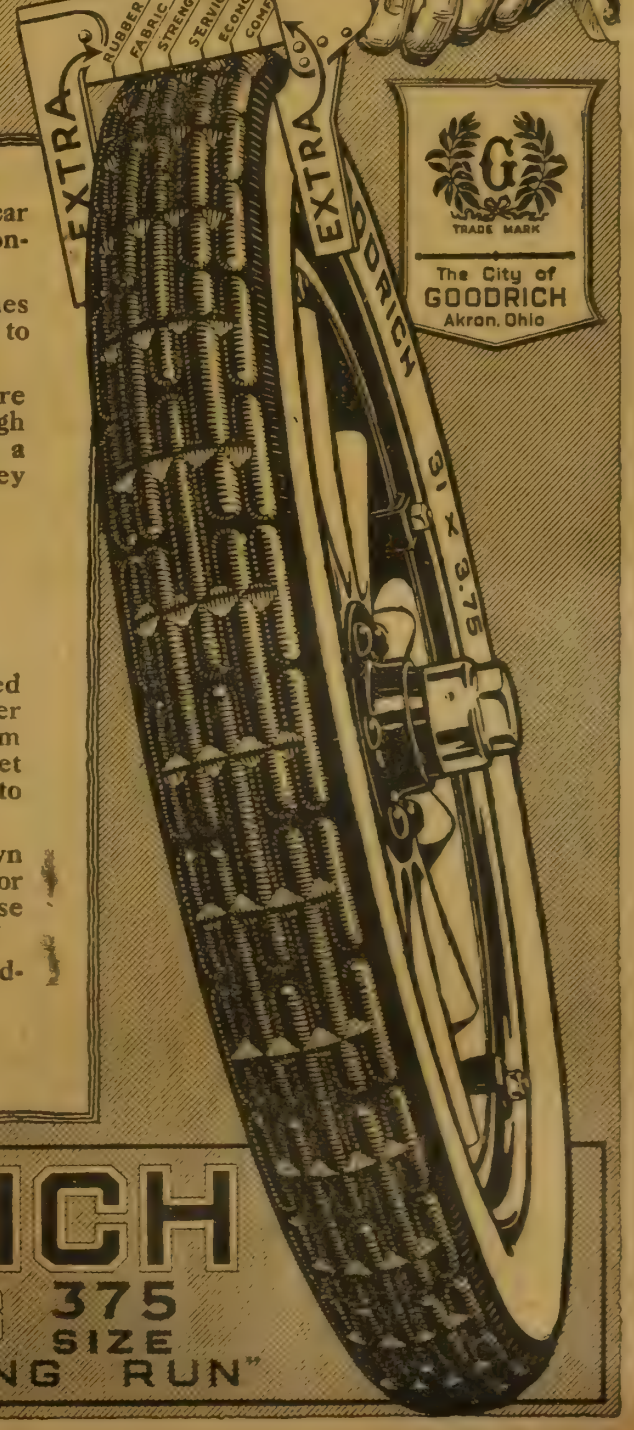
Though they are an inch larger in circumference, and a full 3¾ inches in cross section, they fit 30-inch Ford car rims. They come only with the five safety bar tread.

Their slightly higher cost is quickly wiped out in greater comfort, and in their longer life. Go to a Goodrich dealer and ask him for "Three-Seventy-Fives" and you will get an easier riding, finer looking car, able to do more and harder work for you.

For a higher power car, Goodrich Silvertown Cord Tires give more power to you. For a truck, a growing factor on the farm, use Goodrich Truck Tires.

Remember always, that a farm on a Goodrich basis is saving money in its tires.

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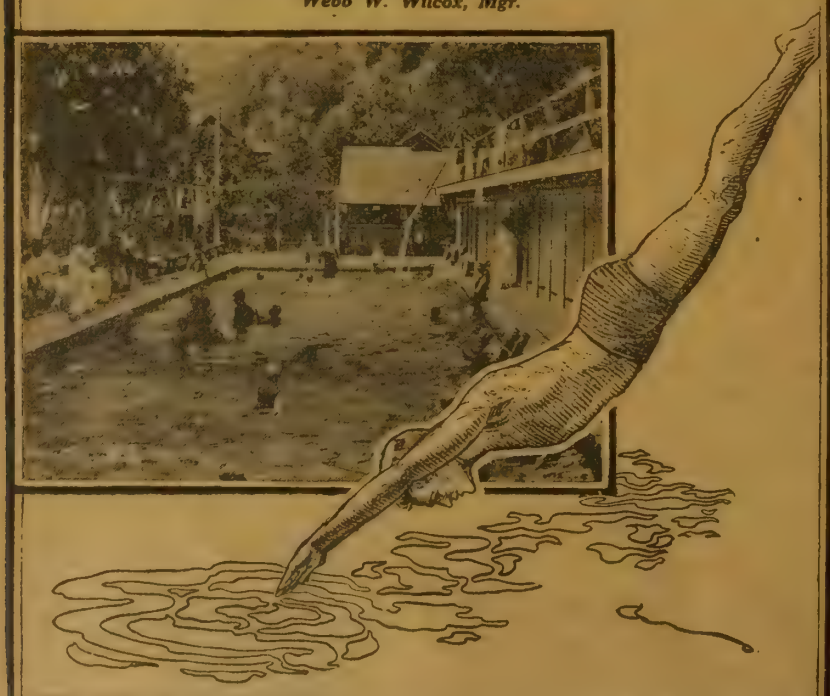
Only 90 miles from Los Angeles over good roads and there you are --- WHEELERS.

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Write today for folder No. 21 --- or better yet --- phone in your reservation.

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Webb W. Wilcox, Mgr.



To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

This Month in the Vegetable Garden

Northern California

By A. R. Gould

THE need for food production is still as great as ever. There is still time to plant plots, large or small, and if the ground has not yet been prepared apply the sprinkler for a few hours and spade up deeply a day or so afterwards when the ground will be in fine shape to dig, and do not forget that farm yard manure trenched in will give results in abundant crops. As we mentioned in the ornamental department there is the same problem of insect pests and it will be necessary to watch closely for practically the same foes and use the same methods of combat, but a systematic line of action will soon give results and save much trouble in the future besides removing these foes.

For irrigating many prefer to use the furrow method, which is very effective, and others prefer the various types of sprinklers, and here we would say that the finer the spray the less danger of the surface soil being sun-baked. When seed sowing use the best seed and sow thinly. The wheel cultivators are a real help in almost any garden.

Beans

Continue to make successional sowings of these during the month, using the varieties as advised last month, such as Golden Wax, Refugee, etc., and pole beans such as Kentucky Wonder. Those sown last month will be showing now well through the ground and should have attention in the way of cultivation between the rows. At the first sight of black fly or aphis spray with "Black Leaf 40," and should red spider or mite appear on the underside of the leaves spray with sulphur solution. Poles should be placed to support the climbing types of beans.

Tomatoes

Those already planted out will require watering and cultivating at intervals for a few weeks after which they will soon establish themselves. Do not delay planting this crop as they require several months to produce. Strong plants can still be obtained in the best varieties from the nurseryman. If the single stem method of growing is adopted the plants will need supporting by stakes and the young lateral shoots produced in the axis of the branches should be removed.

Onions

Seedlings of these where they are still to be thinned out may be replanted in rows for extending the onion plot, and the soil should be pressed firm around them when planting, while a few inches of the top foliage should be removed. Keep this plot well supplied with water and applications of soot or wood ashes will help greatly.

Pepper and Egg Plant

Secure plants of these. Chili and Bell peppers are good varieties and usually grown, while Early Long Purple is an excellent variety of egg plant. Plant about two feet apart in fairly rich soil.

Corn (Sweet)

Sow Country Gentleman, Golden Cream and Golden Bantam in rows two to three feet apart, and about one inch deep, placing several seeds in each group. Eventually thin out to three plants to the group. Corn thrives best in a rich soil and should be fairly well supplied with water.

Cucumbers, Melons and Squash

There is still time to sow these if sown at once, and we gave full directions for culture last month, also varieties.

Carrots

Thin out this crop, leaving the plants four to six inches apart in the row for the large rooted varieties. French Forcing may be grown three inches apart in rich soil. Make a sowing for succession of this variety, also Oxheart and Danvers half long.

Turnips

Sow Early Snowball or White Egg in rows two feet apart in rich soil.

Lettuce

Thin out those sown last month and transplant the strongest seedlings keeping the plot moist for a few days.

Potatoes

Keep the cultivator busy through this crop.

Peas

Make a sowing of the variety Melting Sugar.

Southern California

By D. F. Reichard

VEGETABLE gardens are the order of the day. The prospects are that they will nearly all be successful gardens, too. The interest taken in home gardens the past two years has resulted in the developing of thousands of gardens and the proper methods of handling them. This is gratifying because we must not forget the 20,000,000 tons of food we have promised Europe this year.

For those who have not their gardens under way there is still time to prepare for summer crops. Wet the ground to be used thoroughly and work up by spading or plowing at least ten inches deep and pulverize. If there is a heavy growth of weeds on the piece clean them off because turning under so much roughage at this late date allows too much air space and the soil dries out before the young plants or seed that you put in could get well started. Roughage or green manure should be turned under while there is still enough time and natural moisture to decay it.

The yearly fight on garden pests is at its height during this month. Unless one has been very diligent and taken all known precautions there will appear from all sides garden enemies; aphis, slugs, weeds, mildew, gophers, moles and others.

At the first sight of aphis or thrips spray thoroughly with Black Leaf 40, a tobacco preparation. Probably the most destructive pests are the chewing ones, such as slugs, snails, worms and beetles. For these arsenic poisons are used either in the dry form as a dust or mixed with water and sprayed. A preventive for snails and slugs is to dust powdered tobacco or air slacked lime around the plants. Fungus is controlled and prevented by the use of Bordeaux Mixture, lime sulphur solution or sulphur. Gophers and moles are most successfully controlled in the garden by the use of traps. Thorough cultivation helps materially in the control of pests as well as keeping the soil in proper condition.

Seeds and plants of most all kinds of vegetables may be sown this month with the exception of peas, turnips, cauliflower and winter cabbage. This is an especially good month to start beans, muskmelon, casabas, watermelon, corn, tomato, peppers and all tender vegetables which require warm weather.

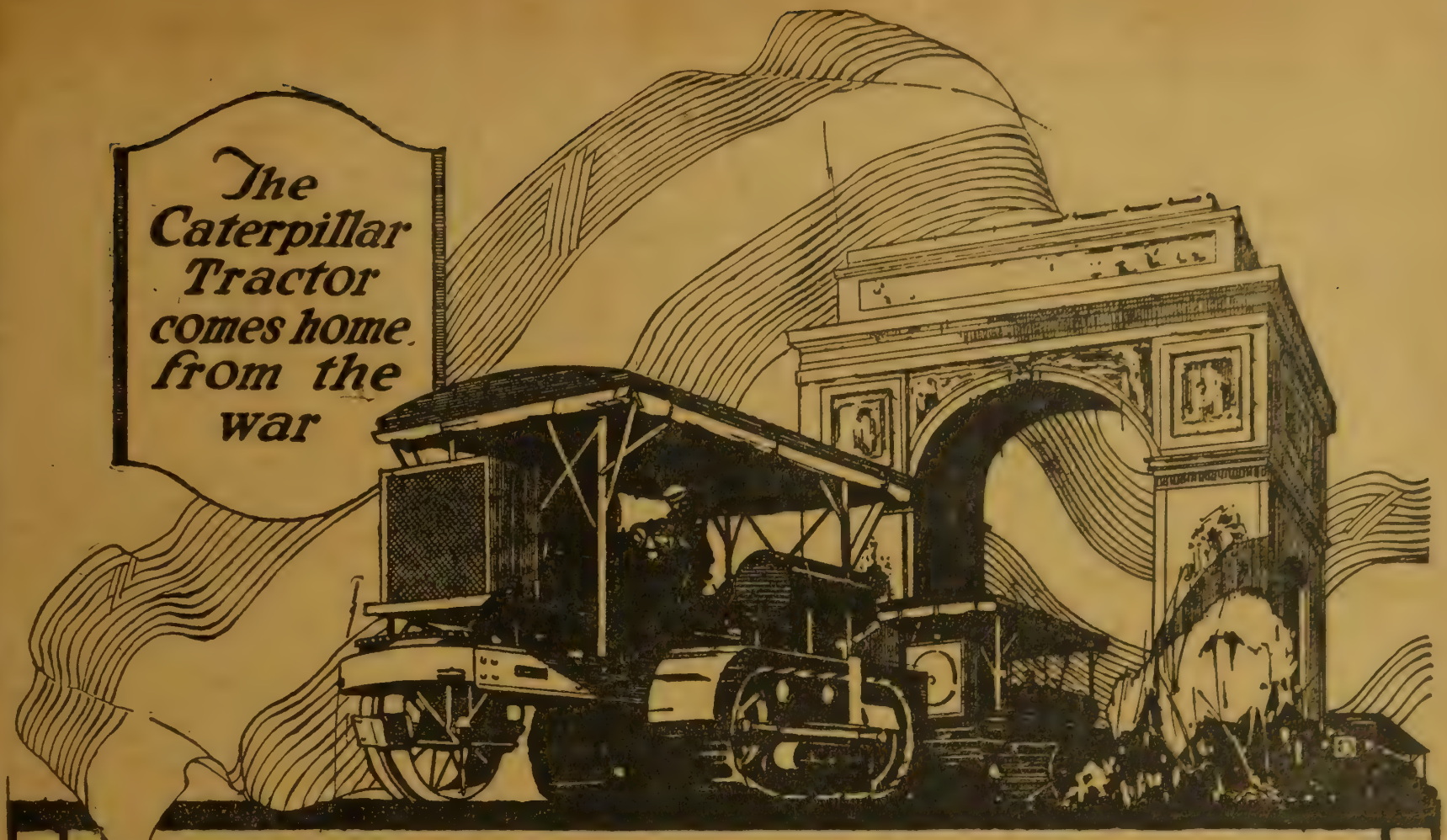
SOUTHERN GARDEN NOTES

By A. L. Clarke

Every California garden should have a little row of rhubarb. There comes a time every season when there is a gap between the old and the new fruit crop, and this gap is bridged very satisfactorily by pie plant, or rhubarb.

Rhubarb is a heavy feeder and for best results requires a rather rich and light soil. It can be grown from seed, but the more satisfactory way is to buy roots from reputable nurserymen

The Caterpillar Tractor comes home from the war



FOCH launches a drive. Yanks, Tommies and Poilus hurl themselves against the enemy line, and drive it back—slowly at first, then faster, and finally the enemy is in full retreat with the Allied Infantry right at his heels.

But the position is a dangerous one. It may be a trap—it might be, were the "doughboys" unsupported. But not this time! For the Allied Motorized Artillery is right behind the infantry, ready to throw a protecting barrage at a moment's notice.

Motorized artillery, and therein lies the secret of its effectiveness. Officers and men in automobiles and motorcycles; supplies and lighter ammunition in motor trucks, and heavy guns and caissons hauled by "CATERPILLAR" TRACTORS.

Now that hostilities have ceased, the part which the "CATERPILLAR" Tractor did toward winning the war is no longer a state secret.

Long before America entered the war The Holt Manufacturing Company was supplying "Caterpillar" 75 and 45 Tractors to the English and French. And as early as 1915, the U. S. Bureau of Ordnance, too, had conducted extensive tests and had decided to equip the first entirely motorized artillery corps the world had ever known—using "Caterpillar" Tractors exclusively for the heavy work.

These tests brought out—and four years of the most strenuous war service confirmed—two outstanding advantages of tractor-drawn artillery.

First, it was more efficient—could go faster—could go *anywhere,* regardless of the weather and no matter how shell-pitted the terrain.

Second, it was more economical—men and money were saved for important service elsewhere.

Of course, only the "Caterpillar" Tractor would do for the most strenuous war-time service. The self-laying-track principle, first successfully applied to a tractor by Benjamin Holt, and *proved out* in peace times upon thousands of the farms of America and other countries, was peculiarly fitted to conditions upon the battle-fronts. And the "Caterpillar" Tractor, both of itself and as the mighty armored "Tank" was able to do an incalculably great part in the overthrow of autocracy.

But at last the stress of war is ended and the Holt factories are again on a pre-war basis, able to make immediate deliveries of "Caterpillar" Tractors and prompt shipment of extra parts, released from important Government demands but strengthened by their war service and experience.

The same efficiency of principle; the same rugged construction—the same "Caterpillar" Track design, turning engine power into drawbar pull with minimum loss and enabling this tractor to work anywhere, any time—all the qualities which won for the "Caterpillar" Tractor honor upon the battlefields of Europe—are at the disposal of American Agriculture as in the days before the war.

Reconstruction time should be tractor time. Write today for full information regarding the "Caterpillar" Tractor—ask for Catalog 395.

"Caterpillar" Tractors built only by Holt or under Holt contracts and patents—the only track type of tractor adopted, after rigid tests, for the hardest war service of America, England and France

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or growers and thus save a year's development. In planting the roots do not cover the crown with dirt and give adequate irrigation. The stalks should not be pulled the first year, but blossoms should be removed. In pulling stalks on mature rhubarb, give the stalk a sharp twist to one side and it will come off easily.

Giant Winter Crimson is the popular California variety, but New Strawberry is a promising new variety.

In the coastal region of Orange County this year melon growers are planting onion sets with their muskmelon seeds to keep the squash bugs away. It is claimed that the bugs object to the onion odor and will keep away from the vines in which they are planted. Some skeptical ones, however, will continue to dust their vines with ashes or lime as a preventive measure.

It isn't too late to plant a row or two of roselle in your garden, and nothing will add more to your pleasure and satisfaction. The seed should be planted three feet apart each, allowing for enough to thin plants when up. Do not cover more than an inch deep. The roselle makes a jelly that is a real rival to currants and is a most prolific producer. The blossom somewhat resembles okra bloom and the stalk is valuable for its fibre.

A beach gardener declares that he can always drive out marauding gophers from his garden with stale fish heads. The hole is excavated and the fish heads dropped in.

Now that the rains are over it is all essential that moisture conservation be practiced in order to save irrigation during the coming summer. The dust mulch has been found the best method of conserving the moisture in the soil, but the pulverized surface not only arrests the capillary rise of moisture, but it should as well check it at a point out of reach of the free entrance of air to the loose layer. There is no hard and fast rule as to the depth of this dust mulch, but if the top layer is scraped away by the foot to the depth of a couple of inches and there is no moisture underneath it must be assumed that the ground was not thoroughly prepared before planting.

If one has a garden of any size, even a full lot, a wheel hoe is almost a necessity. There are several makes on the market, ranging in price from $4.00 to $20, but often real bargains in second hand ones may be had for half or less the original cost. In furrowing out for planting and irrigating, making a dust mulch and keeping the weeds in control the wheel hoe reduces labor more than half and gets better results. The Norcross hoe cultivator, costing less than a dollar, is another fine tool for the garden if one hasn't a wheel hoe.

Don't let the weeds get a start. Remember they take from the soil both moisture and fertility.

Another don't—don't cultivate or work among your beans while they are damp from dew or fog. Rust will follow if you do.

This Month in the Ornamental Garden

Southern California

IRIS of nearly all varieties are now in full bloom. There are literally hundreds of varieties, and this is the season for the home maker to open eyes and use note books as to varieties which will be wanted for planting in July or August. The later blooming varieties may still be fertilized so as to push larger and more luxurious flowers. It's the poor man's orchid. Don't forget the iris.

One may still plant dahlias where dormant tubers are to be had, but it is too late to divide plants which were left in the ground over the season. Dahlias are wonderful bloomers and persist from early summer until frost comes.

Gladiolus may also be planted. Those which were planted in January are now several inches high and ready for fertilizer and abundance of water.

Daffodils and other early bloomers are now ripening their bulbs and later in the month may be ripened sufficiently so that when the leaves turn yellow they may be lifted and stored in cool, dark place or in dry sand. After the bulbs of these early spring bloomers are thoroughly ripened it is better to lift them and dry off during summer months and give October or November planting.

Coreopsis is now coming into bloom and in a short time will be scattering seed everywhere and a crop of volunteers next year will result. These plants are worthy of more atention, especially for neglected or out of the way corners.

The plant grower must bear in mind that the warmer, trying days are coming, and all plants not given abundance of moisture are sure to suffer. At this season a mulch of clippings from the lawn or of leaf mold about the roots of choice plants aids them in resisting the greater heat of the interior valleys.

Perennials such as chrysanthemums, violets, golden glow, goldenrod, Shasta daisies, and other plants subject to root division or growing from tip cuttings, should be given atention. We believe this class of plants give more for the effort than most others in our gardens. The method of dividing is to take up a clump of the roots and break off each slip or young shoot and set the young plantlet by itself. They are almost sure to grow and give a wealth of bloom in September and October.

Excepting on the lawn, do but little "sprinkling". A spray of moisture over the leaves of some of the plants at evening time is most agreeable to them, but irrigation of the soil calls for drenching and a supply of water which goes to the lower depths of the roots.

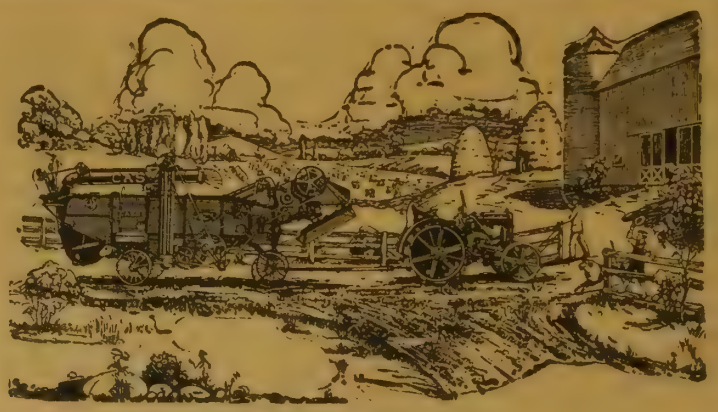
Northern California

By A. R. Gould

THROUGHOUT the month moisture will be an all important factor, and it is essential that this be carefully studied. Conservation is the chief aim, and cultivation of the surface soil will be in order. Then again we can resort to mulching. Trees and shrubs will need it and leaves or farm yard manure may be spread around the roots. This will not only help to hold the water until the roots have been soaked when the sprinkler has been used but will also hold the moisture in the soil. For mulching smaller subjects, such as annuals and perennials, clippings of lawn grass can be used, but of course we would not advocate even this if the lawn contains weeds, but then a real lawn should be free from weeds, otherwise the seeds will be distributed over the garden and there is nothing worse than burr clover and dandelion for becoming a general pest, necessitating extra labor to eradicate. The water problem, however, is the greatest from the careful grower's standpoint. To know when a plant needs water and when to withhold is often times the secret of raising what are often known as delicate plants and will prevent the loss from the common cause of "damping off," of which so many complain. Hence the best plan is to study your subjects and only water when your plants really need it. Furthermore, the type of soil will also have to be considered. Plants grown on a light, sandy soil will naturally need more water than those grown on a heavy, stiff clay or adobe. We would also advise a raid this month on the plant pests, no matter whether insect or fungoid. Do your bit to make the plant world safer for our friends to live in. Among the I. W. W.'s of the insects are aphis, green, brown or black fly, meally bug, white or red spider, cut worms, caterpillars, slugs and snails. For aphis or meally bug a gentle dose at intervals of "Black Leaf 40;" for mites, use sulphur in solution, and arsenate of lead will destroy cut worms as a contact poison, in fact is excellent for leaf eating insects, which also refers to caterpillars. With regard to slugs and snails these are very much in evidence just now and are very busy during the night when many may be caught at work. A pocket flashlight will assist. During the day they will be found in hiding in various thick clumps of perennials, under heavy foliage and behind small rocks and under boxes, in fact they carefully select their hiding places, and it will be advisable to destroy them now before they increase their number. They very quickly attack young shoots of

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delphiniums, goypsophila and any young seedlings, hence they are a dangerous pest.

Among the fungoid pests or diseases we have rusts, which attack roses, grasses, hollyhock, carnations and snapdragons, and these are practically all different. Then there is mildew, which is prevalent also on roses, delphiniums and other subjects. These fungoid diseases are hard to prevent as they are mainly governed by sudden changes in temperature or weak stock, which often results from cross breeding. Hybrids are especially subject to attack by fungus, and we find among the roses that hybrid varieties are often victims. If the plants are very severely infected it will be better to burn them. Furthermore the speres would very quickly spread to other plants. As a preventive or if the disease is suspected, spray with a solution of sulphate of copper or Bordeaux mixture. Mildew is a troublesome disease and has been known to cause havoc among many plants. At the first sign of an attack sulphur should be applied either in dry or liquid form. The latter is to be preferred.

Successional Flowers

To have a continuous display of flowers is the desire of most garden lovers, and while it needs a little extra forethought and labor yet it is possible to so arrange things that you can have a variety and plenty to cut from if seeds of annuals are sown at intervals. We would advise sowing the following at once: Snapdragons in variety, Shirley poppy, nasturtiums in variety, nemophila, nemesia, stocks, mignonette, larkspur annual, gypsophila, marigolds, French and African types; godetia, centaurea, calliopsis, balsam, candytuff, asters and arctotis grandis. These should be sown in well prepared soil on a semi-shaded border and transplanted, with the exception of Shirley poppy and mignonette which should be sown where they are to flower and very thinly broadcast.

Dahlias

Complete the planting of these popular flowers this month and see that the tubers have rich soil to thrive in. There are now some thousands of varieties, of many shades and comprising several types. These are excellent for decorative purposes, in fact many beautiful new colors may also be secured from a packet of seed of single dahlias, and these should be sown at once in a box of light soil in a warm situation.

A Rare Summer Flowering Shrub

Cantua Buxifolia is very choice and very hardy. It is of drooping habit and the fuchsia-like flowers are of a crimson shade. It delights in a sunny position, and should be grown in fairly rich soil.

Eugenia Myrtifolia

This very handsome shrub makes a splendid hedge and when the new growth appears in the spring the red tints are most effective. It can also be grown as a specimen shrub and should be in every garden.

WOOL GROWERS MEETING AT DAVIS

If plans materialize that were proposed at the annual meeting of the California Wool Growers Association at the University Farm, April 25, the sheep industry of California will be organized on a basis that will greatly strengthen the industry.

President Fred A. Ellenwood suggested that the time had come when the association should become more active and proposed that a secretary, preferably a man thoroughly acquainted with every angle of the business, especialy marketing, be employed, and that he would devote his entire time to the work of the organization.

The suggestion met with the approval of all and a plan for financing the work is being considered.

Drs. J. A. Payne and J. H. Hammond of the bureau of animal industry and Dr. J. P. Iverson, state veterinarian, reported on the scab situation. Considerable scab exists in various sections of the state, principally in Northern ranges. The condition is not considered alarming. The governmental and state officials declared that with proper cooperation on the part of sheep owners the disease could be controlled and eventually eliminated. The association decided to go before Governor Stephens and urge that he sign senate bill 747 which appropriates $9000 for scab control work during the next two years.

O. M. Shaw, president of the Imperial Valley Wool Growers Association, outlined the plan of organization and operation that has proven so successful in the marketing of mutton and wool from the valley. According to Shaw the organization which was started last October operates along cooperative lines and at the present time includes 60 or 70 members owning about 120,000 ewes. Practically all of the lambs and fat sheep controlled by the association this year have been marketed at Kansas City at an advance of 50 cents to $2.50 over Coast markets. The association also markets wool to advantage. Shaw stated that as a result of the organization the members had secured better prices, and at the same time the consumption of mutton had been stimulated in the community.

C. E. Rachford of the United States forest service stated that the mountain ranges were in better condition than for several years.

Chas. A. Kimble of Hanford offered a resolution, that was accepted, assessing the members one-half cent per head, 50 per cent to be used in scab control and the balance for other purposes.

J. H. Holman of the Federal Wool Company, Boston, made an interesting exhibit of wool, and told the sheep men of the advantages of properly grading and scouring wool.

The following officers were elected for the ensuing year: President, Fred Ellenwood, Red Bluff; vice president, Chas. A. Kimble, Hanford; treasurer, Frank Bullard, Woodland. The office of secretary was left open, pending the materialization of the plan to employ a permanent secretary.

A Three Day Trip of the Southern California Duroc-Jersey Association

By R. K. Walker, Secretary Southern California Duroc-Jersey Association

In honor of Fred De Vore of the Duroc Bulletin, the breed paper, the Southern California Duroc-Jersey Association conducted a three day auto party visiting all the Duroc herds in Southern California.

Mr. De Vore is considered one of the best hog judges in America and has been instrumental in bringing before the public a large number of the boars that today are making the breed so popular. Mr. De Vore can see but one type of hog, one that is big and one that is of the correct type. He is a rabid opponent of the "just medium good hog."

The first visit was to the Donald Graham herd at Lancaster where his great boar was seen. This boar was junior champion at the California Liberty Fair and is certainly a splendid specimen of the breed. Mr. Graham is mating him to some fine sows.

Next morning the party assembled at Conejo Ranch, Newberry Park. H. H. Braly brought out his giant son of the world's famous Pathfinder. The crowd took to him at once. Mr. De Vore pronounced him one of the best boars on the Pacific Soast. They have also a fine son of Great Sensation and a splendid collection of over 50 real brood sows. Pigs by Councilor, the 1918 California State Fair grand champion, are looking like real prospects.

At the Elliott Brant Ranch, Owensmouth, a herd is just being started, but no money is being spared to begin with the best. This herd will be heard from. In fact they have already sold one boar for $1000.

At Dr. Creamer's Ireland Ranch at Owensmouth, the Riverside grand champion boar, Cherry Volunteer 2nd, was the main attraction. He is getting some fine pigs and one of the visitors could not help "talking business" and came away the owner of an extra good boar pig. Two extra good Great Model gilts were also shown which were out of the litter that the Doctor cleaned up with at the Liberty Fair.

J. C. Craig next showed the party his good start of Critic bred gilts at his new ranch east of Owensmouth.

The Stevenson herd at Van Nuys is small but they have the right kind of a start in a litter of pigs by Great Model out of an Orion bred dam.

De Vore said he would give W. B. Hewitt the palm for being the best feeder he had seen on the Coast. Mr. Hewitt showed us the yearling gilts and boar he won on at the Riverside and the Liberty Fair; Mr. De Vore said that with one exception the boar was the largest for his age he had seen in America. Pretty good for California.

At the W. Charles Swett herd on the state highway, we saw a real good grandson of Pathfinder. This boar, together with a number of gilts, was bought in the East for him by Bert Manley.

After a night in Los Angeles we visited the great new breeding plant being installed at Spadra by Mr. Lewis. It is called the Diamond Bar Ranch and Walter Gatton is the manager. Already a double brooder house is built 200 feet long and will be extended 500 feet more as the herd increases. The foundation of this herd includes 60 top animals bought from the Conejo Ranch and includes the great boar Great Wonder 2nd. A pen of gilts by a son of Great Sensation was an attraction to the crowd. Great Sensation just broke all world's records for all breeds when 50 sows bred to or sired by him sold at Stanton, Nebraska, for $1021 each.

H. S. White showed us some mighty fine sows either bred to or sired by Rivera Col, his great son of Model Col. Mr. White's herd includes daughters of Grand Model 8th, Model Col, Cherry Friend, and Grand Golden Model.

At the George, Jr., Republic, R. A. Condee and Mr. Davis took great pride in pointing out the results in farming and in breeding Duroc-Jersey hogs and Holstein cattle, by the 60 self-governing boys. They have done well and Mr. De Vore pronounced their sow De Vore Model Lady to be one of the best he had seen on the Coast.

At Fontana Land Company's ranch at Fontana we saw a very nice boar from the Hoover herd in Oregon, and an extra good son of Great Model and Cardinal Lady C., which Mr. De Vore pronounced to be the best junior yearling prospect he had seen on the Coast.

J. S. Prendergast has a good herd of Durocs at San Bernardino. He has sows by King the Col, Great Model, and a son of Great Wonder. We also saw a good young boar prospect by the Hanks and Bishop boar Col Select and out of a Golden Model sow.

Falfadale Farm at Perris was the next stop. Here Bert Wilkinson showed us the largest boar in California and

(Continued on page 633)

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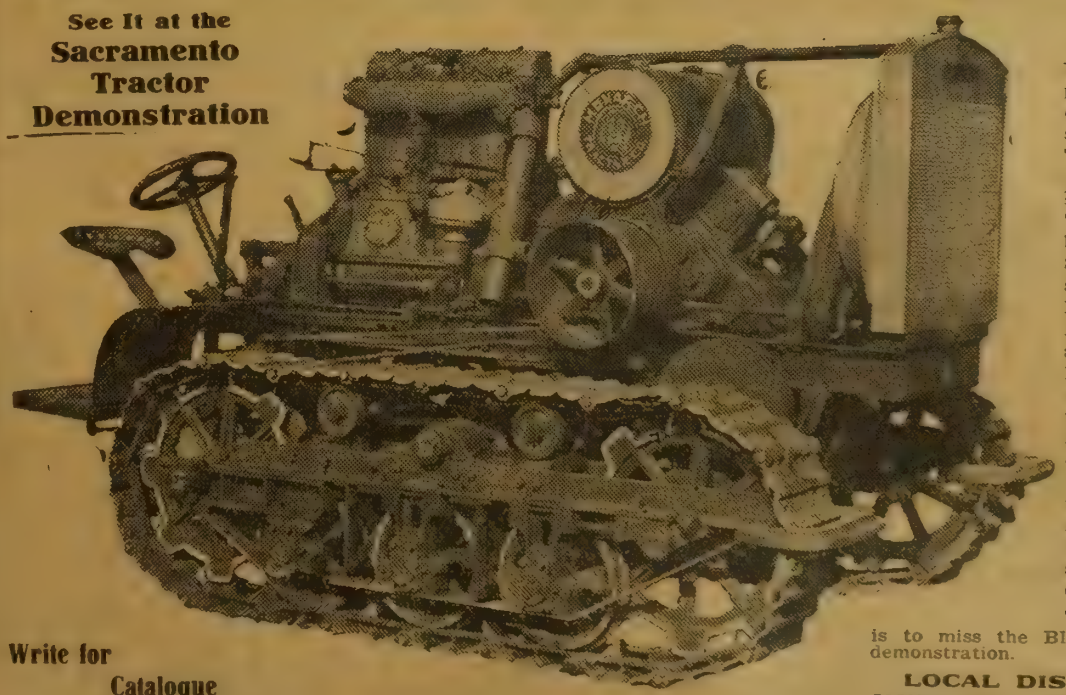
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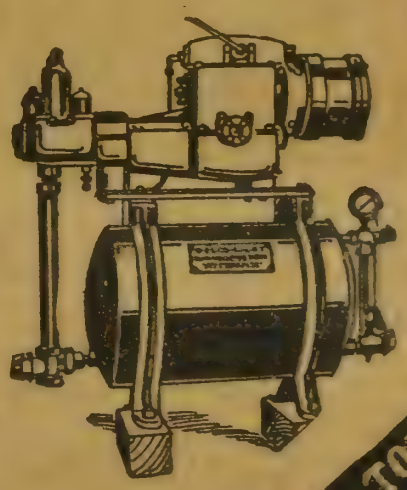
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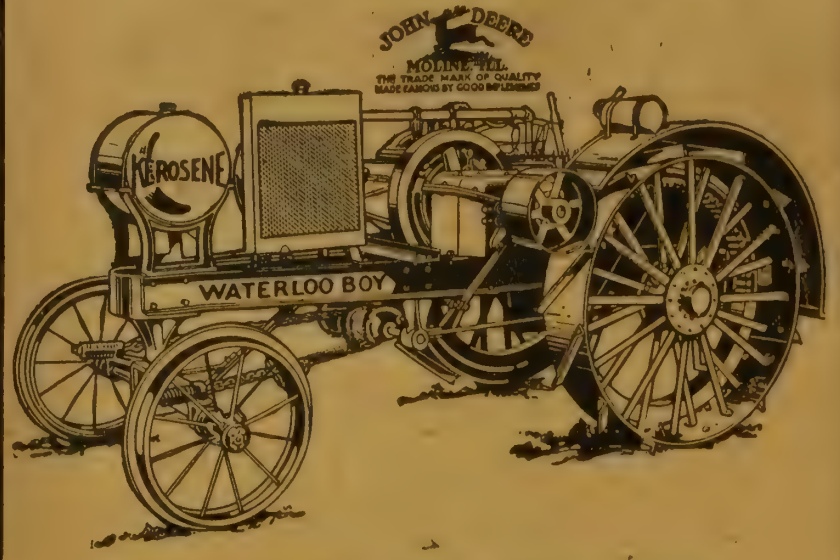
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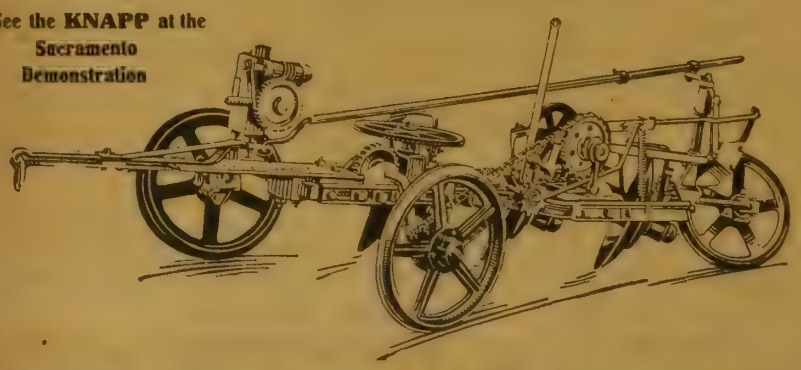
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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Slimy Milk

Will you please tell me the cause of our milk turning slimy the day after it has been separated? We feed our cattle Lima bean straw and wild oat hay with a mash of bran and alfalfa molasses night and morning. The cows are in good condition but get no green feed. Is the milk fit for use?—Subscriber, Encinitas.

Probably the trouble to which you refer is the most common of all dairy infections. We do not think the trouble is with the feed or with the cow, although there is a possibility it may be due to garget or a diseased condition of the cow's udder. In this case there is liable to be bloody milk. Where it occurs the day after milking it is a case for utensil inspection. This is a bacterial trouble and is most persistent and a thorough cleansing of all utensils and stable surroundings is necessary. The bacteria is sometimes brought to the dairy by creamery and milk distributing centers. Thorough scrubbing with warm suds followed by application of boiling (note that it must be boiling) lime water or, better, disinfection with live steam will correct the evil. Regarding the use of milk for food "Practical Dairy Bacteriology" by H. W. Conn, speaks of milk which is slimy from growth of bacteria several hours after milking as follows: "Such slimy milk is apt to be counted as a total loss, for it is usually regarded as absolutely worthless. But there is no reason to think that the milk is really unwholesome. Indeed, in Norway the people are fond of such milk and frequently use artificial means to produce it, preferring slimy milk to the ordinary kind. In this country slimy milk is thrown away or fed only to pigs. Since the sliminess does not appear until the milk is several hours old, no loss ensues when the milk is used immediately."

Strawberry Leaf Spot

Prof. H. S. Fawcett of the state experiment station gives further information as to leaf spot of strawberries. He writes:

These spots contain the fungus known as Sphoerella fragariae. This is a common leaf spot of strawberries. Moisture and heat are said to favor the disease, while moisture upon the leaves is necessary to infection. Weather favorable to infection followed by hot, dry days, may bring about considerable injury. Plants growing upon heavy, wet soil are apt to suffer more than those upon dryer soil. I find that Stevens and Hall in their book on "Diseases of Economic Plants" gives the following comparison of the resistance of various varieties: Blight very rare—Daisy, Eureka, Jewell, Triumph de grande. Blight rare—Belmont, Lady Rusk, Scarlet Queen. Blight frequent—Annie Forest, Bomba, Bubach, Burt, Captain Jack, Covill, Crawford, Cumberland Triumph, Dutter, Gandy, Gold, Gypsy, Haverland, Henderson, Itaska, Jessie, Lida, Logan, Mammoth, May King, Miami, Ontario, Parry, Pearl, Phelps, Pineapple, Primo, Summit, Sunset. Blight abundant — Barton's Eclipse, Cloud, Gandy, Pride, Great America, Loudon's 15, Piper. Blight very abundant—Monmouth, Ohio, Photo, Sanafee, Warfield." Stevens and Hall also suggest that frequent change of beds, also cutting, gathering and burning or burying of tops in place after harvest will often lessen the disease. The use of Bordeaux spray after the removal of the diseased leaves may also lessen the infection of the following year.

Breeding Up R. I. Red

I would like some advice about a Red pullet I have. She is just a year old and commenced laying in November at a few days over six months old. She has laid 132 eggs in 157 days, which I consider fine. For a long time her eggs were rather small, and still I think they are a trifle undersized. They hatch fine but about half the chickens have stripes on them like Brown Leghorns. The others are a solid color. They grow well and are even larger at three months of age than some of the two-year-old hen's chicks. She is supposed to be a pure bred and is mated to a cock I bought from a 240 egg trap-nested pen. I am sure the trouble is with the hen as it has not shown up in the others. Could I honestly pick the solid colored chicks of hers and try to breed up a fine bunch of pure bred chickens or would it just keep cropping out later? I would not want to sell chickens or eggs and not have them be what they should be, but she is making a better egg record than my other hens and I hate to have to cull her pullets out. —M. B., Linsday.

One cannot always tell by the looks of young chicks what they will look like when they are grown, but if the chicks that are hatched with stripes still show them at three months of age or older, a cross of some sort, very likely Brown Leghorn, would be indicated. By breeding the solid colored pullets to a male of unquestioned pedigree, you will eliminate the stain in time, but there may be some throwbacks for a long time. Just how long depends on how deep the stain is. It seems to me I should not want to sell the eggs as pure bred until I had tried them out myself and learned just what per cent were likely to be striped. There will be fewer next year than this, if you mate each year to a pure bred male. It was just in this way, by mating pure bred males to mongrel females, that the Rhode Island Red breed was built up in the first place. Certainly you should not discard so good a layer, even if you do have to breed out the results of a cross. Why not breed her by herself for a while and see what you get, in production as well as color?—J. A. K.

Roup of the Eyes

What causes chickens and turkeys to get swelling of the head and then some white stuff starts to grow in the eyes and if I don't put something in their eyes they lose them? Last fall one of my turkeys lost one eye that way. What is the best thing I can do to cure them? I have been using iodine and peroxide.—Subscriber, Oxnard.

Your birds have roup of the eyes, which is often associated with false membranes in the throat but sometimes appears without other symptoms. Harrison & Streit recommend washing the eyes twice daily with two per cent boracic acid in a decoction of chamomile flowers. I presume any druggist could put this up for you. Drop into the eye with a dropper or from a bit of cotton. A one-half per cent solution of corrosive sublimate is also recommended, but this must be handled very carefully since it is very poisonous. The disease may come from weakness or roupy tendency in the breeding stock, and it may be due to dampness or lack of

ventilation in their sleeping quarters. To a certain extent it is contagious, that is, one bird with a chronic case of roup might go through the summer without much inconvenience to herself and then in the fall pass on the disease in aggravated form to the young turkeys and chickens.

When you have cured the existing cases your work is only half done. Roosting quarters must be made clean and dry, with plenty of fresh air, and all the birds that have been sick must be banded so that they will never be used in the breeding yard. Many expert poultrymen believe that the only way to eliminate roup from their flocks is never to doctor the disease but to kill every sick bird as soon as the disease can be diagnosed. This seems heroic, but it certainly saves trouble.

Mildew—Aphis

I enclose leaves of a climbing rosebush. Please tell me what it is infected with, and what to do for it. Have been told it is mildew. Also is there any spray that will kill the little green flies that are thick around the rose buds?—Subscriber, Patterson.

These leaves are seriously infested with mildew, for which a safe treatment is powdering leaves with best grade of flowers of sulphur. This can be scattered over them every few days, preferably in the morning when covered with moisture. The success of this treatment depends largely upon warm weather following the application. The sulphur will have no effect on trees already affected but may prevent spread to others. The small green flies, or aphis, can be knocked off by spraying with strong stream of water, or you may use a spray of tobacco extract. This is a commercial product and full directions for application will be found on container.

Canker in Squabs

I have lost several squabs of late from a hard tumorous growth on the intestines, sometimes forming after the squab is about half grown. It is of a whitish yellow, cheesy appearance and seems to sap all the vitality. I supply salt, grit, charcoal and good wholesome grain and green food. Could you suggest a remedy?—Subscriber. Palms.

The disease referred to is termed canker. It generally starts to form when the youngster is three or four days old and appears on the umbilical cord, commonly called navel. If the parts around the navel are pressed, the growth, which is small at that age, can be pressed out, after which an application of Munsell's Solution should be applied. If the case is one of long standing the growth will have become very much enlarged and fastened itself on the entrails, in which case I have never known one to recover. If taken in time, however, a large percentage can be cured.—H. R. S.

ESSENTIALS IN AFTER-THE-WAR AGRICULTURE

Now that farming is to be restored to a peace-time basis, the United States department of agriculture believes that many lands formerly devoted to pasture but recently used for emergency grain production should be reseeded to grass.

The signing of the armistice found the United States with relatively large supplies of foods and relatively small supplies of feeds, with much land somewhat impoverished by having been planted to grain year after year, and with a still urgent demand for meat and fats.

Numbers of all classes of live stock have been maintained. Those of swine and sheep have been increased, the former largely, the latter slightly. But the quantities of forage and pasturage for live stock have been diminished.

Sound agricultural practice demands the reestablishment of regular and satisfactory rotations so that fertility may be restored and the live stock carrying capacity of the land increased.

Live stock, since it helps to retain fertility on the land, provides a profitable use for large amounts of roughage and gives employment to labor throughout the year, should find a place on a larger number of farms.

Diversified farming should become more general, to the end that each farm shall produce the necessary food for its family and the necessary feed for its live stock.

Loss from preventable plant diseases should be guarded against by seed treatment and spraying.

Harvesting of fruits and vegetables before exposure to frost, and greater care during harvesting, packing, storing, and marketing, are urged, together with continued organized efforts for the prevention and control of diseases of animals.

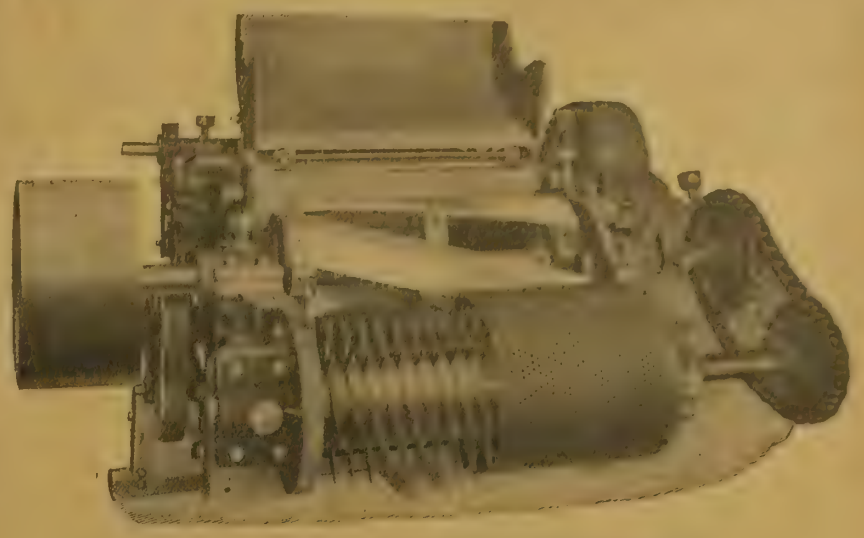


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Willows, California

CALIFORNIA CHAMPION HAMPSHIRES

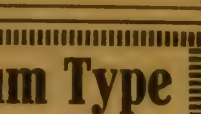
As good as the best and better than the rest. A boar or a sow pig sired by my great herd boar Director, and out of one of my choice sows will add prestige to your herd. I am booking orders now for the pigs of March and April farrow. Write now and place your order.

L. A. DENKER

Boquet Canyon Saugus, Cal.



ANCHORAGE FARM BERKSHIRES ARE PROFITABLE



Start Right Now

Your success with pure bred swine depends to a great extent on your foundation animals. Anchorage Farm has for immediate shipment young pigs, both sexes, in prime condition to be grown out into large, profitable Berkshires. These pigs are priced extremely reasonable and carry the blood of the best there is in Berkshires.

Remember they come from the home of the World's Famous Sire—

Star Leader

Write for prices and complete description.

Anchorage Farm, Orland Cal.

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett

Hanford, Kings County, Cal.





Raise Your Hogs and Cattle at a Profit

Assist Nature by Feeding

Economy Stock Powder

A general conditioner, a worm expeller and a disease preventive.

Send for FREE SAMPLE and our BOOK on LIVE STOCK.

Save Your Hogs

ECONOMY HOG & CATTLE POWDER CO.
Hearst Bldg. San Francisco, Cal.

Hauser's Digester Tankage

GIVES GREATEST VALUE FOR LEAST MONEY
IT MAKES THEM FAT

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AUCTIONEER

Sacramento

(1004 5th Street)

My services are available to all who plan to sell live stock, farm equipment or real estate, and who want the high dollar. Pure bred live stock sales a specialty. Terms reasonable. Write or wire for dates.

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families.

Registered Berkshire Pigs

Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.

Careful attention given to mail orders.

Whittier State School

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California

George Junior Republic

Breeders of

Registered Holstein Friesian Cattle

Registered Duroc-Jersey Hogs

Stock for Sale Visitors Welcome

Chino, Cal.

California Breeders

have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

CALIFORNIA BREEDERS SALES & PEDIGREE CO.,

C. L. HUGHES, Sales Mgr. Sacramento, Cal.

James McGillivray Buys Two Herd Bulls

When James McGillivray, Sacramento, dispersed his entire herd of grade Holsteins on April 29 he made more room for the better handling of his excellent herd of registered Holsteins, which now numbers around 250 head of females from calves up to mature cows, and for the further improvement of his pure bred herd has recently secured two royally bred young bulls who will take their places at the head of the herd.

The oldest one of these is by Champion Echo Sylvia Pontiac, son of the great Canadian cow May Echo Sylvia, who is also famed as the dam of the $106,000 bull Carnation King Sylvia. Champion Echo Sylvia Pontiac is by Spring Farm Pontiac Cornucopia, whose dam is K. P. Pontiac Lass, 44 pound daughter of King of the Pontiacs.

The dam of this bull is Princess Stella Segis, with official records of 29.88 pounds butter from 507.2 pounds milk as a senior four year old, and she is a daughter of King Pieter and out of Countess Segis, a 31.70 pound daughter of King Segis. The seven nearest dams of this young fellow average 582.55 pounds milk and 31.75 pounds butter in seven days, and the fourteen nearest dams average 573.65 pounds milk and 29.45 pounds butter in seven days. He is a high class individual of unusual promise, and when it is considered that among his first seven dams there are such cows as May Echo Sylvia, Countess Segis, K. P. Pontiac Lass, May Echo Verbelle, Blanche Lyons De Kol, there is every expectation that he will transmit outstanding type and production.

The younger sire secured by Mr. McGillivray is sired by Rag Apple Korndyke Colantha, who is by Rag Apple Korndyke 8th out of Colantha Pietertje Korndyke, 30.80 pound junior four year old daughter of Pontiac Korndyke. The dam of this youngster is Abby Hartog Clothilde 2nd, 27.16 pound four year old daughter of Admiral Walker Gelsche and the famous producing and breeding cow Abby Hartog Clothilde, 31.39 pounds butter in seven days. Five of the seven nearest dams of this young bull average 578.28 pounds milk and 31.3 pounds butter in seven days. An interesting and significant feature of this young bull's pedigree is the fact that five of his seven nearest dams have produced 22 A. R. O. daughters six of them with records above 3 pounds butter in seven days.

These two richly bred young sires will be used on the large number of daughters of Dutchland Sir Korndyke Colantha and King Pontiac Ruby Burke now in the herd, as well as the good list of mature cows by other sires.



A Grandson of May Echo Sylvia

Owned by James McGillivray, Sacramento. One of the most highly bred registered Holstein bulls in California.

Urges Hog Raisers to Join in State Wide Marketing Organization

THE California Swine Breeders' Association which will meet in annual session at the University Farm, Davis, April 10th, is planning a campaign the object of which is to induce every hog raiser in the state to join the association in the formation of an organization of state wide proportions and representing the entire industry. On March 17 C. B. Cunningham, president of the association, appeared before the convention of farm advisors held at the University Farm and outlined the contemplated campaign and solicited their assistance. Cunningham said in part:

"Twenty five years ago more hogs were produced in California than are produced here today, but the quality left much to be desired. Prices were rarely over six cents and I remember one year when the prices were only two cents. It used to take anywhere from 18 to 30 months to get a hog up to average weight. The poor quality produced and the poor prices paid caused many to quit, and the industry lagged.

"Not so very many years ago, say six or seven, it was claimed that over $30,000,000 was spent each year outside of this state for the pork products we consumed, and it was felt that if this big amount could be kept at home it would mean much to every line of business operating within the state. How could it be accomplished?

"About seven years ago a few breeders met at Davis and the California Swine Breeders' Association was started. We started with but 23 members and selected for our slogan 'More and Better Hogs.' We have accomplished much, but there is plenty yet to do.

"Five years ago 70 per cent of the packing hogs killed in California were produced outside of this state. In 1917 practically the entire kill of packing hogs were produced within the state, and quite a few carloads were shipped out on foot. In 1918 just closed I believe that the same holds ture. This is where the "More" part of our slogan was carried out. Now for the "Better" part. At a number of the meetings of packers held in San Francisco last fall and winter, and also in numerous newspaper articles the largest packers of both San Francisco and Los Angeles stated that the quality of the hogs received by them during 1918 were equal to and compared favorably with the best received at eastern stockyards. I am not claiming we did it all, but we certainly started it and kept the good work going. Education, a constant repetition, week after week, has brought about this change.

"We are producing more and better

THE BEST LINIMENT
OR PAIN KILLER FOR THE HUMAN BODY
Gombault's
Caustic Balsam
IT HAS NO EQUAL

For the Human Body — It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Boils, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

A Perfectly Safe and Reliable Remedy for Sore Throat Chest Cold Backache Neuralgia Sprains Strains Lumbago Sore Lungs Rheumatism and all Stiff Joints

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. BEYER.

Price $1.75 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R.

The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.



Kreso Dip No. 1
(STANDARDIZED)
Parasiticide. Disinfectant.
USE IT ON ALL LIVESTOCK
To Kill Lice, Mites, Fleas, and Sheep Ticks.
To Help Heal Cuts, Scratches and Common Skin Troubles.
USE IT IN ALL BUILDINGS
To Kill Disease Germs and Thus Prevent Contagious Animal Diseases.
EASY TO USE. EFFICIENT. ECONOMICAL.

FREE BOOKLETS.

We will send you a booklet on the treatment of mange, eczema or pitch mange, arthritis, sore mouth, etc.

We will send you a booklet on how to build a hog wallow, which will keep hogs clean and healthy.

We will send you a booklet on how to keep your hogs free from insect parasites and disease.

Write for them to

Animal Industry Department of
PARKE, DAVIS & CO.
DETROIT, MICH.

Carruther's Shorthorns and Berkshires

Choice collection of breeding cows—mostly Scotch—and representing the leading families, headed by Count Glory, grand champion at the last three state fairs, and Hallwood Villager. Bulls for sale at reasonable prices. Berkshire herd headed by the noted boar Ames' Rival 100. Correspondence invited.

W. M. CARRUTHERS, Live Oak, Cal.

Col. W. C. Lookingbill
Auctioneer
"Specialist" in Pure Bred Stock, Dairy Cattle and Real Estate
Will Appreciate Your Work
Address: Riverside, Calif.
P.S.—Will buy any good Dairy Herd or Beef Cattle

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

pork, and our hams and bacon, California grown and cured, are slowly but surely forcing the Eastern brands out of our local markets. The coast agent of a certain large Eastern packing firm told me recently that not more than 20 per cent of cured ham and bacon was arriving in California now as compared with arrivals of five years ago.

"Our state organization, while it lacks considerable of being all it should, still is a good nucleus to work with. Our present membership is between 400 and 500, widely scattered throughout the state, and this membership probably does not represent over 12 or 15 per cent of the number actually engaged in the production of swine.

"Nearly every farm bureau in the state has included among its activities for the present year's work the two projects of live stock and marketing, and if we are to produce more and better live stock we must first be able to assure the producer that he can realize a reasonable profit over and above the cost of production, and the only way he can be given that assurance is by having the right kind of an organization that can take care of the marketing end and help him to get his stock in market condition in the shortest possible time and at the lowest possible cost. By having the producer work with the department of animal husbandry and the extension department he can be started right.

"During the past year while serving as a member of the Federal Live Stock Commission this fact was deeply impressed on my mind: that for the live stock interest of this state to be successful it was necessary for the live stock producers to get together in a state wide organization.

"Mr. Nares, president of the Cattlemen's Association, and also a member of that commission, has perfected an organization that is by far the best of its kind in the United States.

"The directors of our association have undertaken the work of getting all the swine breeders of the state into a similar organization. It will be difficult, but I feel quite certain that with the cooperation of the different farm bureaus throughout the state it can be accomplished.

"California should be the greatest live stock producing section of the United States and we should produce not only enough to supply the needs of our 4,000,000 population, which will soon be here, but to have a big surplus for export to South America and the Orient as well.

"The results such a large state organization can accomplish are almost endless. A very few of the most important are: securing the proper necessary legislation; the best possible markets; preventing individuals and corporations from taking undue advantage in different localities; attending to sales, shipments, feed and all kinds of supplies and in fact putting the industry on a perfectly safe basis.

"I fully realize that certain counties in the state have splendid organizations that are handling the marketing end most successfully at present, but I believe that I can see a future when these auction sales are not going to be as satisfactory as they are at present and we must be fully prepared to meet that condition when it does arrive, if it does, and have some definite plan of marketing that can be successfully substituted for the present system. I do not expect the present auction plan to be unsatisfactory in the very near future, but the stronger the organization back of them the longer they will continue. We must consider human nature and realize that a custom of many, many years will not be done away with unless something forces it into the discard.

"Packers have always been ready and willing to buy at the lowest possible price that will secure the goods and will be very loath to pay any more than they are absolutely forced to pay.

"I note that the bureau of crop estimates have recently published their report of the animals on hand on the farms of California on January 1, 1919. This report shows that 1,000,000 hogs were on the farms on this date as compared with 947,000 on January 1, 1916, showing an increase of 66,000. Dairy cattle show a loss of 7000, while other cattle show an increase of 92,000. Sheep show an increase of 493,-

Imported and American Bred
Percheron, Belgian and Shire Stallions

A large collection of Stallions ready for service this season. Heavy boned types with plenty of style and action. Prize winners and descendants from prize winners. No better in America.

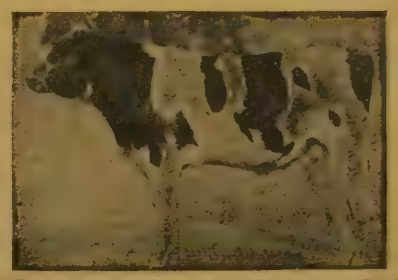
State Certificate of Soundness and Life Insurance

furnished with every horse. If your community is in need of a high class Stallion come to Patterson, California, and see the largest and best collection in the West. Special Prices and Liberal terms for the next sixty days.

Visitors Welcome Correspondence Invited

N. W. Thompson
Patterson, Cal.

Santa Anita Rancho
Anoakia Breeding Farm
REGISTERED HOLSTEINS
A herd of fine individuals, strongly bred in the lines of great production as evidenced by both short and long time records, handled in a manner to produce sound, healthy breeding stock.



Merci Lad Korndyke Burke
Son of De Kol Hengerveld Burke who has a long list of A. R. O. daughters with records up to over 35 pounds butter in seven days, and out of Winnie Korndyke Cornucopia De Kol who made 31,034.1 pounds milk in one year and was the first cow in California to make over 1200 pounds butter in one year. A few of his good sons out of excellent dams for sale.

SANTA ANITA RANCHO *Santa Anita, Cal.*
Anita M. Baldwin, Owner *W. H. Taylor Supt.*

The Proof of the Pudding

KING KORNDYKE PONTIAC 20TH as a calf looked like the real bull to head our herd, adding to his great individuality the backing of a pedigree with an unbroken line of great producing dams and type of the highest character. The price of $6500.00 which we paid for him was really a minor consideration.



Better get in touch with us for one of his young sons for YOUR herd. We already have requests for reservations of unborn calves if they are bulls.

Our Entire Herd is Tuberculin Tested

Tulare Holstein Farm
W. J. Higdon, Owner TULARE, CAL. H. L. Redd, Herdsman

Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average:
Milk one year....24,089.88 pounds
Butter ..... 1,105.07 pounds
This butter average is equalled by only one other bull of service age in the world. Buy your next bull from

Eldorado Herd
Alex. Whaley, Owner Tulare, Cal.



Sir Fayne Pontiac De Kol Pietertje
H.B. No., 157535
Will offer for sale this valuable Herd Sire. He is from a 24 pound granddaughter of King of the Pontiacs.
Born April 17, 1915.
Sire—Sir Mooie Fayne De Kol Jane 76287.
Dam — Whittier De Kol Pontiac Pietertje 173965. Butter seven days, 24.12.

Todos Santos Rancho
E. D. Barry, Jr. Daggett, Cal.

Absolutely Without Parallel

McAlister & Sons' Dispersion Sale

200-Registered Holsteins-200

On Their Farm Five Miles South of Chino

May 21-22, 9 a. m.

90 Great Heavy Producing Cows

5 with records over 30 pounds butter in 7 days.

28 with records of 25 pounds butter in 7 days.

Mostly in calf to It, our famous herd sire, son of the first cow to make over 37 pounds butter in 7 days and 1250 pounds in one year.

60 of the Sweetest Heifers you ever saw

Sired by such great bulls as It, King Korndyke Sadie Vale 22nd, King Korndyke Sadie Vale 27th and other great sires.

Bulls! Bulls! Bulls! 40 of them!

A bull for every breeder and dairyman in California at 25 cents on the dollar.

IT will be sold

King Paul Korndyke Vale, 31 pound son of King Korndyke Sadie Vale, will be sold.

King Winnie, a son of a 1200 pound yearly record cow, will be sold.

Prince Gelsche Korndyke Segis, a son of Prince Gelsche Walker and from the same dam as the $3100 heifer, will be sold.

Two sons of It from Star Rena Wayne Pietertje 2nd, a 34 pound 3 year old daughter of a 29.93 pound cow, will be sold, two other bulls from 31 pound dams and not to mention the 35 or so others:

Can you beat it?

Don't forget the days--May 21-22 at 9 a. m.

Guaranteed to be breeders ***Not tuberculin tested***

CHAS. L. HUGHES, Sacramento, Cal., Sales Manager.

COL. B. A. RHOADES --- Auctioneers --- HAROLD B. RHOADES

Los Angeles

Write for catalog now.

See our demonstration of Louden Barn Equipment, Universal Milking Machines, and Special Oil Pumps (for oil and distillate drums) at the Sacramento Tractor Demonstration.



FREE BOOK OF BARN PLANS and a copy of the big Louden catalog will be sent on request to any dairyman.

Open territory for live dealers.

Are These Your Cows?

Do your cows enjoy the comfort and freedom of flexibly hung swinging steel stanchions, or are they cramped and miserable in rigid, unsanitary wood "stocks"?

Louden Steel Stalls and Stanchions

not only keep your cows clean and healthy, but help you get maximum milk production. Cows respond to good treatment—Contented cows give the most milk.

The Louden line includes everything needed about the dairy ranch—from Stall Fittings to Gutter Drains and Feed Carriers. We are distributors for the entire line. We are also

STATE DISTRIBUTORS FOR UNIVERSAL MILKING MACHINES

American Pump Co.

73 Fremont Street *SAN FRANCISCO*

422 E. Third Street *LOS ANGELES*



THE ARNOTT ENGINE HARROW

This is the strongest engine harrow of its type sold on the Coast. Heavy axles, heavy discs. Built for service. Do not accept any imitation said to be the same. Only one genuine "ARNOTT" eight, nine and ten feet wide. Write or call for full information.

ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

000. These figures are food for thought.

"I believe that the heads of the extension department are fully agreed that all producers of both primary and secondary crops should be organized into state wide associations at as early a date as possible, for it is only by organization that the producer can be assured of that amount to which he is entitled.

"To my way of thinking the present plan of the Cattlemen's Association is the best so far devised—the forming of county associations, grouping of these county associations into certain zones and then joining these zones into the state organization."

This question of organization is in the air as never before. The swine breeders are now well organized and will accomplish still more if the great majority of growers now remaining independent will affiliate.

The Bernstein Sale

By Bruce S. Bennett

The second annual sale of Poland-Chinas by W. Bernstein, Hanford, clearly shows what can be accomplished by hard work, integrity and close application of breeding principles.

Sixty-eight head were sold, 30 of which were pigs, about one-half the remainder young gilts of October and November farrow, and made an average of $106.33. It was stated by a number of breeders present that this was a remarkable average considering the age of three-fourths of the animals sold.

The top of the sale was No. 6 in the catalog, a sow by Jumbo Wonder, by King of Wonders and out of Ben's Wonder by Big Ben. The bidding was brisk from the beginning but finally narrowed down to A. Buckland of Fresno and F. E. Fay, owner of the Ox-bone herd, Tipton. The sow went to A. Buckland & Son for $600.

Six sows in the sale made an average of $260.83; the gilts, $126.41; the pigs, $42.91; and the young boars, $98.33. The sale totaled $7230.50. Col. Bell of Tulare was the auctioneer and not only demonstrated his ability as a salesman but his thorough knowledge of Poland-China pedigrees.

Following is detailed report of sales:

2. Boar, C. L. Weaver, Tulare, $125.
4. Sow, W. E. Martin, Visalia, $310.
5. Sow, W. C. Ficklin, Fresno, $150.
6. Sow, A. Buckland & Son, Fresno, $600.
7. Sow, J. E. Post, Selma, $200.
8. Sow, J. W. Jones, Carruthers, $105.
9. Gilt, Fred Ross, Hanford, $115.
10. Gilt, H. D. McCune, Lemoore, $225.
11. Two gilts, John Bernstein, Hanford, $115 each.
12 A. Boar, C. L. Weaver, Tulare, $120.
12 B. S. pig, Chas. Lewellyn, Hanford, $40.
12 B. 3 s. pigs, G. W. Clark, Porterville, $36 each, $108.
13. Gilt, T. W. Chapman, Hanford, $85.
14. Gilt, D. S. Troth, Tracy, $132.50.
15. Boar, L. Melchoir, McFarland, $125.
16. Boar, T. E. Cochrane, Hanford, $60.
17. Gilt, R. Saunders, Porterville, $110.
18. Gilt, D. S. Troth, Tracy, $100.
19. Boar, J. T. Boyd, Tipton, $85.
20. Gilt, H. D. McCune, Lemoore, $170.
21. Boar, S. H. Long, Fresno, $80.
22. Gilt, C. T. Sparks, Hardwick, $155.
23. Gilt, Ernest Myers, Lemoore, $180.
24. Gilt, M. Bassett, Hanford, $155.
25. Gilt, same, $155.
26. Pig, G. B. Martin, Visalia, $45.
27. Pig, J. A. Cecil, Porterville, $60.
28. Pig, same, $60.
29. Gilt, A. E. Griffin, Porterville, $90.
30. Gilt, F. Waltz, Lemoore, $80.
31. Gilt, G. A. Cecil, Porterville, $40.
32. Gilt, C. D. DeRaad, Lemoore, $100.
33. Gilt, J. P. Phillips, Fresno, $100.
34. Same, $100.
35. Gilt, D. S. Troth, Tracy, $125.
36. Gilt, C. L. Weaver, Tulare, $115.
37. Gilt, W. E. Martin, Visalia, $100.
38. Gilt, W. L. Haag & Son, Hanford, $105.
39. Boar, W. J. Wallace, Delano, $75.
40. Boar, J. L. Creelman, Lemoore, $95.
41. Pig, W. E. Martin, Visalia, $100.
42. Pig, H. D. McCune, Lemoore, $60.
43. Pig, R. Saunders, Porterville, $60.
44. Pig, G. J. Wilton, Fowler, $30.
45. Pig, A. B. Brooks, Kingsbury, $20.
46. Gilt, G. I. McCune, Lemoore, $180.
47. Gilt, H. D. McCune, Lemoore, $80.
48. Pig, Harrold Waltz, Lemoore, $50.
49. Pig, same, $50.
50. Pig, J. H. Felse, Carruthers, $22.50.
51. Pig, B. M. Hargis, Tulare, $25.
52. Pig, W. C. Ficklin, Fresno, $27.50.
53. Pig, E. G. Almgren, Reedley, $35.
54. Pig, W. C. Ficklin, Fresno, $22.50.
55. Pig, C. Lewellyn, Hanford, $30.
60. Boar, M. M. Dyer, Chowchilla, $120.
61. Gilt, W. C. Ficklin, Fresno, $155.
62. Gilt, C. H. DeRaad, Lemoore, $175.
63. Gilt, Cross Bros., Merced, $190.
64. Sow, Mrs. Carrie L. Brooks, Hanford, $200.
65. Pig, Mrs. G. B. Martin, Visalia, $45.
66. Pig, Eunice D. Steele, Hanford, $50.
67. Pig, Mrs. C. D. DeRaad, Lemoore, $47.50.
201. Gilt, H. E. McMahon, Lemoore, $135.
202. Gilt, J. Bernstein, Hanford, $110.50.



Korndyke Segis Star Rena

Butter, seven days at four years 26.68 pounds, 30 days 107.83 pounds. She is the daughter of Star Rena Wayne Pietertje 2nd, 34.36 pounds butter at three years, and the 37 pound sire, King Segis De Kol Korndyke. She is the mother of the $3100 heifer. To be sold at a McAlister & Sons dispersal sale May 21-22.

A THREE DAY TRIP

(Continued from page 625)

some pigs by him that justify Bert's confidence in the big son of Orion Cherry King, Jr. He is being mated to daughters of Grand Golden Model and Grand Model 8th.

At Hemet Charles Tyler and Mr. Bell showed us their second prize National Swine Show boar, Cherry Friend. They are raising mostly for market but have a good nucleus for a pure bred herd in this $1000 boar. One sow by Grand Golden Model and her daughter by Cherry Friend were outstanding individuals in the herd and De Vore was insistent on buying the older animal to ship East but could not pry her from her California home.

After a night at San Diego the party visited the Winsor Ranch at Bonita. Of course the great attractions which R. K. Walker and M. C. Allen had to show were the great breeding boars Great Model and Grand Golden Model, and the twice grand champion sow Model Defender Lady. Mr. De Vore not only called this 800 pound sow the best on the Pacific Coast but one of the best in the world. Cherry Blossom, the 1916 Riverside grand champion sow, and about 50 brood sows and bred gilts were in evidence.

The idea of letting every Duroc breeder see every other breeder's herd was a great success. Ninety per cent of the men did not realize the improvement that had been made in the last 18 months in Southern California Duroc herds. There will be the greatest show of Durocs this fall ever held on the Coast.

STRAY THOUGHTS OF A COWMAN

By A. L. Spellmeyer

What is the matter with the Western cattle men; are they crazy? is the question asked by one of the big Northern men who is hitting the ball this year for about 15,000 head. This man has been on the move for six months, Chicago one week, Dakota the next, Los Angeles the next, and knows general conditions. He is a cowman and a good one, is wealthy and honest and no fledgling.

He asks this question after seeing all the cows for sale and after seeing the people go after steers. He asks if all are going into the steer business what is to become of future production? This man realizes the true condition and is backing it to the limit. Fifteen thousand cattle mean a strain on the resources of a millionaire.

The El Paso convention did not bring out any great activity in cattle trading, although some selling was done.

There is something wrong with the cattle industry. It is in a chaotic condition. The trouble must be financial. With grass apparently certain throughout most of the country trading is dull and contracting is months behind schedule. Beef was never higher, and feed shows cheaper prospects daily. The ranges are holding cattle, considering increased expense and proportionate advance in feeders and beef, considerably under value. There is $15 to $20 variation in the prices asked for yearling steers in various Southwestern districts, something hitherto unknown. Some sales are being made but not many as a few speculators are creaming good bunches at low prices. The men who have to buy some time during the year are afraid, and inactive.

The rumor persists that Los Angeles is to have a stock yards and let us hope there is something to it.

Why don't they put live stock down on income tax inventories at uniform valuations, as do counties and states? The stock men all have it figured differently.

DESCRIBES LIBERATION OF LIVE STOCK FROM DISEASES.

"Recent results in the control of animal diseases give a vision of a new day in which the American stock raiser, freed from the ravages of some of his foes and with others brought under subjection, can pursue his calling in greater security, and increase his contributions toward supplying the growing needs of the world."

That is the encouraging outlook for American farmers in fighting an annual preventable disease loss of $175,000,000, as described by Dr. J. R. Mohler, chief of the bureau of animal industry, U. S. department of agriculture.

After expressing appreciation for the help of American bankers and other business men in fighting animal diseases, Dr. Mohler said: "Through the joint efforts of federal and state agencies and of stockmen generally, spurred on by the unusual requirements of the present, we are pressing more vigorously than ever before our assaults against enemies that have too long preyed upon our flocks and herds."

Cotton growing experiments at the Yuma Experiment Station indicate that the heaviest yield of Pima cotton was obtained from a spacing of 17 to 19 inches. The highest yield of Yuma was obtained from a spacing of 13 to 15 inches.

Attention Buyers

For sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.

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Bred sows, gilts bred and open. Have one very nice O. C. K. boar 9 months old. Dam sold for $1,100 and sire for $1,000 in last month's sale.

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Registered Holsteins of best breeding. Young bulls for sale.

R. L. Holmes Modesto, Cal.

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One hundred thousand spring cattle already contracted in the Southwest. A few good buys still remain.

Cows are the buy and will make the big profit on present asking prices. We have listed all kinds and from the best brands.

The largest men in the business are using our facilities and giving our cattle clearing house their support.

Period 5 to 10 year loans for good ranches might be facilitated through us.

We want at once good California fenced grass on long term lease for lots of cattle 500 to 2000 head.

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Dept. "C"

1106-1107 Haas Bldg., Los Angeles, Cal.

The West's Greatest Sale of

Registered Jerseys

State Fair Grounds

Sacramento, Cal. Tuesday May 27, 1919

Complete dispersal to the highest bidder of the famous herd owned by Clifford F. Reid, Portland, Oregon, the greatest herd of proven producing and show winning Jerseys ever sold at public auction in the west.

The World's Record Cow, Goldie's Nehalem Beauty

is in this sale, and she is the highest record Jersey cow ever offered at public auction in the world. With her will be her dam, two sisters, one daughter, two sons, fourteen granddaughters, and six grandsons.

Imported Cows --- Register of Merit Cows

There will also be a choice selection of Register of Merit cows and heifers in the sale, some of the cows imported, and remember that this herd has won more prizes in the show ring during recent years than any other herd on the coast.

Write for catalog now. It is free.

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California Breeders Sales and Pedigree Co.

J. M. Henderson, Jr., Pres. C. L. Hughes, Sales Manager, Sacramento, Calif.

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Lendorris Liberty Bond, whose sire is Liberty Bond and dam Hercules Lady, both famous in the Poland-China world. Watch This Boar.



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Hanford, Cal.

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How would you like to own a young bull sired by a son of SIR VEEMAN HENGERVELD —a sire with more 30 pound daughters than any living sire. We have several young bulls for sale.

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A Richly Bred Bull

The Veramont herd of Herefords, owned by H. M. Barngrover of Santa Clara and maintained on his ranch in Plumas County, represents one of the choice collections of Herefords owned in this state. While the herd may be new to many cattlemen, it is in reality a herd with a good many years of constructive breeding back of it. The herd was established several years ago by P. W. Snyder of Swan, Oregon, and conducted by him until it passed into the ownership of Barngrover.

Most of the females represent the blood lines that have been popular and sucessful in the Northwest as well as some of the lines of breeding that have been factors in the breed's improvement throughout the country.

The herd, while under the ownership of Snyder and since it was transferred to Barngrover, has been especially fortunate in having the advantage of the service of such a bull as Patrician 5th. It is doubtful if a bull of the breed of more attractive blood lines can be found in any herd in this state. He was sired by Patrician 4th, himself a bull of note, and a son of Paragon 12th.

Paragon 12th was by Beau Paragon out of a Majestic dam. To Paragon 12th, perhaps more than to any single factor, must the credit go for the building up of the famous Buena Vista herd of Col. Dalmeyer, Jefferson City, Missouri. For a good many years cattle from this herd played important roles in the great shows of the Middle West and during the latter part of the herd's existence it was Paragon 12th blood that was responsible for the success that was registered.

Something over a year ago Col. Dalmeyer decided to close out his Hereford interests and no higher tribute could be expected by him than to have his entire herd purchased by two of the leading breeders of the United States—Col. E. H. Taylor, Jr., of Kentucky and Robt. Hazlett of Kansas. The herd was evenly divided between these two distinguished buyers and in the division Hazlett took Paragon 12th. It was his intention to use him extensively in his famous herd, but when the Carter people of the Hawaiian Islands offered, if memory serves, $6000 for him notwithstanding that he was well along in years, Hazlett let him go. He is now in service in the great Island herd.

The dam of Patrician 5th was the good cow A. Plum Erling, a daughter of the famous Watts bull, Lord Erling, conceded by all to be one of the top sons of the mighty Beau Brummel. Lord Erling has to his credit many of the choicest breeding cows ever produced in central Missouri. The dam of A. Plum Erling was Armour Plum, one of the good producing cows in the famous Armour collection.

From the above it will be noted that there is reason to expect that Patrician 5th should prove himself a valuable sire. Coupled with his rich breeding is an individuality that is distinctive. He is a bull admirably fronted; thick fleshed, yet smooth; of great scale and ample bone. His ability as a sire may be judged from the fact that four calves by him, not fitted highly, sold in the recent Davis sale for an average of $437.



Patrician 5th

Patrician 5th, a richly bred bull of splendid individuality and ability, as a sire in service in the Veramont herd of H. M. Barngrover, Santa Clara. California needs more such bulls.



"Old Faithful"—A Real Comfort Shirt

"OLD FAITHFUL" is all that its name implies—built to serve every man. Cut generously throughout to permit great freedom of action—triple stitched on all strain seams—reinforced—two unusually large pockets with buttoned-down flaps, just where you can reach them easily. Go to your dealer today and order one or more of these good work shirts. You will find that they are of unequaled value—shirts that assure you unlimited comfort and splendid service.

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RELIANCE MANUFACTURING COMPANY
WESTERN MADE WORK SHIRTS
CHICAGO

A Sale of Washington Pure Breds

By G. N. Angell

Fifty buyers from California, Washington, Oregon, Idaho and Montana secured cattle at the dispersal sale of E. B. Marks at Yakima, Washington, when his entire herd of Holstein-Friesians, with the exception of his herd bull, Sir Bessie Fobes Tritomia, and a few head of young stock, went under the hammer for $24,770, an average of $300 each for the 82 head. The Toyon Farm Association of Los Altos, California, was the only California buyer represented at the sale. This concern secured three daughters of Sir Ormsby Burke Segis, sire of the $12,500 world record cow they now own, for $1900, paying the highest average price of any bidder. Their buyer was instructed to buy the three animals designated without regard to price, it became known after the sale.

D. M. Donnelly of Sedro-Woolley, Washington, was the heaviest buyer, paying $6350 for 20 head for milking purposes only, and Hollywood Farms of Seattle, Washington, represented by F. S. Stimson, the owner, topped the sale with $1400 for Francie Hartog, a 25 pound cow expected to freshen shortly by Finderne Mutual Fayne Valdessa, the $21,500 former herd sire at the farm of J. von Herberg of Kent, Washington. Mr. Marks made an offer of $600 for her calf, bull or heifer. Hollywood Farms bought four other animals, paying an average of $400 for three daughters of Sir Bessie and $500 for a daughter of Mutual Fobes Longfield De Kol, an A. R. O. sire and show bull that formerly headed the Marks herd. Their purchases totaled $3120, an average of $624, the second highest at the sale.

Stanley V. Butchart of Granger, Washington, who will have the use of the Marks herd sire, paid $2150 for five animals, four daughters of the Fobes bull and one of Sir Bessie. J. R. Hobson of Outlook, Washington, paid $625 for Maldeta Canary Mercedes, well known in Washington and Oregon as a state fair prize winner, and winner several years ago of the milking tests at both Washington and Oregon state fairs.

Two heifers sold by Gladys Marks, daughter of the owner of the herd, sold for $680, and John Marks, his son, sold two for $700. These were the product of breeding operations started several years ago by the younger

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members of the family. Each retains a heifer for future operations.

The dispersal sale of pure bred Holstein-Friesians held by E. B. Marks on April 2, the purchase of the Toyon Farm Association of Los Altos, California, of the Tyson & McElheer herd of about 35 animals, and the purchase by Charles Fisher of Thomas, Washington, of three herds of pure breds at Grandview and Prosser leave only one herd of Holsteins of any size in the Yakima Valley, that of William Todd & Sons of Yakima. Dr. Marks expects to get back in the game within a year or two, however, and Stanley V. Butchart of Granger is getting together some quality Holsteins on the Granger farm of H. C. Davis, who was formerly a partner with Mr. Marks and who has been out of the breeding game for several years.

Mr. Fisher's purchases included those of seven head from the Buswell herd at Grandview, eight head from D. C. Bunn of Prosser and 17 head from Jasper Parker of Grandview, practically cleaning out all three herds.

Tyson & McElheer sold their entire herd, except the bull and a few calves, to the California Farm Association, through Superintendent Charles MacDonald, formerly of Yakima. At the same time he purchased several head from the herd of William Todd & Sons of Yakima.

THE FIRST WESTERN BERKSHIRE CONGRESS PROMOTION SALE

The first Western Berkshire Congress promotion sale was a decided success. Fifty pigs were sold at Martinez in Contra Costa County at an average of $50 per head.

The arrangements were made by Director J. Francis O'Connor in cooperation with Geo. P. Upham of Martinez and the Contra Costa County farm bureau. The sale was conducted by Col. Ord L. Leachman of Sacramento in a very satisfactory manner. President A. B. Humphrey, Secretary Frank B. Anderson, Directors Geo. Murphy, J. F. O'Connor, Fred Sandercock represented the congress.

Hogs were consigned by Geo. P. Upham, Martinez; James Mills, J. F. O'Connor, University of California, Sandercock Land Company, Homer Hewins, Jr., Frank B. Anderson, A. L. Stevenson, Butte City Ranch, A. B. Humphrey and R. J. Merrill & Son.

Most of the hogs went to enterprising farmers and orchardists in Contra Costa County. The buyers were: M. Pereira & Sons, Martinez; John J. Rahm, Oakley; Frank K. Burnham, Martinez; American Hog Company, San Francisco; F. J. Stewart, Martinez; Henry Frank, Clayton; G. W. Vaughan, Antioch; J. C. Dobbel, Haywards, and J. C. Pieratt, Napa, and Geo. P. Upham, Martinez.

Consignors from outside Contra Costa County were barred from bidding. Prof. J. I. Thompson of Davis was in attendance and made a good talk at the opening of the sale. The next sale will be held at Dixon May 17, 1919.

PREPAREDNESS WITH SEPARATOR

Enormous waste of grain and much loss of time result every thrashing season because of the inefficient work of thrashing machines that have not been thoroughly repaired and put in working condition before the beginning of the working season. Defective parts are overlooked or neglected in the hope that they will last through the season. When they fail in the midst of the thrashing season serious losses often result before repairs can be made. In or just before the thrashing season new parts are difficult to get promptly because of the rush of orders from many who have procrastinated.

ANNUAL MEETING AMERICAN GUERNSEY CATTLE CLUB

The annual meeting of the American Guernsey Cattle club will be held at the Commodore Hotel, New York City, Wednesday, May 14, at 10 a. m. The business of the meeting will consist of report of the year's work of the club's office, recommendations of the executive committee, election of officers. Opportunity will be given for consideration of all matters relating to the welfare of the club and its work.

Live Stock News Notes

A Register of Merit Bull to Humboldt

Guy H. Miller, Modesto, has sold the yearling Jersey bull Exile Interest to the California Barrel Company of Arcata, Humboldt County. This young bull is one of the richest bred in Register of Merit blood lines that has been sent out from Venadera herd. All the sires and dams for generations back in his pedigree have yearly Register of Merit records or have two or more Register of Merit daughters.

Belknap Gets Durocs

Guy H. Miller reports sale of four Duroc gilts to Dr. L. J. Belknap of San Jose. These are litter sisters sired by J. E. Thorp's boar Happy Heinie, son of his great sow Long Wonder's Queen. Their dam is Volunteer Maid 4th, an excellent sow of Miller's own breeding.

High Breeding

Betsy Lamb Prilly, the 32 pound, four-year-old Holstein cow owned by H. E. Vogel, Fresno, is at W. J. Higdon's farm at Tulare, where she will freshen and afterward be bred to the $6500 bull King Korndyke Pontiac 20th.

To be Tested

Walter Donders, Fresno, has sent a very promising daughter of Prince Aralia Walker over to W. J. Higdon's farm at Tulare, where she will be put on official test after she freshens and will then be bred to King Korndyke Pontiac 20th.

Two Seven Day Records

Abby De Kol of East Bank 2nd, the top cow that A. M. Bibens, Modesto, purchased at H. E. Cornwell's sale, recently made an official record of 30.64 pounds butter in seven days. She is one of the greatest breeding and producing cows in California today, and Mr. Bibens secured a most unusual bargain in her purchase.

Fair Girl Walker, a junior two-year-old daughter of Prince Hiske Walker, recently completed official records of 18.70 pounds butter from 448.6 pounds milk in seven days, milking as high as 72.8 pounds in one day. She is owned by A. M. Bibens, Modesto.

Jersey Sale This Month

A sale of high class registered Jerseys is reported under way in California for a date some time in May. If the present sale plans are carried out the detailed announcement will be one of commanding interest to Jersey breeders everywhere.

Records At Rosamaines Ranch

A. J. Stalder, proprietor of the Rosamaines Ranch, reports that six daughters of King Pontiac Netherland Segis 3rd have freshened recently, have been tested and the test shows remarkable production from five of these heifers: the first, a two year, one day old heifer, better than 400 pounds milk, 20.50 pounds butter in seven days; another, two years, two months, 400 pounds milk, 20.2 butter; two years, two months, 388 pounds milk, 22.50 butter; one year, 11 months, 350 pounds milk, 18.50 pounds butter; the last tested, two years, 27 days, 18.50 pounds butter; the sixth is yet to be tested. All the above remarkable records made under ordinary dairy conditions.

From Imported Sire

J. R. Carhart of Fullerton reports the purchase of a yearling Jersey bull sired by Helena's Oxford Sultan, bred by T. P. Mourant, Isle of Jersey. This bull was sired by Oxford Sultan of Oaklands and his dam was Helena's Oxford Gem. This is a fortunate introduction for California Jersey people.

Roselawn Shorthorns to Butte City Ranch

W. S. Guilford of the Butte City Ranch, Butte City, has recently purchased from Dr. H. M. Elberg of Woodland 13 head of registered Shorthorns, consisting of seven cows and six calves. Guilford states that the purchase represents a particularly useful stamp of cattle that, for the most part, carry the line of breeding that has been so successful in the Roselawn herd.

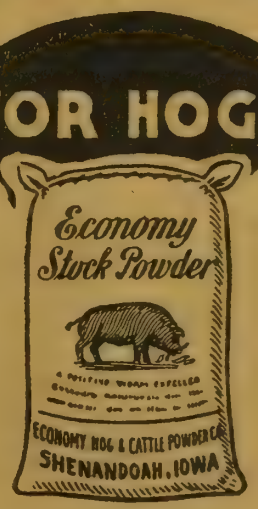
Select Shorthorn Sale July 10

W. M. Carruthers, Live Oak, has made definite arrangements to sell a very select lot of Shorthorns July 10. The place of sale will be announced later, but will probably be either San Francisco or Sacramento.

The Carruthers sale will attract wide interest because the character of

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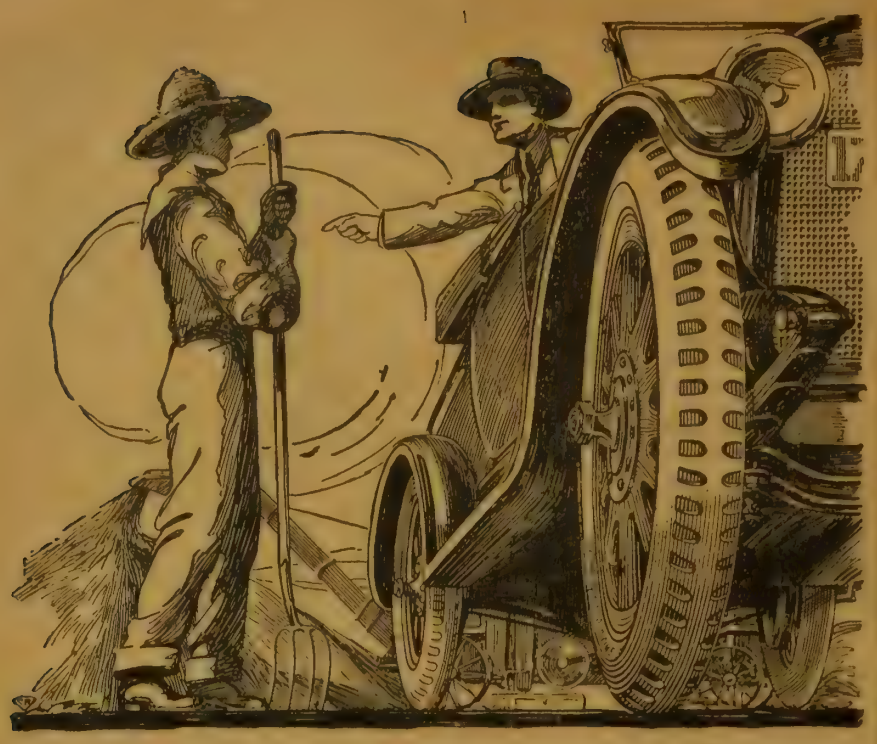
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BERKELEY, CAL.

The three creameries of Tulare paid a total of $196,910.62 for cream delivered during March.

the offering from the standpoint of individual excellence and richness of breeding will be such as few, if any, California sales have approached. From time to time detailed comment regarding the offering will be presented to our readers. In the meantime we would suggest that all California cattlemen, interested in Shorthorns, mark a ring around July 10 on their calendars and keep that date open.

Dimmick Gets Poland-Chinas from East

Dimmick Bros., Lemoore, breeders of Poland-Chinas, recently received a shipment of bred sows from the East. Included was a sow by The Yankee, bred to King Giant.

Weight Records in Basset's Herd

M. Bassett & Son, Hanford, who for years have been breeding Poland-Chinas, are paying particular attention to three young boars by Model Fellow. Careful record of their growth has been kept for the past four months. At three months of age they weighed, 90, 87½ and 83 pounds respectively; at four months 133, 131 and 121; at five months 179½, 175½ and 169½ and at six months 224, 219 and 217. One has been priced to go to South America. The other two will be kept, developed and shown at the leading fairs. Additions to the herd this spring are the sows Chief's Big Jumbo 2nd bred to Big Sensation, and Bobdale Edith by Luken's Big Bob, bred to Highlander. Recent sales are young boars to the following: Mrs. J. E. Knight, Willows; E. S. Remlinger, Orange; A. R. Grober, McFarland; John Develin, Napa and Geo. Glenn, Sanger.

Big Addition to Bernstein's Herd

John Bernstein, Poland-China breeder of Hanford, on his recent trip East made the following selections as additions to his herd: five gilts from the herd of Tom Hunter, Morrow, Ohio; four from J. D. Gerlaugh, Dayton, Ohio; one from J. O. St. John, Xenia; ten gilts, an aged sow and a young boar from Ed Frazier, Drexel, Missouri; a gilt from L. H. Glover, Grandview, Missouri; a sow from Earl Meharry, Talono, Illinois, and a young boar by The Yankee from Williams Bros., Villisca, Indiana.

McCunes are Busy

A young boar by Giant Buster from the herd of L. H. Glover, Grandview, Missouri, and three sows from Grover L. Sampson, St. Joseph, Missouri, bred to Suprise Prospect and King Jones have been added to the Poland-China herd of H. D. McCune, Lemoore. Mr. McCune's breeding herd now consists of 12 sows, 20 gilts and his herd boar King's Massive Orange. McCune's daughter Edith, and son Earle are also breeding Polands, each conducting their business independent of the other, doing their own buying, selling, feeding and developing. The progress made by his son, Mr. McCune states, was the cause of his entering the breeding business.

A Guaranty Sale Bargain

Princess Jonge Buckeye, a great young cow with two splendid yearly records to her credit, consigned to the Guaranty Sale at Sacramento, March 27, by Albert E. Smith, Sumas, Washington, was purchased for the modest sum of $1000 by Toyon Farm Association, Los Altos. She started working for her new owners immediately by dropping a beautiful heifer calf by Chimacum Spring Farm King Pontiac before she left the sale grounds. After reaching her new home she was put on official test and has made 30.60 pounds butter from 690 pounds milk during her best seven days to date, and is reported gaining.

Alba Sadie Cornucopia Creetia In creases Record

Alba Sadie Cornucopia Creetia, the great 34 pound cow owned by Anita M. Baldwin, Santa Anita Rancho, Santa Anita, recently completed the splendid record of 36.26 pounds butter in seven days. She also has a record above 800 pounds butter in 338 days to her credit after a previous freshening. She is the dam of Prince Walker Cornucopia, the highest record son of Prince Gelsche Walker, and this great youngster has already been bred to more than 60 of the best cows and heifers at Santa Anita Rancho.

A Sensational Jersey Offering

Buyers who are looking for the very tops in registered Jerseys will have an opportunity to satisfy their wants at the sale to be held at State Fair Grounds, Sacramento, on Tuesday, May 27, when the entire herd owned by Clifford F. Reid, Portland, Oregon, will be sold at auction under management of California Breeders' Sales and Pedigree Company. The sensation of the sale will of course be Goldie's Nehalem Beauty, the world's record cow who is the highest record Jersey ever sold at public auction. With Goldie in the sale will be her dam, two sisters, one daughter, two sons, 14 granddaughters and six grandsons. The balance of the herd is made up of choice Register of Merit cows, some of them imported, and the offspring of such cows. This herd is not only one of the greatest producing Jersey herds ever sold but is also one of the most outstanding herds of prize winners, as during recent years the herd has won more prizes than any other herd shown in the West.

A Coming Sale

The two Poland-China breeders, John Bernstein and W. L. Haag & Son of Hanford, announce that they will hold a public sale about the middle of September. In a previous issue of the Cultivator mention was made of recent additions to these two herds from some of the leading breeders of the Central West.

To Mr. Bernstein's herd have been added some 25 or 30 sows and gilts and as a running mate for his herd sire President he has selected a son of The Yankee from the herd of Williams Bros., Villisca, Ia. Mr. De Vore of the Duroc Bulletin on his recent visit to California made the statement that The Yankee was one of the leading Poland-China sires in the East.

To the herd of W. L. Haag & Son, better known as Lendorris Ranch, a herd which consists of about 20 sows and some 35 or 40 gilts, has been added a son of Liberty Bond to assist their present herd sire Young Jumbo. Liberty Bond, the sire of Lendorris Liberty Bond, is owned jointly by Moore Farm, Gardner, Kansas, and L. H. Glover, Grandview, Missouri, and in the midwinter sale of Glover sows bred to him and Liberator made an average of $823. Messrs. Bernstein and Haag state that the offering will consist of strictly big bone sows and gilts, bred to the above boars, and that they believe it will be of sufficient quality to attract buyers from all parts of the Pacific Coast.

Poland-Chinas to Sell in October

M. Bassett, Hanford, who was one of the first Poland-China breeders in the state, is planning now for his public sale which he announces will take place along about the 7th or 8th of October. The sale will consist of 40 to 50 head of sows bred to one of the various herd boars now maintained on the ranch.

Tulare County Poland-China Breeders to Organize

Wednesday night, April 30, the Poland-China breeders of Tulare County met in Tulare to perfect an organization and discuss plans for holding one or more public sales the coming fall.

FRUIT CROP REPORT

Continued from Page 621

drop has been very heavy, not over 70 per cent of the normal crop left. Prices ought to be good since 'cots will have a world market this fall. The Cultivator is doing a good service in getting out these reports.

H. C. Dunlap, Organization Department, California Prune and Apricot Growers Inc.

Can say generally that apricot crop is excellent to date, both in the southern San Joaquin and Southern California districts. There is certainly a large percentage of damage through Bay districts, beginning as far south as Monterey and Santa Cruz Counties where the damage is possibly greater than 50 to 25 per cent and upwards damage in San Benito County, something similar to Santa Clara County. Damage becoming greater every day owing to twig blight condition in Alameda County. Crop in lower portions there in great jeopardy, being rather near a total loss, damage to the orchards resulting from blight condition. Crops farther north, Solano County consideraly damaged, Yolo County excellent apricot prospects.

For prunes would report all districts of the state, excellent prospects at the present time. Rather early for the best estimate of crop. Prune crop will be determined by the weather between this and late in June. A very hot spell and north wind would have a disastrous effect. Conditions behind the present crop prospect in prunes excellent. Last year's early fall rain and the adequate winter's rainfall give us hope of a bumper. Would not try to estimate it at this date in tons or percentage of a crop.

The packers dealing in the small portion of fruit remaining without the association have paid from 14 to 20 cents per pound for apricots; have also paid from 8 to 11 cents basis for prunes. These prices most certainly speculative in a measure. Association prices will not be named until such time as crops can be more positively estimated.

A. L. Rutherford, Horticultural Commissioner, Stanislaus County

Almonds, 100 per cent; apricots, 100; cherries, 100; peaches, 80; prunes, 100.

Sheridan W. Baker, Santa Rosa, Sonoma County

Apples, prospects to this date for splendid crop; apricots, light crop, not produced commercially; cherries, fine prospect for good crop; peaches, good, not many produced; pears, favorable for good crop; prunes, too early to estimate percentage, but looks good for fine crop.

Wm. Gould, Horticultural Commissioner, Yolo County

Almonds, 75 per cent; apples, 100; apricots, 90; cherries, 80; peaches, 100; pears, 100; prunes, 75.

F. W. Waite, Horticultural Commissioner, Imperial County

Apricots, 115 per cent; pears, 100; almonds, apples and others not grown commercially.

Chico Cured Fruit Association, Butte County

Almonds, 75 per cent; cherries, 100; peaches, 100; prunes, 100.

Niles Cannery, Alameda County

Apricots will be light—have die back; tomatoes, over planted, but outlook is for $10 or $12 per ton, much lower than last year. Cherries promise large. Almonds light. Rains came at wrong time.

Thos. P. Redmayne, Horticultural Commissioner, Marin County

Almonds and cherries are not grown much commercially in this county but the outlook for both is above the average. Apples are apparently 100 per cent. Apricots are badly affected this year with the brown rot fungus and in all probability will be about 40 per cent. Peach curl is giving some trouble and will no doubt affect the yield. At this stage the outlook is for 90 per cent of a peach crop. Pears and prunes indicate a full crop, the latter especially looking well. I would place both these at present at 100 per cent. The rainfall to date is 36.97 inches and the weather somewhat cool.

Geo. C. Nevins, Hemet, Riverside County

Hemet is congratulating herself on a present prospect of having the largest crop of apricots and peaches ever. The older apricot orchards are all promising 100 per cent yield, and the many young orchards coming on, all with big crops, make the outlook good for the largest tonnage we have ever had, which is now estimated at 16,000 tons. All peach orchards now look good for a full crop.

Buyers are already offering 19 cents per pound for dry and $50 and $52 per ton for green 'cots, and from $40 to $55 per ton for peaches. Other fruits which we have in small quantities only are looking well.

Mrs. Clara K. Graham, Ramona, San Diego County

Rains of March thinned apricots just right. Will be compelled to thin peaches. All fruits give promise of fine crop.

Fred K. Howard, Horticultural Commissioner, Kings County

All crops looking fine at this time. Apricots, peaches, prunes, normal or better.

Geo. W. Harney, Horticultural Commissioner, Yuba County

Almonds, 50 per cent; apples, 100; apricots, 40; cherries, 70; peaches, 90; pears, 110; prunes, 100. This date, April 25, looks as if Bartlett pear is leading deciduous fruit as to quantity and quality. Will have splendid crop 1919 from present indications.

F. C. Brosius, Horticultural Commissioner Sacramento County

Almonds, 90 per cent; apricots, 95; cherries, 100; peaches, 105; pears, 110; prunes, 100.

J. W. Mills, Farm Adviser Solano County

Almonds spotted, Dixon 50 to 80 per cent; Suisun, 15 per cent of crop; apricots, 75; cherries, early varieties, 60; late, 80; peaches, 100; pears, 100; prunes, too early to estimate, they do not seem to grow.

D. D. Sharp, Horticultural Commissioner, Riverside County

All tree fruits, practically 100 per cent; crop is late.

C. H. Flournoy, Horticultural Commissioner, Tehama County

All fruits mentioned, 100 per cent of normal crop. In addition, lemons, oranges and figs at this writing are showing full crops. Especially is this true as to first crop figs. I have never known the second, or main, crop to fail. Oranges and lemons now in full bloom.

The figures given are estimated from the condition of orchards that have been well cultivated and properly pruned. Some of the older orchards that have been neglected will not produce more than 50 per cent crop, while everything indicated 100 per cent crop on trees well cared for. What might happen to change the percentage later in the season no one can tell, but if you desire I can let you know from time to time how the different fruits are doing in this section. (Fine. We trust other readers will make later observations and report from all portions of the country.)

Other reports next week.

SCHOLARSHIPS RESULT FROM CLUB WORK

The legislature of Oklahoma has just passed a law creating two scholarships at the Oklahoma Agricultural College for each county in the state. The bill as originally drafted provided that applicants for scholarships must be members of boys' and girls' clubs in agricultural extension work. This provision was later eliminated. The examination for applicants, however, is such that only those who have received a training in agriculture equivalent to that given in the cooperative club work can hope to pass.

The scholarships are available to both young men and young women without discrimination as to subjects. That is, girls are not required to take an examination in domestic science, but may be examined in agriculture, as many of them very likely will. For scholarships heretofore given by bankers and others in Oklahoma, girls have won over the young men applicants in agricultural examinations.

With the Return of
Peace and Prosperity
Plant
Teague Quality
Citrus Trees

With the present demand for food stuffs, the return of peace and normal economic conditions there will be a growing demand for all orchard crops and a corresponding larger demand for nursery trees. Already this return is finding expression in an increased demand for Teague Quality Citrus trees, which leads us to advise intending planters to book their orders early, as the available supply of really good, bud-selected (pedigreed) trees is rather limited. For this reason we invite correspondence. Prices cheerfully furnished.

The R. M. Teague Citrus Nurseries
San Dimas, California
FOUNDED IN 1889



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Tractors and Power Farming Implements, May 6th to 11th
New Tractors---New Implements
Keep abreast of America's newest and biggest industry. Every rancher will benefit by attending. Every rancher will enjoy the show.
OLIVER
Plows, Disc Plows, Disc Harrows,
Planters and Pulverizers will be in operation all over the field
WE WILL WELCOME YOU AT OUR TENTS
Oliver Chilled Plow Works
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NILSON TRACTORS-new
The logical Tractor for the orchardist or grower who appreciates service. Close prices on the few we have remaining in stock. More work for less money. Let us demonstrate.
JOHN T. DYE
524 W. Pico St. Los Angeles, Cal.

The Dealers's Obligation

By Butler-Veitch Company

RIGHT here is the biggest problem the tractor dealer has to face—tractor education, first for himself, then for his owners. Advertising, tractor schools and tractor demonstrations have done and are doing much for both dealers and owners, but when all is said and done, the specific concrete facts must be imparted by the dealer, and to do so in fairness to himself and the tractor industry, he must know tractors and his tractor in particular.

Perhaps it is unfortunate that a tractor has an internal combustion motor and smells like an automobile, for it has undoubtedly given many dealers and owners the impression that it is sort of a half brother to the automobile, a device without rubber tires and rather slower.

Those of us who have tried to take to the air in an automobile, know it won't work, and next season when we put in our first stock of aeroplanes we won't sell and service them on an automobile basis. Years ago manufacturers tried to put the automobile in the field and found it would not work, so they built something just as different in its way as an aeroplane and called it a tractor, and yet some of us still sell tractors on an automobile basis.

How can we expect the owners to realize the difference if we don't see it ourselves?

Suppose an owner comes to you after using his tractor 90 days and makes the startling statement that his motor needs an overhaul and to all appearances is in much worse shape than his two year old automobile which has never had any motor trouble. Are you going to be able to show him that his tractor motor has travelled more than twice as far in 90 days time as his automobile traveled in two years, that his oil should have been changed 20 times, and that his valves should have been ground at least three times, or are you going to let him continue to measure his tractor in time and not work done, and continue to sell and service your tractor on an automobile basis? That is only one point of the many that the dealer must absorb and then pass on to the owners.

The tractor is different, and dealer and owner must realize it. It is not going to last as long in time as an automobile, it is going to need repairs more often. The work the tractor has to do is not variable—always its job is going to be hard and no better roads movement or anything else will lighten its load—except the dealer educated owners.

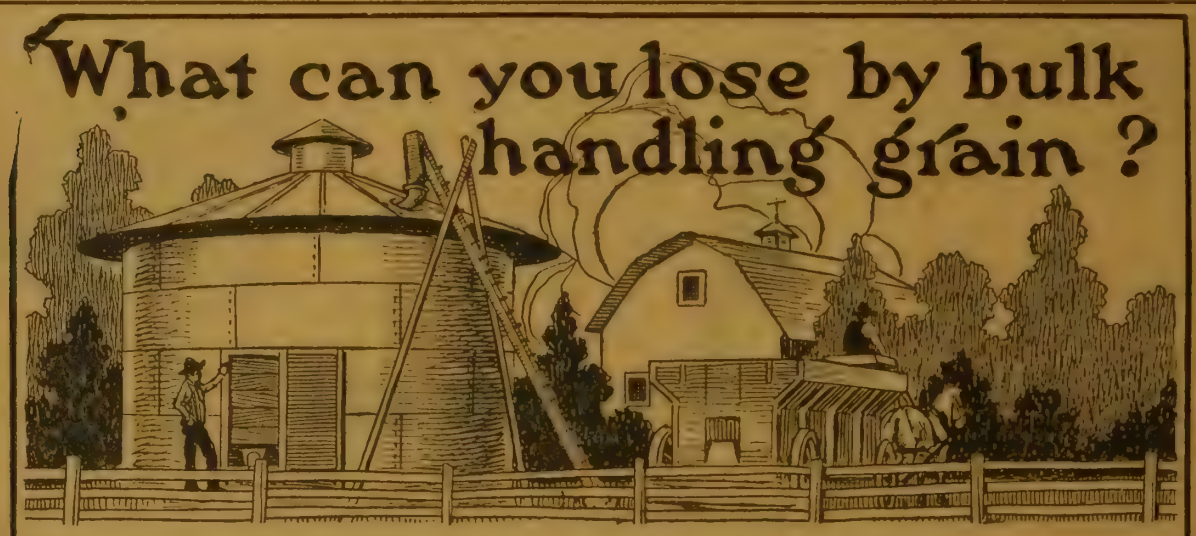
It is generally accepted that the tractor has now fought its own way and needs no champion. Perhaps as a whole the tractor industry does not, but the time will never come when each individual tractor will not need a champion to help it fight its own battle.

Then in selling the tractor let us remember that we are not merely selling a machine; we must sell as well tractor limitations; what it will do and what it will not; what wears out first and how to fix it; how to make it run when it has stopped, and how to stop it when it continues to run (through a fence).

And just as soon as the owner realizes that part of the obligation is on his shoulders and not all on the tractor, then the tractor will have the chance it deserves.

So let's get a lot of reliable information at the Sacramento show, take it home with us and start our own little tractor schools. It's going to pay to help owners help the tractor help itself.

Commissioner of Internal Revenue Roper says that no grapes can be used in wine making after May 1 even by private consumers.



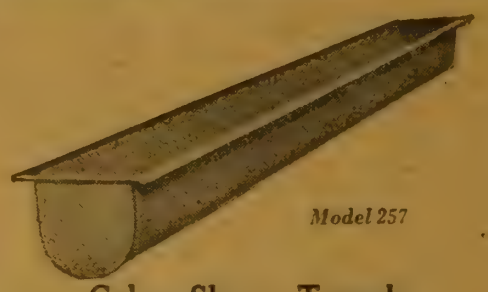
YOU know what you can save by handling your grain in bulk, with the Calco Grain Bin.

What can you lose? Careful investigation proves that the only loss would come from carelessness.

And no practical grain grower would permit loss from such a source.

Changing from sacks to bulk, and putting in the Calco equipment, cannot be considered a loss—it's an investment that starts paying dividends at once, like a savings account.

Write for the free booklet, "Calco Grain Bins"



Model 257

Calco Sheep Trough

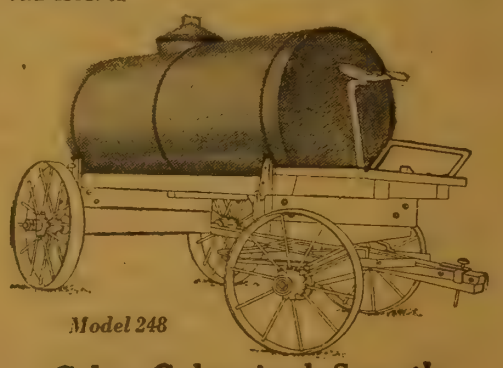
Low, water-tight trough, without rough edges or disease catching cracks. Readily fitted on wooden supporting frame. Capacities from 51 to 131 gallons. Ask about it.



Model 200

Calco Stock Watering Trough

Built ready to be placed on supporting frame; light, easily moved when desired, sturdy and durable. Armco Iron used in construction. For cattle or horses. Write for price list with sizes.



Model 248

Calco Galvanized Smooth Iron Tank

Built of heavy Armco Iron, riveted, soldered and substantially made. Braced inside with baffle plate, preventing wash of contents from end to end. Capacities from 263 to 805 gallons. Write for Calco Wagon Tank circular.

California Corrugated Culvert Company

LOS ANGELES
419 Leroy Street

BERKELEY
408 Parker Street

CALCO GRAIN BINS

TRACTORS IN 1919

A production of 314,936 tractors in the United States in 1919 is estimated by manufacturers reporting to the office of farm equipment control, United States department of agriculture. The reports obtained in a special inquiry by the department show a production of 132,697 tractors in 1918. The manufacturers gave the number of tractors of different sizes manufactured last year and estimates of the number of each size that will be made this year. The figures for 1919, of course, are merely estimates and represent the aggregate of the estimates submitted by the tractor manufacturers in January and February of this year. A summary of these reports follows:

Number on hand December 31, 1917, 15,525; manufactured during 1918, 132,697; sold in the United States during 1918, 96,470; sold for export during 1918, 36,351; on hand December 31, 1918, 15,401. Manufacturers' estimate of production for 1919, 314,936.

Number of tractors which manufacturers estimate they will produce in 1919 at makers' rating belt horse power: 9, 10 and 12, 8220; 16 and 18, 48,545 ; 20 and 22, 157,671; 24 and 25. 40,875; 27, 28, 30 and 32, 27,465. 35 and 36, 5435; 40, 45 and 50, 1780; 60, 65, 70, 75 and 80, 1536; not given, 23,409.

FARM LOANS

During the month of February, 1919, $14,799,788 were loaned to 4209 farmers of the United States by the federal land banks on long time first mortgages according to the monthly statement of the farm loan board. The federal land bank of Omaha leads in amount of loans closed, $3,895,400, with the federal land bank of St. Louis running second in amount, $2,055,955. The other banks closed loans in February as follows: Houston, $1,863,213; St. Paul, $1,506,600; Spokane, $1,251,720; Wichita, $1,019,800; Louisville, $757,300; New Orleans, $735,800; Columbia, $505,500; Berkeley, $473,800; Baltimore, $386,900; Springfield, $347,800.

On March 1 the total amount of mortgage loans closed since the establishment of the federal land banks was $182,897,964, numbering 75,384 borrowers. During February 5990 applications were received asking for $23,720,593. During the same period 4879 loans were approved, amounting to $20,137,009. Altogether 179,734 have applied for loans under this system, aggregating $471,455,362.

GARDEN GUIDE

The most striking feature in Theodore Payne's 1919 Garden Guide is made of facts regarding the new Victory tomato. Mr. Payne characterizes it as the most perfect tomato ever grown. It is a cross between the Stone and the Livingston, almost perfectly round, medium size, and when fully ripe, a deep rich ed. Its flavor is perfect, containing a high percentage of sugar. We saw this tomato at harvesting time last year and it certainly is a wonderful addition to California gardens.

GRANGE ROSTER

The California State Grange Patrons of Husbandry has issued a most valuable roster to all subordinate members, which gives a list of the officers of the national grange, of the California state grange with its various executive and other committees, and a list of the Pomona and subordinate granges together with their officers.

PUTTING IT PRETTILY

A great big soldier boy had picked a little bit of a girl. When a fellow "joshed" him a bit, he said: "Yes, Bill, she would have been taller, but she's made of stuff so choice and fine and scarce that the Lord just naturally couldn't find enough of it here to make her any bigger."

UNCLE EBEN

"I's willin' to love my fellowmen," said Uncle Eben; "but I can't git up no mo' ambition to 'sociate wif some of 'em dan a rabbit has foh makin' up to a houn' dog."

Household Department

NATURE

Nature never did betray
The heart that loved her; 'tis her privilege,
Through all the years of this our life, to lead
From joy to joy; for she can so inform
The mind that is within us, so impress
With quietness and beauty, and so feed
With lofty thoughts, that neither evil tongues,
Rash judgments, nor the sneers of selfish men,
Nor greetings where no kindness is, nor all
The dreary intercourse of daily life
Shall e'er prevail against us, or disturb
Our cheerful faith, that all which we behold
If full of blessings. Therefore let the moon
Shine on thee in thy solitary walk;
And let the misty mountain winds be free
To blow against thee; and in after years,
When these wild ecstasies shall be matured
Into a sober pleasure, when thy mind
Shall be a mansion for all lovely forms,
Thy memory be as a dwelling-place
For all sweet sounds and harmonies;
O, then,
If solitude, or fear, or pain, or grief,
Should be thy portion, with what healing thoughts
Of tender joy will thou remember me.
—William Wordsworth.

THE PASSING OF THE WICK

By James De Camp

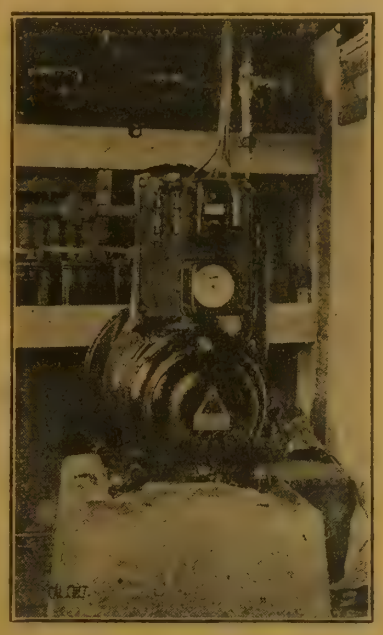
IN THE inelegant but forceful language of the day Ben Franklin "sure started something" with his little kite and key experiment back in 1752. At that time there were many who thought him mentally deranged when he spoke of snatching from the heavens that crackling celestial flame that raged during thunderstorms.

But even the brilliant and far-seeing author of "Poor Richard's Almanac" would have doubted the sanity of a person predicting that within a scant century and a half this destructive dynamic would be the harnessed bond-servant of man, imprisoned in the great powerhouses of the cities to serve at his beck and call and easing the burdens of hundreds of thousands of country homes through the medium of individual generating plants.

These are days of feverish progress. Hardly a score of months ago the farmer was doing his early morning and late evening chores by the flickering light of a smelly lantern and attempting to enjoy his fireside reading while manipulating a smoky and unsatisfactory oil lamp. Now, Aladdin-like, he touches a tiny button, and sitting room, stables, basement or whatever portion of the premises he desires, are flooded with the brilliant, penetrating rays of incandescence.

Local lighting and power plants for those remote from the large distributing systems have passed the experimental stage and are now a reliable reality, an actual necessity for those who would keep pace with the times and wring maximum results from hours and effort expended. In fact recent investigations have disclosed that a dependable plant is not only a desirable convenience but an income bearing investment for the enterprising agriculturist.

Thrusting aside for the present the dollars and cents viewpoint, one of the paramount beneficial effects of having electricity on the farm or ranch is the cheery, wholesome atmosphere created by brilliantly lighted rooms. It is thought that many young people have left the farm for the city's turmoil because of the long, dreary, lamplit evenings with their discouraging semi-darkness. The electric plant gives everyone adequate light to read by and dispels the air of gloomy depression that lurks about a lamplit house. It encourages social gatherings, study, or practice upon an avocation and fosters the spirit of relaxation that is invaluable to those who spend the day at stiff outdoor labor.



Light Up the Home

Equipment for generating electricity for lights has been perfected until it is now possible for every home, even in most isolated sections, to be equipped with modern lights and with power to lighten household work.

But the domestic aspect of the farm electric plant is far from limited to lighting alone. The time saving comforts and conveniences that may be made use of through the medium of electric power are almost too numerous to catalogue. At slight expense this stored up energy may be set to pumping water to the various parts



Ready for the Churning

Home generated electricity gives up its power with greatest convenience to run the churn, the electric fan, the washing machine, the sewing machine, and various other modern home conveniences. The motor is light and easily transported from room to room.



Keen Judges of Motor Car Value Select the

GRANT SIX

The Grant Six has never asked odds of anybody on either quality or price. It has always been in the lead. It is today.

Thus at the big shows where all cars are exhibited it is not astonishing that the Grant Six proved the most popular car of its type.

Ever since the first Grant Six—the original genuinely light six—was built, the capacity of our factory has been tested each season. The demand has always exceeded the visible supply. This season will prove no exception. For in quality and in price the Grant Six is easily the leader.

It is superior in power, in size, in quality, in ease of riding, in durability and in economy of operating cost. It is an exceptionally stylish car, therefore it is not surprising that the Grant Six is the choice of keen judges of motor car value.

Owners average better than 20 miles to the gallon of gas, 900 miles to the gallon of oil, 7000 miles to the set of tires.

Considering thrift and considering comfort and considering value you will certainly be wise to purchase a Grant Six.

This is not the time for idle words. We offer just one suggestion—see the Grant Six dealer as quickly as you can and place your order.

Select from these five body styles

Five-Passenger Touring Car $1120—Roadster $1120—Coupe $1625
All-Weather Sedan $1645—Demountable Sedan $1400
All prices F. O. B. Cleveland

GRANT TRUCKS

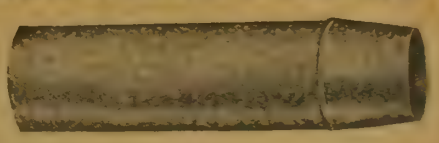
1800 lbs., 1½ tons, 2 tons, 3½ tons capacity, are all electrically started and lighted and completely equipped. So reasonably priced that you will find they offer a bigger return for every dollar invested than any other trucks.

Descriptive literature on passenger cars, trucks or both sent on request.
Write for it and name of nearest dealer.

GRANT MOTOR CAR CORPORATION—CLEVELAND

SURFACE IRRIGATION PIPE

Prompt Delivery
Write for Catalog and Prices
Manufactured by
Woolwine Metal Products Co.
Eighth St. and Santa Fe Ave., Los Angeles, Cal.



Hauser's Organic Fertilizers
Built for
California Conditions
Send for Booklet, "Fertilizer Efficiency." Tells You Why.
Hauser Packing Company
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Our store comprises five adjoining buildings,—35 floors—exclusive of warehousing and manufacturing industries,—mattress-making, upholstering, carpet, window-shade and drapery work-rooms. An entire factory is required to supply demand for our famous "Quality-Reed" furniture.

Seashore--- PACIFIC ELECTRIC ---Mountains

Spring-Time

Is here again and many of us are planning to spend a goodly portion of that time at one of the numerous seaside resorts while others will prefer the mountains—

In either case the PACIFIC ELECTRIC RAILWAY offers unexcelled service to seaside resorts and direct connections to many camps.

Seaside Resorts

VENICE
OCEAN PARK
SANTA MONICA
LONG BEACH
BALBOA
HERMOSA BEACH
MANHATTAN BEACH
REDONDO BEACH
SEAL BEACH
NEWPORT BEACH
HUNTINGTON BEACH

Mountain Resorts

MT. LOWE
CAMP BALDY
GLENN RANCH
CAMP RINCON
HOEGEE'S CAMP
COLD BROOK CAMP
FOLLOW'S CAMP
STRAIN'S CAMP and
SAN BERNARDINO MOUNTAIN RESORTS

Pacific Electric Railway

For Information and literature write or phone
E. T, BEATTY, Agt., Santa Ana
77--Phones--Home 520 or any Pacific Electric Agt.

Poultry for Profit

Read what Portland Oregonian has to say about this book and its author.
There is a woman down in California who knows more about poultry than all the men in the state, and this, too, for that matter. Her name is Jean A. Koethen, and she has written a book which is published by the California Cultivator of Los Angeles, and called "Poultry for Profit." It costs a dollar, postpaid, and it ought to be in the hands of every one who is keeping hens. This paper has reprinted a lot of matter written by Mrs. Koethen and, because of its quality, her book is recommended. Climatic conditions in these states are so nearly alike that what is good or bad for fowls there is the same here. The price of three dozen eggs will get the volume and its purchase is a good investment.—Portland Oregonian.

Send in $1.00 for book or $1.75 for book and California Cultivator.
Cultivator Publishing Co., 115 N. Bdwy., Los Angeles

When writing advertisers, mention The Cultivator.

of the dwelling, eliminating the back breaking drudgery of hand pumping and water carrying and making possible an indoor toilet and bath with running water. Then there are the other comforts of city life which become available, such as the washing machine, vacuum cleaner, electric iron, fan, toaster, percolator, vibrator and a magician's hatful of labor and worry savers.

However valuable the service given the home by the electric unit it is in the field of the farm or ranch work itself that this equipment proves in dispensable to even the most miserly of masters. It makes possible the use of every daylight hour for field work, providing electric light for the necessary inside labor such as feeding the stock or overhauling the tractor. By providing better light it reduces the time needed for doing the chores nearly one-half, eliminating all poking about in dark corners to locate this and that. A clear saving is made of all the time previously required to clean, clip and fill the lanterns and lamps.

But this tireless Man Friday will also lend a hand when it comes to operating the grindstone, fanning mill, milking machine, rotary saw and a score of other devices. Small portable electric motors provided with a pulley wheel and extension arm have been perfected to supplant "elbow grease" in these tiring tasks. These motors can be purchased complete for from $50 to $60 and are capable of doing everything from winding the clock to clipping the coat of the old bay mare.

One of the most potent arguments in favor of electric lighting for the farm is the minimizing of fire risk. Electric lights are far safer than the open flame kerosene light. America's annual fire loss is said to be in the neighborhood of $262,000,000. Too great a portion of this consists of farm buildings, live stock and food stuffs. In addition to furnishing a safer light the electric plant will operate a pumping system with pressure sufficient to force a stream of water over any of the buildings.

Then when valuable stock gets into trouble after night relief can be supplied in the minimum amount of time and without the delay of hunting and lighting a lantern.

The makers of the Delco-Light plant, a generating unit now in use in more than 70,000 farm homes, recently compiled from figures furnished by a number of users of their product a table showing the average saving effected by electricity each week. Each report considered was sworn to before a notary. The statistics follow, time saved being valued at 30 cents per hour:

	Hours.	Value.
Cleaning and trim'ng lamps	3	$ .90
Operating separator	1	.30
Running washing machine	3	.90
Running grindstone	½	.15
Electric iron	1	.30
Pumping water	5	1.50
Operating fanning mill	½	.15
Totals per week	14	$4.20

This average weekly saving amounts to $218.40 per year. Considering that the average cost of a farm generating plant is in the neighborhood of $500 and the operating expenses are almost negligible even Shylock would admit that he was getting pretty fair interest on his investment without taking account of the modern comforts and conveniences furnished on the side.

Unlike the earlier type of plant, which supplied light only while a gas engine was running, the later creations store "juice" in a flock of especially designed batteries, the number of these varying according to the amount of current demanded. It is necessary to run the motor and generator about once each week, the motor operating on gas, gasoline or kerosene at an average cost of two cents the kilowatt hour or from 75 cents to $1.50 the month. Electricity is available at all hours of day or night, the cells storing up an abundant reserve supply.

Several of the most popular generating units are so compact that, without the batteries, they would almost fit into a trunk of average size. A space saving practice is that of mounting the generator and fly wheel of the small stationary motor on opposing ends of the same shaft. Equally as valuable is a trip arrangement which automatically stops the engine by breaking the ignition circuit when the batteries have been charged to capacity.

An investigation conducted recently by the research department of The Michigan Farmer reveals some interesting facts concerning the experiences of 30 users of various makes of light plants. The figures compiled show an average monthly operating expense of $1.48 for the 30 plants, each working under varying conditions. The farmers on this list had installed a total of 1099 light sockets or an average of 38 sockets apiece, the size of their places ranging from 360 to two and a half acres.

The symposium showed that the majority had installed 16 cell plants, which had been in operation for periods varying from six years to one month. Three reported "some trouble" while the remaining 27 replied negatively to this question. Without exception all the answers stated that the owners of the plants were well pleased and recommended electric systems to all farmers as time and labor



Modern California Home
Amongst other modern appliances in this home is an electric light generator, which, with telephone and other advantages, adds to comforts and luxuries.

SOUTHERN GINGERBREAD

One cup of molasses, one-half cup butter or one-quarter cup lard and one-quarter cup butter, one teaspoon powdered ginger, one-half teaspoon powdered cloves, two teaspoons powdered cinnamon, one-half teaspoon powdered allspice, two teaspoons baking soda, three cups flour, two eggs, one cup boiling water, one teaspoon baking powder. All measurements level. Method: Beat the butter and sugar to a cream, stir in spices, beat thoroughly. Then add the molasses and the hot water, to which the soda has been added. Add the flour and the baking powder and lastly the well beaten eggs. Turn into a greased and floured tin and bake in a moderate oven until it shrinks from the sides of the pan. Divide the gingerbread into blocks while warm and serve with a whipped cream dressing.

TOO GOOD TO WASTE ON POETRY

A western poet refers to a mole on a pretty woman's face as a "tear drop petrified by its own audacity." Any man with an imagination like that ought to give up poetry and peddle ice.

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THE SINGLETON OAKS

(Concluded from last week)

The girl leaned forward eagerly. "We had been driving through a level, dreary country, when we suddenly ran into an enchanted spot. On both sides of the road grew great wonderful oaks that met overhead. I just made Fred slow down. Then I saw across the fields the old mansion with its white columns and the other houses grouped around. I remembered your description of your home, and I told Fred I believed that was the very place!"

"You haven't said anything about father yet," Arthur said.

"Oh, that's the best of all! Your father and an old negro, both bareheaded, were walking under the trees. They did not hear us coming. Now and then they stopped and looked up at the trees like children, and your father pointed out something with his cane. In the afternoon sunlight the whole scene was magical."

"She's full of sentiment," said Fred, laughing. But Arthur was wondering whether, after all, sentiment was not one of the best things in the world.

"The both bowed low as we passed," Mary went on. "When I looked back they had continued their walk. You know I had a strange feeling. I felt that the old gentleman and his servant were in some sort of trouble, and that I should like to serve them."

There was another burst of laughter from Fred. The waiter was coming toward them at last balancing his tray; but Arthur, rising suddenly, glanced at his watch.

"Perhaps you have served them," he said gently to Mary. "I hate to break away like this, but I've got to go home, and I have only ten minutes to catch the train."

"Oh!" cried Mary. There was nothing the matter, really there wasn't Your father looked well and ruddy. I didn't mean—"

"I know," Arthur replied, with a smile. "There is nothing serious. I just feel that I ought to go. This train is the last chance until tomorrow afternoon."

"Now, what's all this?" demanded Fred, rising with his napkin in his hand. "Mary you have played thunder with the delicate feelings of our one-time all-star tackle. Are you really going, Arthur? Well, it looks like a case of temporary insanity, but I'll take you to the station in the car. I'll be back in ten minutes, Mary."

Arthur shook hands with Mary, and the two young men hurried out of the dining room and to the garage. Then Fred drove swiftly to the station; the two jumped out and ran through the waiting room to the shed. The train was pulling out. The gates were closed.

Fred put his hand on Arthur's shoulder. "Nothing serious, old man, is it?"

"Oh, no," replied Arthur.

"Taken this way often?"

"No—not often enough."

They went back and had their supper. Then all three took a walk through the city. When they said good night in the lobby at the hotel, Mary came close to Arthur.

"What was the matter?" she asked, with a serious look on her face.

For a moment Arthur was on the point of telling her about the trees, and then he said, "Why, I just thought of something that I ought to attend to—nothing serious."

Arthur crawled wearily into bed, but he could not sleep. Now that the sounds of the street were silent the picture of old Hank and his father taking their last walk under the trees became more and more vivid in his mind. He went over again and again his conversation with his father that morning. He knew that he had overemphasized the importance of meeting the note—that he could renew the note without much hurting his credit.

His father's words about the agreement recurred to him. Had he not overstepped the bonds of a gentlemen's agreement in insisting that the trees that his father loved be cut? The trees themselves seemed to rise before his eyes in long, stately lines—giants that had battled a hundred tempests. He could see them prostrate now, with only the ugly stumps to mock the spot they had blessed.

Midnight struck—one o'clock—two o'clock. In four hours the destruction would begin. Through his window he could see the moon, shining bright. Was his father looking at the oaks now in the moonlight for the last time?

Springing out of bed, Arthur Singleton turned on the light and dressed. He hurried down the silent hall to Fred's room. He knocked on the door until at last Fred, frowzy-haired and blinking, opened it. Fred looked at his friend with unfeigned astonishment.

"Another fit?" he asked.

"Fred," said Arthur, "I am going to ask a favor of you. Will you take *me* home?"

"When?"

"Now."

"What for?"

"I must go, Fred, I must."

"Arthur Singleton," said Fred seriously, "you used to be a sensible fellow, or at least I thought so; but if you aren't acting like a crazy person now, I'm crazy myself. I don't understand you, but I'm game. I'll take you."

Fred began to dress.

"Now," he continued, when he had put on his coat, "I'll tell Mary. If she wakes up and finds I'm not here, she'll be worried."

He was gone for some time, and when he returned he said, "Mary insists on going, too; she'll be along in a minute. It's catching, Arthur, this complaint of yours. I feel it coming on myself."

Day was breaking when they came in sight of the oaks. Arthur had told Mary and Fred why he wanted to get home, and Fred, although he had laughed, had driven like a madman. Up the driveway they sped to the big porch. Hank came around to meet them.

"Where is father?" Arthur demanded eagerly, as he climbed out of the car.

"He riz early, suh," replied the old negro coldly. "He walked off dat way." Hank pointed in the direction opposite the oaks.

"He couldn't stand to see them cut." said Mary softly to Arthur, and her eyes were bright with happiness. "Oh, he'll be so happy now!"

"It's cold and damp for him to be out," Arthur said to Hank.

"Me and Mandy done wropped him up, suh," the old negro replied. "Me and Mandy been a-lookin' arter him for twenty year, suh."

"The trees are not be cut, Hank," said Arthur. "Tell the boys to go on with the ploughing."

"What dat, Marse Arthur?" cried Hank. "What dat I hear you say, suh? De trees, de trees!" His face was trembling with joy.

"They are not to be cut down."

"Mandy, Mandy, whar are you ol' woman? Is you deef?"

Hank hobbled toward the kitchen.

Arthur turned to his friends. "I think I know where father's gone. There's an old negro in a cabin in those woods. He went through the war with father."

"We'll follow!" cried Mary., And the three started by a path across the fields.

The sun had risen bright when they reached the cabin. Major Singleton heard their steps and came out to meet them.

"Father," Arthur drew himself up like a soldier making his report, "I came home to save the Singleton oaks."

The major glanced quickly at the faces around him. "But how about the note?" he asked.

"I exaggerated the importance of meeting the note now," he said. "We can renew it, of course. I wanted to have my own way, sir." Arthur turned to Mary. "She changed my mind, sir. This is Mary Graham. You have heard all about the Grahams."

As Major Singleton bared his head. the sun glistened on his silvery hair. He took the girl's hand and looked into her eyes.

"My dear young woman," he said, "if Arthur had not changed his purpose in your presence, he would not have been a son of mine."

Arthur took a deep breath of the morning air. The tears were not far from his eyes. For as he looked at the old gentleman and the young woman, he knew that something of his father's sentiment lived in his own heart ,and he thanked God for the heritage.



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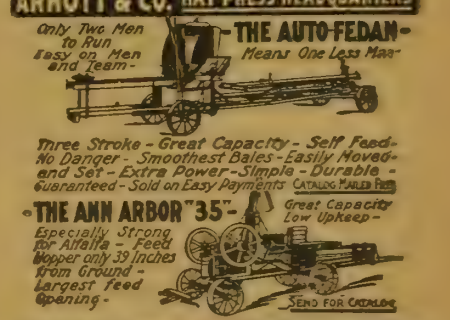
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More About Raising Chicks

By Jean A. Koethen

"PLEASE give me the name of some good buttermilk preparation," writes a Concord subscriber, "and how much to use to make, say, a quart of liquid. Can the buttermilk be mixed dry in a dry mash? In buying rolled oats for my chicks should I buy the bulk rolled oats that I use on my table? What do you think of the commercial chick feed put up by the different milling companies? At what age would you begin feeding sprouted oats? Are oats so much better than barley, and why? I suppose the grain should be scattered in dry alfalfa hay. I have plenty of the green. I have a brooder that is supposed to care for 200 chicks, so I suppose the 100 I have ordered will be about the right number. Will you kindly tell me how to regulate heat as to age of chicks? My little brooder is heated by a coal oil lamp."

There are a number of good buttermilk and skim milk preparations on the market. One of these is dried buttermilk. Another is semi-solid buttermilk which is to be diluted with water in the proportion of one pound of buttermilk to one and one-half gallons of water. A third is Lactein, which is, I believe, a skim milk preparation. Both dried buttermilk and Lactein are made in California. You can buy a buttermilk mash containing dried buttermilk or you can buy the dried buttermilk and mix your own mash, making the buttermilk about 10 per cent of the whole. A fancier whose formulas were recently quoted in the Cultivator uses 10 per cent dried buttermilk and five per cent beef scrap in his chick mash and moistens the whole with semi-solid buttermilk in the above proportion. This is a rich mash but has given excellent results.

The rolled oats used by nearly all chick specialists are the same we use on the table. They are expensive feed for chicks, but worth while for a short time. I have had excellent results with the buttermilk mash by adding a handful or so of rolled oats—the proportion does not matter. You could make it half oats if you wished, but from 15 to 25 per cent is probably sufficient. You can scatter the rolled oats dry on the sand at first and after three days add them to whatever mash you use, wet or dry.

So far as I know there is not much difference between different brands of commercial chick feed. They are all too fine to use long. I like to mix a little coarser grain, milo, cracked corn or wheat, with the chick feed from the start. It is astonishing how soon the chicks will begin to eat the larger grains and how short a time it will be till they prefer them to the chick feed. By all means feed the grain in green alfalfa, cut fine. Scatter the alfalfa over the sand on the floor of the brooder and throw the grain into it. The chicks will soon be eating alfalfa as well as grain.

I would feed sprouted oats as soon as the chicks will eat them, which is perhaps about the age of two weeks. The only reason oats are better than barley is that they contain more material for building frame and growing feathers. Sprouted barley is very good for chicks.

The only way to regulate the heat in a small brooder is to watch the chicks. If they are comfortable they will lie quietly, on the floor of the brooder, either under the hover or just at its edge. If they peep or huddle or seem uncomfortable give them more heat. The heat for a new brood is usually started at from 90 to 95 degrees, but can be dropped quite rapidly at this season. After the first week they will need little heat, if any, during the day, but after 4 o'clock and in the early morning, as well as through the night, the lamp should be lighted and sufficient heat allowed to make the chicks perfectly comfortable. A good deal depends on the amount of sunshine on the brooder and the shelter it has from the wind. One hundred chicks in a sunny sheltered place need little artificial heat after the first week.

Another subscriber, a Los Angeles woman, writes: "Two years ago I bought 150 day old White Leghorn chicks in May. They received no care after they were three months old. half a bucket of barley twice a day, no mash of any kind. When they were eight months old they began laying. I gave them a commercial laying mash then and they did very well.

"This year I am feeding my chicks steamed barley, which is more palatable and more economical than dry, and a mash composed of cocoanut meal mixed with all the water it will take up, sure-milk, beef scrap, fish meal and charcoal; they have grit, charcoal and shell before them all the time and ten acres to roam over for greens and bugs. Now, if my pullets had had the same care the first year, does it not stand to reason they would have laid at six months? Would care have nothing to do with the age of laying?"

It seems to me this writer has left something out of her mash formula. Cocoanut meal, sure-milk, beef scrap and fish scrap are all protein feeds and need considerable ground grain to make a balanced ration. The barley balances them to a certain extent, and the greens they get on range still more, but they need bran or corn meal, or both, for a good balance. This is true, however, that chicks will not overeat on protein feeds. Commercial poultrymen who have tried feeding beef scrap in hoppers say the chicks do not eat heavily of it. Possibly these chicks have such good range that they need little beside.

Undoubtedly, feeding has a good deal to do with the age at which pullets lay. Whether it has as much to do as breeding is another question. Careful feeding hastens laying maturity and poor feeding delays it. I should like to hear from this writer again when her pullets begin to lay.—J. A. K.

EAT MORE EGGS

Eggs, milk and the leafy vegetables, according to H. L. Kempster, of the University of Missouri college of agriculture, contain substances known as vitamines, which are essential to growth. They are called the protective foods because they correct the faulty composition of seeds and tubers. Young animals fed on wheat, oats, barley, or other seeds fail to grow. The ration is inadequate, even if the feed includes beans, peas and potatoes, and even if moderate amounts of leafy vegetables are also fed.

Egg yolk contains about 33 per cent fat. Like butter fat it contains growth producing substances which are absolutely essential. These growth producing substances are not found in vegetable fats or oils in beef or pork fats.

Some protective foods are necessary if the health is to be maintained. Eggs should therefore become one of the regular articles of diet. The price should be a minor consideration. Eat an egg a day. They promote growth and increase your ability to withstand disease.

MISSIONARIES IN FEATHERS

We are at the beginning of the most wonderful agricultural development the world has ever seen. Those who have read the new missionary textbook, "Ancient Peoples at New Tasks", must have been struck by the power of the agricultural message for the lining up of the backward peoples of the orient. Mr. Arthur H. Slater, a Presbyterian missionary in India, in his effort to make the starving people of his district self supporting hit upon the poultry plan. The fowls of the country were poor and their eggs poorer. Mr. Slater, with the help of a Bible class in America, supplied his people with better stock and the result is the doubling of the weight of the fowls annually exhibited at his poultry show, of the size of their eggs and of the price received for them. Like examples are multiplying on all sides. The farm boy and girl are at the very fountain head of this sort of propaganda. America must teach the world to feed itself. Let the farmers of the nation respond.

The average wage paid in Canada for farm help in 1918 was $70 and board.

Mung Beans

The attention of the United States department of agriculture has been called to some exaggerated claims of the good qualities of the Mung bean and exorbitant prices asked for the seed.

The Mung bean was known in the United States previous to 1835. About 1853 it was grown under the names of Chickashaw pea and Oregon pea. One variety was rather generally known in the Southern States for many years as the Newman bean.

The Mung bean is one of the com monly cultivated legumes of southern Asia, the adjacent Malayan Islands, and the eastern portions of Africa. The seeds are used almost exclusively for human food and the fodder is fed to cattle. It is extensively used, especially in China, for supplying the people with bean sprouts, bean vermicelli and bean gelatin. Considerable quantities of Mung bean seed imported into the United States are utilized almost entirely by Chinese restaurants for sprouting.

During the last ten years the department of agriculture has introduced and tested about 100 lots of Mung beans from various sources. It is doubtful whether the best will prove a permanent addition to American agriculture.

This bean is not as vigorous a plant as the cow pea or velvet bean and does not compare very favorably with these crops for forage, green manure, or pasture. As a seed producer it is far inferior to the soy bean. Its initial growth is slow, the forage tends to turn black in curing and the pods shatter badly. The seeds are much subject to attack by weevil. Experiments conducted in the wilt and nematode lands in the Southern States showed all varieties more or less subject to both of these diseases. Under Texas conditions the seed yield ranged from four to 15 bushels.

As a food crop in America the Mung bean will not compete with common field beans and peas, but it may find use to some extent for sprouting. Bean sprouts are a valuable food and furnish a green vegetable at a time when such food is scarce.

Although under present economic conditions this bean is not to be recommended as a general farm crop, it has apparently a place in certain systems of agriculture. It is an excellent poultry feed, used as pasture when mature. Moreover, the beans can be used as are sprouted oats, as a green winter feed. This appears to be one of the most important uses of the crop.

Blasting Adobe Soils

The one characteristic that makes subsoil blasting a different proposition in "doby" from subsoil blasting in harpan, clay and other ordinary soils is that the former is bottomless so far as agriculture is concerned. It is not commercially practicable to break through to some other kind of soil beneath, because the depth in most cases is too great.

In subsoiling adobe, therefore, the effort should be confined to breaking up and mellowing a layer two to four feet deep, leaving the ground beneath that undisturbed. Such a depth is suficient to permit reasonably quick and thorough drainage and to provide feeding space for the roots of all crops, including fruit trees, if it is properly organized and developed.

It is not true that there is no good in adobe. Under chemical analysis it shows abundance of most of the plant foods. What it lacks, as a usual thing, is intensive application of the agencies which release its unavailable virgin fertility. It is characterized by exceedingly fine particles, and naturally is entirely puddles and packed solid. No air, to speak of, penetrates; humus is almost absent; and naturally food elements revert to unusable forms. There seems to be something about the adobe particle that makes it particularly slow, among soils, to give up its fertility, but this calls for more thorough work rather than abandoning the attempt to grow anything. The productiveness that may be secured is remarkable to anyone who is not familiar with the effects of intensive deep tillage.

After it is opened thoroughly by blasting, the important thing is to introduce just as much organic matter as possible and to get it in deep. A heavy rooted crop is the best means, since the roots themselves become humus soon after they die, and they are down where they do the most good. Comercial fertilizers carrying any elements lacking, such as nitrogen and phosphorus, should be used to start the cover crop or other first crops, in order to get a big growth. Two seasons of proper management should make adobe productive to a satisfactory extent, while if developed over a period several times this the result need not differ much from the best of loam and clay in other sections.

To develop adobe without subsoiling is a much longer process. The loosening, fining, introduction of organic matter, and moisture control must be extended downward inch by inch, by means of forcing growth under unfavorable conditions in the small amount of soil made mellow by strict surface treatment. In fact, so great is the handicap that the job often is not worth trying, as proved by the thousands of adobe projects that are abandoned. Under the circumstances blasting becomes not only advisable but indispensable.

FARMERS PRACTICE FALSE ECONOMY

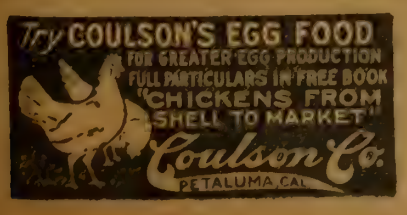
A writer in the Prairie Farmer, who has just returned from a trip through certain farming districts of Illinois, comments on the lack of order, neatness, and paint in the farm houses along his road. He says: "The yards were full of weeds, there were no flowers nor vines, and the majority of houses were unpainted.

"Who would want to live in such a place? What attraction is there to keep the boys and girls on the farm? I felt like asking these people why they didn't paint up and clean up and make their homes look like something."

Soldiers are required to keep their equipment clean and their faces shaved because of the effect on their morale. A clean, trim looking soldier has more self respect and fights better than a slovenly one. The man who takes pride in the appearance of his place is a better farmer and a better man on that account. The whole family undertakes its tasks more cheerfully and more successfully because of it. The judicious use of paint adds to the sale or loan value of any farm. It helps to raise the standards of family life. It makes a man stand higher in his community and in the long run helps his pocketbook as well as his pride.

TO MEET FUR, FIN AND FEATHERS

Believing that a better knowledge of wild life will bring about better conservation of it and that when people are on their summer vacations they are most responsive to education on wild life resources, the California fish and game commission backed by the Nature Study League will institute this coming summer a series of lectures and nature study field trips designed to stimulate interest in the proper conservation of natural resources. The Tahoe region has been selected for the work this year. The work will be offered at six different resorts. The month of July is the time set. All lectures and classes will be open to the public and no fees will be charged. Illustrated lectures on the game birds, song birds, mammals, and fish will furnish evening entertainment and early morning trips afield will give vacationists an introduction to mountain wild life.







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For Sale—6000 Orange, Lemon and Grapefruit trees, ⅛ to 1 inch caliper. 50,000 fine sour orange seedlings. Sales Yard, northwest corner East Colorado and Huntington Drive, Pasadena, Paul B. Magee Nurseries.

For Sale — Washington Navels, Marsh Seedless Grapefruit, Eureka Lemons. Late Valencias. All stock strictly first class, prices reasonable. Los Nietos Valley Nursery, Downey, California. Phone Downey Exchange 692.

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For Sale—3000 select orange trees. Also 3000 lemon trees; first class trees; 20,000 seed bed stock. A. R. Rideout, Whittier.

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Tobacco For Sale—Home grown Chewing or smoking; pound, 50c postpaid. Randolph Tobacco Farm, Paducah, Kentucky.

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Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 816 Washington Building, Los Angeles, California.

ENGINES

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale at a Bargain—18-35 Yuba Ball Tread Tractor in first class mechanical shape; plows and double disk harrow included. Apply D. P. Corcoran, Gridley. Phone 33-F. 24.

For Sale—40 H. P. Fairbanks-Morse gas engine in first-class condition—used two seasons. P. O. Box 251, Santa Ana, California.

For Sale—1918 Avery Orchard Tractor. Bosch magneto. Belt attachment and other extras. Fine condition, $375.00. E. C. Long, Ontario.

For Sale—C. L. Best 30 H. P. Tractor—all track model and six disc Saunders' engine plow. $1500.00; half cash. H. J. Warr, Perris, California.

60 H. P. Holt Caterpillar Tractor for sale, exchange, real estate, Smith-Form-A-Truck. W. M. Stansbury, 2025 East First Street, Los Angeles.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 South Los Angeles Street, Los Angeles.

Caterpillars, Two Holt 75's. Trailers. Bargains. Myers, 1117 Haas Building, Los Angeles.

For Sale—32 H. P. Fairbanks-Morse Gas Engine. Guaranteed perfect, $600. J. J. Pottinger, 115 Main St., San Francisco.

SEEDS AND PLANTS

The Garden Beautiful in California by Ernest Braunton, a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant, also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

Seed Corn—Fancy selected Seed Egyptian, Jerusalem, Dwarf Milo, Common Milo, Hickory King, Iowa Gold Mine, Iowa Silver Mine, King Phillip, Amber Cane, Honey Drip Sorghums, Sudan Grass, etc. Write us for samples and prices. FARMERS' UNION WAREHOUSE, Box 420, Tulare, California.

One Row Pays the Extra Cost, Garden Grove, Kansas, variety real Dwarf Milo maize, 6100 pounds threshed corn to the acre grown here last year. 15c per pound. 100 pounds or over 12½c; express paid. D. M. K. Co., distributors, Holtville, California.

Dwarf Milo Seed Head Selected from a field yielding over seventy hundred pounds of threshed grain to the acre. Six dollars a hundred pounds. F. O. B. San Jacinto, L. S. Cushman, San Jacinto, California.

1000 Wagner's Giant Winter Rhubarb, divided roots, not seedlings; bought direct from Wagner. Cost $20.00 per 100—will take $7.50. Have quit ranching. GUNDLACH, 835 6th Street, San Diego, California.

For Sale—Fancy Recleaned amber Sorghum and Sudan grass. Also hand-picked Seed beans; any quantity. Stock pumpkin seed 20c per pound. Aurora Seed Mill, Stockton, California.

New Variety Sweet Potato Plants, Nancy Hall, Early Triumph, Porto Rico, Yellow Nansemond. $7.50 per 1000, $1.00 per 100. J. BRASWELL, Lindsay, California.

Peruvian Alfalfa, Amber Cane, Milo Maize, Sudan Thousand-headed Kale, Artichokes, Seeds. Write for circular. Box 501, Fowler, California.

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Sweet Potato Plants for sale, yellow variety, 50c per 100 postpaid, $3.50 per 1000 f. o. b. Glendora. We ship with care. P. E. Zug, Glendora, California.

For Sale—Sudan Seed, government tested, 15c per pound or $12.50 per hundred F. O. B. Jamacha, California. G. A. Spencer.

Sweet Potato Plants, Yellow Jerseys, $3.50 per thousand, F. O. B. E. W. Van Gorder, Santa Ana, R. 5, Box 91.

Dwarf Milo Seed. From field that produced better than 2½ tons per acre. $6.00 cwt. W. L. Helwig, San Jacinto.

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Raise Rabbits for us. We supply the breeding stock. Send stamp for particulars. H. E. Gibson Co., Arcadia, California.

I Still Have healthy, vigorous pure bred, young Flemish Giant bucks at prices to close. Ask particulars. S. Arms, Byron, California.

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California's Finest Utility Belgians at popular prices. Sutter Rabbitry, Yuba City, California.

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"TESTED" and "GUARANTEED" Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.

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IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches. ARNOTT & COMPANY, INC. The Yellow Front. Established 1892 112-118 S. Los Angeles St. Los Angeles.

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Want Ranch or City Property in Southern California for 320 acre Alfalfa and grain ranch, fully water stocked, rich loam soil, house, barn and out buildings, fenced and cross fenced. One-quarter mile paved highway and railroad station, near Oakdale, Stanislaus County, California. $150 per acre; is fine almond land. Fred B. Palmer, 131 W. First Street, Long Beach, California.

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Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

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BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

HOGS

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Dean of the Berkshire Breeders, breeder of Baron Duke 201st, Grand National Champion, says: "I never saw a better width of loin than he has. If more breeders would produce the type of Baron Duke 201st there would be many more Berkshires raised and sold. Every animal on both sides in pedigree of Baron Duke 201st for many generations back were good ones; every one of them. His great size, good heart girth, very smooth shoulder, back and loin, legs and feet are hard to equal in one animal. If he is not a good one and a well bred one there is no other. I am glad to give you my opinion of Baron Duke 201st." N. H. GENTRY.
You can buy his three months' old weanling pigs from 650-pound prolific sows for $35.00. They are going fast. Order now.
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In charge of Natomas Land Sales.,
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Giant Type Berkshires.

We are booking orders for spring pigs from Grand Champion sows and sired by Mayfield Rockwood, sire of Champion barrow at 1919 Western Berkshire Congress.

Castleview Ranch, Santa Rosa, Calif.

BERKSHIRES BERKSHIRES

ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

Billiken Chester Whites. Not many left now; one 1917 fall boar; one 1918 fall boar; both cholera immune. All pigs farrowed to date are booked for sale excepting 10 boar pigs. Have 10 sows yet to farrow during May, June and July; will book orders from these litters, delivery to be made when weaned. C. B. Cunningham, Mills, California.

DUROC-JERSEYS at IRELAND
The snappiest—big type—fall boars—in Southern California—are now on exhibition and FOR SALE. Sired by Cherry Vol. 2. Strongly bred Orion Cherry Kings. Some of them will be herd leaders. Ranch at Owensmouth. City Office, 1219 Brockman Bldg., Los Angeles.

Grape Wild Farm Berkshires. A few fall Boars by Big Leader Grape Wild Farm Leader and Majestic King, also spring pigs. A. B. Humphrey, Prop., Escalon, California.

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I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California.

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The most popular herd in the West—our Durocs make us money. They will do so for you. Winsor Ranch, Bonita, San Diego County. Address R. K. Walker.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Bldg. Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

Lark Meadow Ranch

Berkshires

Geo. A. Stingle, El Monte, California.

For Sale — Berkshire boar Pacific Star Masterpiece 2nd 241131—2½ years old. Nil Goethes Masterpiece 198190, dam Star Belle Betsey 226782. Splendid herd header. J. E. Moltzer, Van Nuys, California. South Sherman Way, corner Rita Street.

Have Sold All the Pigs advertised recently. Will have fine pigs from spring litters for sale in June. Fine Shropshire ram lambs, pure bred, for sale. J. J. Prendergast, Redlands, California.

Fall Boars of the BIG TYPE POLAND CHINAS ready for light service. Excellent prospects. Sired by King Timm. Priced reasonable. Dimmick Bros., Lemoore, California.

Young Boars, big type POLAND-CHINAS sired by PRESIDENT and out of Beautiful Belle. Splendid individuals and ready for light service. John Bernstein, Hanford, California.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

For Sale—Registered Duroc-Jersey Weanlings. $15 each; 3 for $40. Satisfaction guaranteed. First come first served. A few good brood sows. Red Rock Ranch, Glen Ellen, California.

Young Berkshire Sow—Bred $40. Yearling Berkshire Boar, $50. These are pure breds but not registered. Geo. A. Stingle, Garvey Ave., one mile west of El Monte.

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

For Real Good Berkshires, cholera immune, write Frank B. Anderson. Box 724, Sacramento, California.

POULTRY

THE MISSION HATCHERY
Can now supply for May and June delivery.

WHITE, BROWN, BUFF LEGHORNS
Baby chicks of quality breeding, hatched right, and priced right, and shipped to arrive safely. Express or parcel post. Large or small lots. Also booking orders for late May and June delivery. Barred and White Rocks; Black and White Minorcas.
Circular and prices for the asking.
The Mission Hatchery, Box 27. Campbell, California.

Baby Chicks For Sale—250,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock. 25, $3.50; 50, $7.00; 100, $12.50. Special prices, 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Shipped safely anywhere West of Rockies. Finest hatchery in the world. Established 1898. Must Hatch Incubator Company, 488 Seventh Street, Petaluma, California.

It's like groping in the dark to attempt raising poultry successfully without some knowledge of the business. Poultry for Profit tells you how to house, feed and raise chickens, ducks and turkeys successfully in California. It contains 225 pages with 18 pages of illustrations and bound in cloth $1.00 postpaid. Cultivator Publishing Co., 115 N. Broadway, Los Angeles, California.

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Standard Bred S. C. White Leghorns—Winners at California Liberty Fair, 1918. We discontinue breeding yards May 15; cockerels heading yards for sale $15.00 to $25.00; hens, $3.00 up. Eggs during May one-half price. ALLESANDRO POULTRY YARDS, Telephone 53611. 523 Rosemont Avenue, Los Angeles, California.

S. C. White Leghorn chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockeral at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs, $2.50 per 15 eggs. Chicks 30c each; 7 pullets May hatch, laid 12 dozen December, 10 dozen January. Call mornings or phone 6599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California.

Baby Chicks—From my vigorous, heavy laying, thoroughbred flock of S. C. White Leghorns. 14 years of most careful breeding for standard and laying qualities. Write for prices and particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Baby Chicks and Eggs—Hoganized White Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks our specialty; also choice Anconas and Blue Andalusians. Free circular. McDonald Poultry Ranch, Route 1, Box 246, King Road, San Jose, California.

Poultry for Profit—A 225 page book, with 18 pages of illustrations, tells you how to successfully house, feed and raise chickens, ducks and turkeys in California. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 N. Broadway, Los Angeles.

Black Minorca and Buff Wyandotte Eggs, $1.50 per setting. Chicks 20 cents each, thoroughbred laying strain. None better. A. G. Moore, 432 Ulysses Street, Los Angeles.

Thoroughbred R. I. Reds and White Leghorns—Hoganized Hatching eggs especially selected. Red, $2.00; Leghorns, $1.50 per 15. Cherry Ave. Poultry Yards R. 1—50A. San Jose, California.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Light Brahmas, large stock direct from the East. Eggs, $3.00 and $5.00 per 15; Rouen duck eggs, $3.00 per 13; big winners. Seabright Bantam eggs, $2.50 per 15. Emma V. Miller, Farmington, California.

Baby Chicks—Barred Plymouth Rocks, R. I. Reds, Buff Orpingtons, Black Minorcas, Brown, White and Buff Leghorns from Hoganized stock, bred to lay. Tobener Hatchery, Washington Avenue, San Jose, California.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

Baby Chicks—Hatching season ends June 1, except for special orders. A few chicks still available for latter part of May—leading varieties. B. W. Archibald, Soquel, Santa Cruz County, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

White Leghorn Baby Chicks every week, good strong youngsters from fine layers. Also other varieties. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

Incubator Chicks—White Leghorns bred to standard and to lay. $15.00 per 100. MAHAJO FARM, P. O. Box 597, Sacramento, California.

White Wyandotte setting 15 eggs, $2.00. Mission 281. G. O. Tetley, 190 Edgewood Place, Riverside.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California.

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers Write for 1919 mating list. Geo. Schmitt Box 263, Corcoran, California.

POULTRY

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns. CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying TROGAINIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for 20 years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S Reservoir, Pomona, California.

MACHINERY

FOR SALE—USED RANCH TOOLS. Guaranteed to do as much work as new. WE SELL FOR LESS. CALL AND SEE WINDMILLS — 8 ft., $29 to $35; 10 ft. $39 to $45; 12 ft., $58 to $68; 16 ft., $135. REDWOOD TANKS—NEW, used, all sizes, 25,000 gal., $135; 50,000 gal., $250; fine 100,000 gal. with round lug hoops, $475, cost $1100 new. NEW GALV. TANKS—1000 gal., $42.50; 2000, $53. USED 6000, $125; 7000, $145. RANCH TOOLS—10 ft. grain drill, $95; mower, $45; beet drills, $35; 4-gang disc plow, $120; potato planter, $75; spike harrows, Planet Jr. new potato digger, $20; 2-row bean cultivator, $35; cider mill, $17.50; sundries. IRRIGATING PIPE—2000 ft. 7 in. galv. surface irrigating pipe, $32.75. PUMPS—Complete pumping plant, 6 h. p. Lambert engine, fine 20-inch stroke, Gould pump jack, 120 ft. casing, rods and brass cylinder; belt, etc.; $300; guaranteed first class. 1-in. centrifugal, 2-in. American, $35; 2½ B. & J., $45; 4-in. horizontal cent., $82.50; 6 hor., $125; 4 two stage, $150; single Pomona plunger pump $50, many others, 50 brass cylinders. Checks, Liberty Bonds accepted. DEMMITT CO., upstairs, 120 N. Main. Yards, 318 Yale, Los Angeles. Also buy first-class used material.

For Sale—Complete Pumping Plant, $2800. No. 38 Pomona Head—260 feet 10 inch column pipe, rods, cylinder—25 H. P. motor—12-inch leather belt. All in fine shape. Has seen very light duty. Well gone dry reason for selling. Orange, California. Phone 502R1. Hugh T. Thomson.

3-Inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2.

DUCKS

Fawn Runner Duck Eggs $1.25 per setting. Mrs. M. Lopez, Lathrop, California.

FARM LANDS FOR SALE

For Sale—20 Acres bearing oranges, lemons, grapefruit and olives with fine family orchard in protected foothills on branch of state highway at Woodlake, Tulare County. Furnished bungalow, team, feed, tools, etc., complete. Will pay for itself and double in value in a few years. Some cash, auto or bungalow and ten years for balance. F. L. Kern, owner, 1021 S. Berendo Street, Los Angeles.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator, Box B. A. J.

Mountain Ranch—334 Acres, 90 acres under cultivation, 30 acres Bearing Orchard, balance in Timber, Oak and Pine. Free Water, deep, rich soil, eight-room house, 100 tons hay, barn and out buildings. Will subdivide. Price $7500. Terms. Address, Paradise Ranchita, P. O. Box 123, Paradise, Butte County, California.

For Sale or Exchange—80 Acres improved irrigated land. Want general farming land where large variety fruits, vegetables and nuts grow. Give full description of your land. Owner, Box 143, Califatria, California.

For Sale—320 Acres Alfalfa Land, including water, located in Kings Co. Price, $100 per acre. Will divide, terms. J. A. Elliott, owner, 130 E. 25th street, Los Angeles. Phone 63247.

$10 to $25 an acre, good land, 160 acres and up, some improved, oak timber, watered by streams and springs, fine climate. W .W. Baldy, Raymond, California, Madera County.

For Sale—120 Acres, one mile from Coachella, suitable for DATES, grapes, alfalfa. Partly improved. THIS IS A SNAP, INVESTIGATE. Bargain. Box 624, Coachella, California.

For Sale—10 Acres, deep well, pit cabin, chicken house, few trees, berry vines, two acres barley, $1050. At your terms. Geo. Moody, Acampo, California.

Profitable 387 Acre Grain Ranch. Fine farm home, Stockton, three miles; bargain for real farmer, $35,000. C. A. BODWELL, Lakeville, California. No agents.

CATTLE

AUCTION

250—HEAD OF DAIRY COWS AND HEIFERS—250

WORK HORSES YOUNG MULES

On the McNeil Dairy Ranch, 4 Miles West and 3 Miles South, of

FRESNO

on North and Cornelia Avenues

FRIDAY, MAY 16 at 9 A. M.

Herd includes 200 choice dairy cows, Holsteins, Jerseys and Durhams, many with first and second calf, a large number fresh and some extra good springers.

50 HEAD OF CHOICE HEIFERS selected from the best cows in the herd and sired by pure bred, registered Holstein bulls. This will be an exceptional opportunity for dairymen to purchase some extra good dairy stock owing to the fact that this is a large herd, carefully culled and owner has instructed us to dispose of the entire herd.

POSITIVELY WITHOUT LIMIT OR RESERVE

TERMS: $100 and under cash, over $100, one-third cash, balance in 30, 60 and 90 days with bankable note.

A. McNeil, Owner

COL. BEN A. RHOADES,
HAROLD B. RHOADES,

1501-3-5 S. Main St., Los Angeles, Cal.

AUCTIONEERS.

AUCTION

175 HIGH CLASS DAIRY COWS 175

On Mesa Drive, between Slauson and West Adams Street

LOS ANGELES

THURSDAY, MAY 8 at 9 A. M.

One of the best large herds ever sold in this section. L. Gianni, Owner.

For full information in regard to these sales write—

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1501-3-5 S. Main St., Los Angeles, Cal.
AUCTIONEERS.

BUTTE CITY RANCH
SHORTHORN CATTLE, SHROPSHIRE SHEEP, BERKSHIRE HOGS, SHETLAND PONIES. Stock for sale at all times. Second Farm Sale—all breeds—August 2, 1919. W. P. Dwyer and W. S. Gulford, Box C, Butte City, Glenn County, California.

Guernseys—We will sell stock from our prize winning, high producing herd, at reasonable prices, valued according to individuality and breeding. Our supply is limited but if the buyer wants a number of animals and will write us we will furnish him with particulars. Revada Guernsey Farm, Yountville, Napa Co., California.

For Sale—35 Head high grade Holstein cows fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch. Hannon Bros., Third Street, Lankershim. Care of Chas. Irwin.

For Sale Registered Guernsey Heifer—Light color, 10 months old; sired by Chanticleer of the Rancho, from high producing stock. George A. Stingle, El Monte, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery Street, San Francisco, California.

For Sale—20 Registered Holstein Cows and Heifers. G. U. Clark, Hanford, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced, California.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

WANTED

Duroc Jerseys Wanted—Bred and open gilts and young sows. State price, breeding and when bred. Jersey Queen Farm, San Jose, California.

Wanted—Second-hand Sorghum Mill and Pan; one or both. State size and make and price. Address, B. L. Mussetter, Usona, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

FERTILIZER

EARL A. HOLCOMB
SOIL LIFE
Fertilizer and materials mixed to balance every soil. Bureau of testing and advice free on all horticultural and agricultural subjects. 1022 Washington Bldg., Los Angeles. Phone 62907; res., 16116.

For Sale—Chicken manure in carloads. Cheapest and best fertilizer. MacDonald Sons, phone 101, Watsonville.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Pig Ailing

About ten days ago I noticed that one of my pigs about four weeks old was red around the nose. I paid it little attention at the time but now he begins to slobber at the mouth and rub his nose on the ground and squeals. He eats well and seems right otherwise.—Subscriber, Chowchilla.

Can not tell what is wrong at this distance but would advise that you catch tht pig, turn him on his back, put a piece of soft wood in his mouth to hold it open and examine it for a thorn or splinter that may be sticking in the flesh. If nothing can be found; may be he has been rooting in some lime or ashes that have burned his nose. Oil or grease will relieve the irritated skin if the trouble is all in the outside. I presume you will find the cause if you look close enough.

Dog with Abscess

Last summer our Spitz dog had a large swelling under her ear that lasted for several weeks. At last it broke open and discharged a lot of pus. The same has occurred again. The swelling was not so large but it takes so long for it to heal. She seems all right otherwise. She is fed bones, corn meal mush cooked with a little meat and the heads of rabbits when we kill them. Is there anything wrong with the diet or what is it? — Subscriber, San Gabriel.

A barley beard or foxtail acts that way when working through the flesh of animals that eat hay but as dogs do not eat such things it may be due to a splinter of bone or something else. What caused the first abscess may not have all worked out and have started the second. Wash the place and search for something hard; you may find the cause. The skin is thick and the pus is slow eating through so if it occurs again it may be best to lance it and relieve the dog sooner. The diet is all right.

Bloody Wart

I have a fine young mule with a bloody wart, as large as an English walnut, on his cheek bone. It may have been started by the rubbing of his halter since I have been obliged to keep a span of young mules tied together to keep them in the pasture. The neck of the wart is comparatively small and I have wondered if it would be feasible and advisable to tie a string tightly about the neck and thus cut off the blood supply. Please advise me as to the best method to pursue in removing the wart.—Subscriber, Hanford.

Yes: A cord tied tightly about the base of the wart would probably do just as you say and in a short time the wart would drop off and the place heal quickly, but it might grow again. Pinch it off with a dull pinchers and touch the spot with a red hot iron, then the trouble will be over quickly and it will not be likely to grow again.

Bloody Milk

I have a five year old cow in fine condition that gave birth to her third calf about four weeks ago but we notice a little blood in the milk after it stands for a time. The udder is not swollen and we can notice nothing wrong with the milk while milking. Am feeding about five quarts of bran and half as much dairy food per day and all the alfalfa hay she will eat. What shall we do? — Subscriber, Yermo.

Bloody milk can not always be accounted for. It may be due to slight congestion of the udder from a bruise or from some other cause. Get three pounds of epsom salts and two pounds of common salt. Mix them and give a handful of it in the feed once a day. This will thin the blood and will probably relieve the congestion.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Building Culvert

At the entrance to private property, is it compulsory for the property owner to put in culverts, or for the supervisor?—Subscriber, Mesa Grande.

It is the duty of the supervisor to establish the grade of the roads; not to improve private property in such a way as to enable the owner of such property to make entrance into his property at his convenience. If by reason of any important reduction of the grade, the private property owner has suffered damage, then he is entitled to recover such damage from the county, but generally speaking, he is required to make such improvements in the way of culverts and entrance into the property as may be to his own benefit and public benefit.

Turn Water Off Road

Will you kindly advise whether in California the road superviser may turn the water off the road into fields cultivated or uncultivated?—Subscriber, Mesa Grande.

A municipal corporation, or any state or county official has no more right than has an individual to collect surface water and precipitate it upon private premises to the injury of the owner. The law specifically sets forth a means whereby the board of supervisers shall in order to protect any public road or highway from prospective damage by storm water adopt a general plan of protection to lay taxes and condemn property so as to establish such improvements as will conduct the water from the roads along such lines that will not damage private property.

POISON BAIT FOR GRASSHOPPERS

A. W. Morrill of the Arizona commission of agriculture and horticulture recommends this poisoned bait for grasshoppers: Wheat bran (coarse), 25 pounds; Paris green, 1 pound; lemons or oranges (chopped fine), 4 to 6; molasses (Black Strap), 2 quarts; water, 3 gallons.

Thoroughly mix the dry bran and Paris green. The fruit, both rind and pulp, should be put through a meat grinder. The molasses, finely ground fruit, and about one-half of the water are mixed, added to the bran-Paris green mixture and thoroughly worked in. The balance of the water is added as needed to make a uniform stiff mash. In preparing the poisoned bait a wooden paddle or a hoe should be used instead of the bare hands.

Fewer Blisters

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Both of these possibilities have been realized in HORSE-SHOE TIRES. *They seldom blister.*

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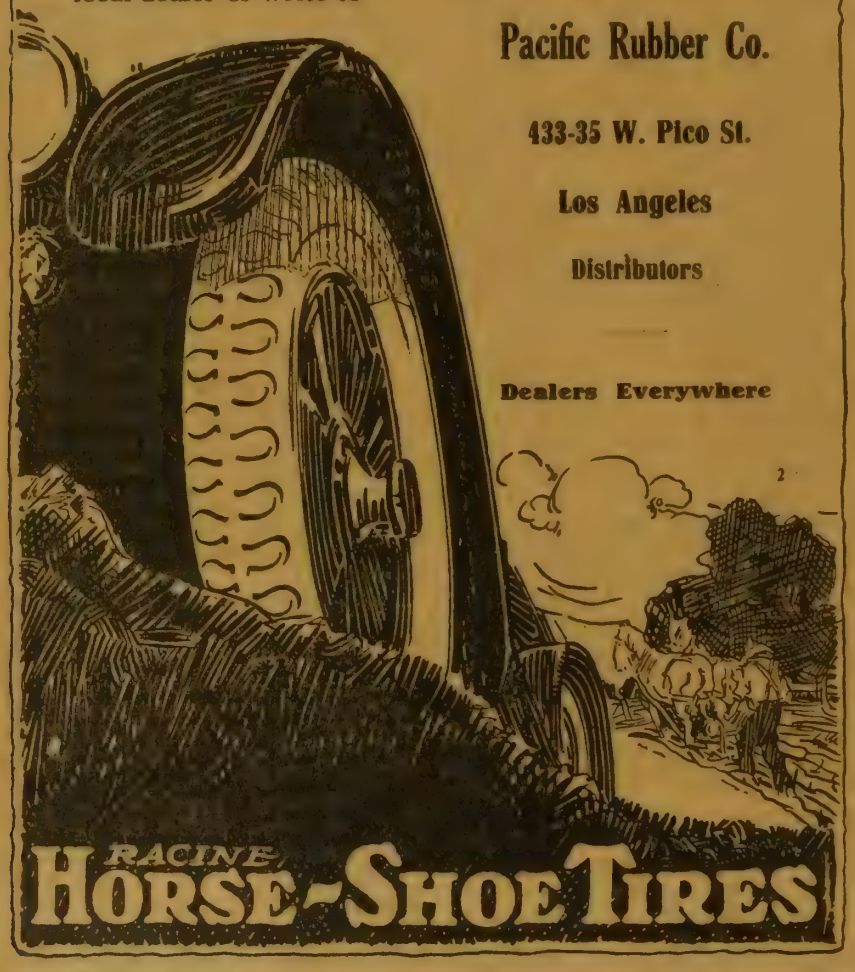
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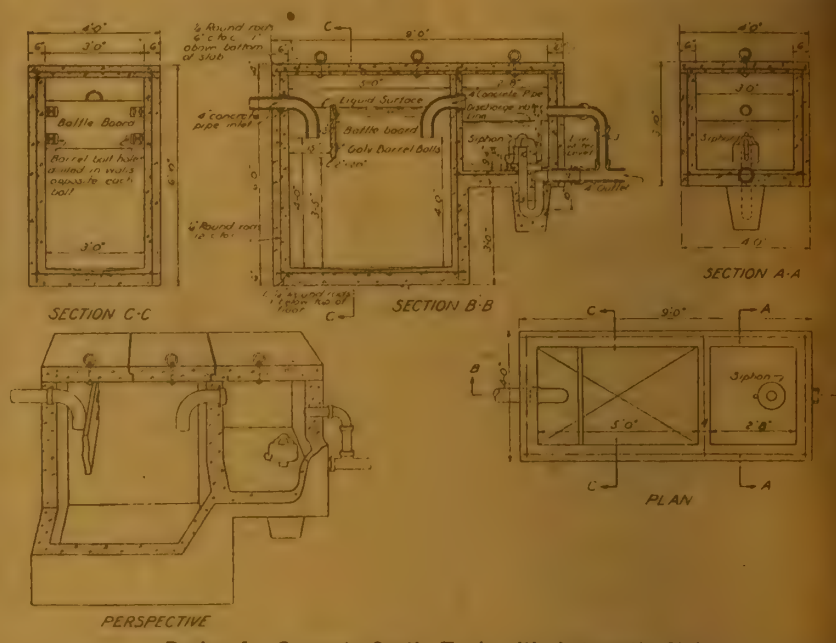
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Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

Septic Tanks

GOING to the country to "build up" does not always measure up to expectations. Statistics have shown that there are a number of diseases, usually taking epidemic form, that frequently assume worse proportions in the country than in the well regulated city. Among these are typhoid, dysentery, and other intestinal complaints. Most of these are directly traceable to insanitary conditions or by wells, and it is practically impossible to prevent pollution of domestic water supply from such sources; therefore, it is to be expected that if plumbing is installed and all household wastes carefully disposed of in a sanitary manner, deaths from these communicable diseases will be materially decreased. Facts bear this out.

The farmer must adopt sanitary means of disposing of household



Design for Concrete Septic Tank with Automatic Siphon

This miniature drawing gives very complete information regarding construction of concrete septic tank. The perspective in lower left hand corner shows plainly the principle on which it works. The inlet is at the reader's left and the plank, or "stiller", is for the purpose of preventing disturbance of surface of sewage. Its outlet into the secondary chamber must also take in the sewage underneath the surface.

surroundings. Recent army tests prove conclusively that country boys do not in general enjoy better health than those from the city and many astounding revelations quite the reverse of common supposition have been made. Lack of rural sanitation is largely to blame.

Where unprotected privy vaults and shallow wells are used, epidemic intestinal diseases prevail. There is continuous seepage from an unprotected vault through the soil into near-

wastes and safeguard his domestic water supply if he is to protect and maintain his health. As a city sewerage system is not practical for the farm, a septic tank such as is shown may be used to handle household wastes in such a manner as to safeguard the domestic water supply and to dispose of the wastes in an inoffensive manner. A concrete septic tank like that shown can easily be built by any contractor without need of any special equipment.

Bean Growers of Merced and Stanislaus Ask Bean Market

The Merced and Stanislaus County farm bureaus met in joint session at Turlock on March 15, and the matter of the large amount of beans that is in storage at the present time with no market was presented to the meeting by the growers through their directors, stating that they were unable to find a sale for them, holding back business in many lines and incurring heavy financial losses to the grower.

A committee composed of A. H. Poore, Newman and O. E. Lambert, Modesto, was appointed by the bureaus to draw up resolutions and send to officials deemed best to lay the situation before. The following resolution was formulated:

"Be it resolved: That at the present time in these two counties and others, thousands of sacks of beans are in storage and it is impossible to find sale for them at a price which will net the grower cost of production. Many growers have obligations and expenses to meet that were contracted in raising beans and a large amount of this money has had to be borrowed from the banks, and inasmuch as these beans were largely grown at the urgent request of the government and the United States food administration officials, we feel that it is their duty to assist in every way possible to find us a fair market price for these beans.

"Be is further resolved: That we believe that all importations of foreign beans should be stopped and no more allowed until all the beans that were grown are disposed of."

California Handling Grain in Bulk

THE labor saving method of handling grain in bulk adopted after long experience in states east of the Rockies, where grain growing is the greatest business, should be sufficient recommendation to the California grain grower planning on adopting the more economic method of handling his wheat.

While the cost of sacks is dropping, compared to the quotations on them a year ago, they are still more expensive and more scarce than they were prior to the war. There is just as much reason for the handling of grain in bulk instead of in sacks, however, even though sack prices return to their former low level.

Saves Labor and Waste

The economic gain in labor costs and man power saved from useless work, as well as the ten per cent crop loss that can be prevented by doing away with the leaky, moldy, rat eaten, weather damaged sack, and handling and storing California wheat in bulk from the harvester to the terminal warehouse, is an important consideration.

Demonstrated in California

It is a most encouraging sign to notice the interest shown in California wheat and barley sections in the bulk handling method. The comparatively simple method by which the antiquated grain sack and its expensive sewe

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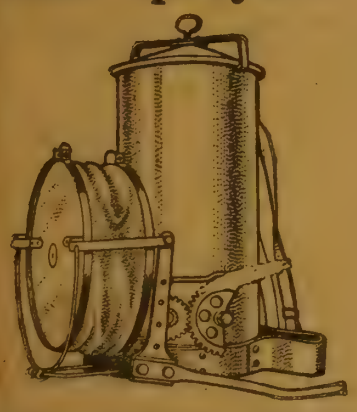
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and "jigger" and its multitude of warehouse laborers may be eliminated has been demonstrated in a number of instances throughout California. The familiar combined harvester can be fitted with a bulk handling bin into which the grain is elevated as threshed. This bin or hopper is emptied at stated intervals into grain tight wagons which can be driven under the spout while the harvester is in motion. A simple dumping apparatus at a central storage bin of the modern metal type of rust resisting material makes the unloading of these wagons a simple matter.

Machinery Instead of Men

Grain is elevated from the receiving hopper by ordinary grain elevating belts to which buckets are attached, or by the tubular steel elevators. It is safely stored under the weather proof roof in less than an hour from the time it is threshed. This method of handling immediately removes it from the reach of field rodents, rats, mice and other vermin; puts it beyond the reach of thieves, and protects it immediately from early rains, sunburn, and molding.

Crop Losses Prevented

At the same time it prevents losses through leaking and bursted sacks either in the farmer's field, the railroad warehouse, or in transferring it from the freight car to the terminal elevator. Conservative estimates place the annual grain loss at 10 per cent due to sack handling and storing.

Think of it! One-tenth of the California grain crop lost, and lost in such a way that no advantage whatever accrues to society.

Economic Gain Possible

This ten per cent crop loss is not the only economic waste connected with handling California wheat in bags. The useless labor involved in sawing and "bucking" sacks on the harvesters, handling them in the storage warehouses along the railroads, and at the terminal points, is another serious charge against this method. The useless waste of man power and the constant source of worry to the grower and harvester man, who at harvest time have to bid for help in a market already short because of other crop movements, is another vital essential.

Adopted Throughout the World

Bulk handling eliminates this economically wasted labor, prevents the 10 per cent crop loss of wasted grain, and represents the modern efficient way of handling grain in progressive countries throughout the world. It is to be hoped that bulk handling will become a common way of handling grain in California before many years.

CARELESSNESS CAUSES MOST FIRES.

Much of the enormous losses in human life and property caused by forest fires can be averted by proper preventive measures. To prevent fires forest service officials believe it is necessary that suitable laws be passed and strictly enforced and that all settlers, campers, construction crews and citizens in or near forests should cooperate to see that laws are enforced and otherwise aid in preventing fires.

On the national forests, comprising 155,000,000 acres, representing 28 per cent of the timber resources of the country, the fire situation is fairly well in hand. Each year, through educational and publicity activities, as well as stricter enforcement of laws and regulations, sees a reduction in the number of fires through human agencies. To approach perfection in forest fire protection, however, it will be necessary to eliminate entirely all fires caused by human agencies. There is still much to be done along this line. Nearly three-fourths of the fires that occur in the national forests are due to carelessness.

J. R. Sandige, county agricultural agent for Gila County, Arizona, and garden expert for the Inspiration Consolidated Mining Company, has just made the final report of the garden operations for the year; 294 gardens were alloted and the total product from these gardens was estimated at $24,198. Ninety per cent of the gardeners were well pleased with the results and practically all of them have asked for the same garden next season.

Enclosed Working Parts

The unit construction of the Bates Steel Mule is such that not only is protection from dust afforded, but a permanent, rigid alignment of transmission parts with the motor is assured, regardless of any severe twisting strains to which the tractor may be subjected.

All working parts, of course, operate in an oil bath.

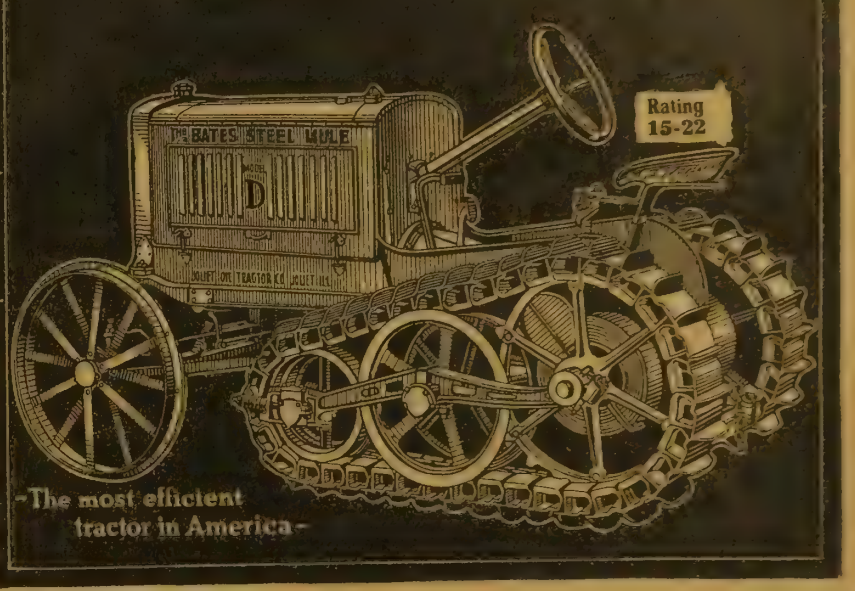
This feature, with the powerful twin crawlers driven by the valve-in-head, heavy duty kerosene motor, the hardened cut steel transmission gears and Timkin roller bearings, makes the Steel Mule a long-service tractor.

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San Jose, Cal.

Branch at 165 N. Los Angeles St., Los Angeles.

Los Angeles Market

Los Angeles, April 30, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 54 lb.; prices to retail merchants in 1-lb. squares, 57@58.

Dairy exchange prices last week on extras:

Apr.	23	24	25	26	28	29
'19	53	53	53½	54	54	54

CHEESE

Brokers' prices:
California fresh, lb., 30; price to retail merchants, 32@33.

EGGS

Fresh extras, Produce Exchange closing price; 46 doz.; price to retail merchants, 49@51 doz.; case count, Produce Exchange closing price, 45 doz.; price to retail merchants, 47@50 doz.; pullets, Produce Exchange closing price, 42 doz., price to retail merchants, 45@47.

Dairy exchange prices last week on extras:

Apr.	23	24	25	26	28	29
'19	47	47	47	46	46	46

POULTRY

Prices to producers: Hens, 33@34; broilers, 26@30; fryers, 40; roasters, 40; old roosters, 14; capons, 42; ducks, 35; ducklings, 36@37; geese, 32; turkeys, 30@40; squabs, 50.
Belgian hares 15.

LIVE STOCK

For the last two weeks greater declines were recorded in the prices paid for live cattle than in many months before. This condition is brought about by the surplus of fed steers in Southern California being ready for market at about the same time.

It is true that many trainloads are leaving this section every week for Eastern markets but these shipments are made up from the holdings of large producers and feeders altogether. The feeders of five cars of cattle or less are compelled to unload their product on the local market and this is why the market is so liberally supplied and the market is so weak. A plan is on foot among several small producers to pool their holdings to make up a trainload and ship to either Chicago or Kansas City. Government contracts for export beef in Eastern centers afford an excellent outlet for fed cattle there but the outlet for dressed beef in Los Angeles is very much limited.

Hogs hold firm at the high level of prices existing for over a fortnight. Receipts are light. Shippers of hogs in California are receiving better net returns than those that ship to the large centers.

Lamb supplies are very liberal and prices weak. The market is over-supplied.

Ewes and wethers are holding steady.

Good steers	12.00@12.50
Medium steers	11.00@11.50
Common steers	9.00@10.00
Good cows	10.00@10.50
Medium cows	8.00@9.00
Common cows	6.00@7.00
No. 1 hogs, 175-225 lbs.	18.50@19.00
No. 2 hogs, 250-400 lbs.	17.00@17.50
Feeder hogs	13.00@14.00
Spring lambs, each	7.00@8.00
Regular lambs, cwt.	15.00@16.00
Regular lambs, No. 2, cwt.	14.00@15.00
Wethers No. 1, cwt.	11.00@12.00
Ewes No. 1, cwt.	7.50@9.50

POTATOES AND ONIONS

These are the actual prices obtained April 29 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.

Demand and movement slow. Market dull. Stockton, Burbanks, quality generally good, sacked per 100 pounds, extra fy., 3.50@4.00; Idaho Russets, quality and condition fair, 2.40@2.60; rurals, 2.25@2.40. Oregon, Burbanks, fy., 2.60@2.75. New stock, home grown, Red Rose and White Rose, 2.00@2.50 per lug box.

Sweet potatoes: Lug box best, 1.50; sacked 4.50@4.75.

Onions: Demand and movement moderate. Wide range in prices. Old crop, Stockton, sacked per 100 lbs., Browns, best from cold storage, 4.25@5.25. New crop, homegrown green onions, 15 per doz. bunches. Imperial Valley and Coachella Valley, Wax, standard cr., 4.00.

VEGETABLES

These are the actual prices obtained April 29 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz.	45@75

Asparagus: Northern, green, extra fancy 7@8; fancy, 6@7.

Beans: Local Wax 15@20 lb.; Kentucky Wonder, 20@22 lb.

Cabbage: Sales to retailers, best, cr. 3.50@3.60.

Carlots: Market strong, no change in prices. Quality and condition fair, many small. Carloads f. o. b. usual terms, Charleston Wakefields, bbl. cr., 5.00; best, practically all shipments sold, small, some consigned.

Carrots, doz.	45@50

Lettuce: Sales to retailers, best lettuce in cabbage crates, 50@60.

California stock continues ordinary and weak at shipping points and declined to 2.75@4.25 per cr. in most Middle Western jobbing markets but advanced to 4.15@5.00 in Minneapolis.

Parsley, doz.	20

Peas: Local (San Pedro) best, 10@11.

Radishes	25

Rhubarb: Local Winter Crimson, 1.10@1.25 per packed bx. Strawberry, fy., 1.25@1.50 per apple bx. Northern Strawberry, extra ch., 2.00@2.20 per bx.

Spinach, doz.	20

Tomatoes: Quality and condition generally good. Mexico, best 3.25@3.50 per lug box. Poorer and small, 75@1.00 per lug box.

Turnips, doz.	30

FRUITS

These are the actual prices obtained April 29 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtowns, fy. medium size, 3.50; loose 7@8 lb. Oak Glen, Rome Beauties and Pearmains, 3.75@4.00; White stock strengthened to 4.50@5.00.

Pears, Winter Nellis, lb., 6@7.

Pineapple, lb., 18@20.

Strawberries: 3.00@4.00 per 30 basket crate.

Lemons: Fy. packed, 4.25@4.50; local pack, 3.00@3.50; loose, some tree ripe, 1.75@2.00.

Oranges: Navels, medium and large size., fy., 5.25@5.75; local packed, 2.00@4.00; Tangerines, 7@7½.

Grapefruit: Local fy., 2.50@3.00 bx.; poorer, 2.00@2.25.

HONEY

Supplies exhausted. No sales reported. Continued dry weather indicates probable light yield of sage honey, new crop.

BEANS

Demand moderate, little change in prices, market slightly stronger. Carloads f. o. b. usual terms, choice recleaned, sacked per 100 pounds, Limas 7.25; Henderson Bush 6.75. Warehouse cash to grower choice recleaned Small Whites best, undamaged, 6.15-6.25; Large Whites undamaged 6.25; Blackeyes 3.00@3.25; Tepary no sales reported.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat	19.00@24.00
Barley	17.00@20.00
Alfalfa	16.00@19.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy	26.00
Standard dairy	24.00
Standard alfalfa	22.00

GRAIN

Prices on local Grain Exchange:

Egyptian	3.15
Feterita	3.20
Alfalfa molasses	3.20
Wheat, mixed feed	45.50@48.00
Milo	3.00@3.06¼
Barley	2.72½@2.75
Corn, sacked, No. 2 yellow	3.72½
No. 3 yellow	3.70
No. 3 white	3.60

San Francisco Market

San Francisco, April 29, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale dairy produce exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons 2c to 3c.

Dairy Exchange quotations, lb.:

Extras	56
Prime Firsts	Nominal

Prices extras past week and year ago:

Apr.	22	23	24	25	26	28
'19 ...	..	55	56	56½	55	56
'18 ...	41	41	40½	40½	40½	..

Rcts. wk. ending April 29, 613,100 lbs.

CHEESE

Dairy exch. quotations:

Cal. Flats	30
Cal. Y. A. fy.	33½
Ore. Triplets	38½
Jack, full cream	25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	48½
Firsts	Nominal
Extra Pullets	46½

Prices extras past week and year ago:

Apr.	22	23	24	25	26	28
'19 ...	..	50½	50	49	48	48½
'18 ...	40½	41½	41	42	42½	..

Rcts. wk. ending April 29, 16,891 cases.

POULTRY

Hens, 38@40; roosters young, 42@45; old roosters, 25@27; broilers, 38@45; fryers, 55@58; ducks, 35@40; geese, 36@40; squabs, 60@65.

Belgian hares, live, 17@19; Jackrabbits, doz., 3.00@3.50.

LIVE STOCK

Cattle—Grass fed, on foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. alive, 12@12½; 1200 to 1400 lbs., 12@12½; second quality, 11@11½; thin steers, 9@10.

Cows and Heifers—No. 1, 9½@10; second quality, 8½@9; common to thin, 4@7.

Calves — Light weight, per lb., 11½@12½; medium, 10½@11½; heavy, 8@10.

Sheep—Lb., gross weight: Wethers, unshorn, 11@11½; ewes, unshorn, 8½@9½; lambs, yearlings, 12@12½; milk, 13@15.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 18½; 150 to 250 lbs., 19; 250 to 300 lbs., 18½; 300 to 400 lbs., 18.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers: Choice, 1050 to 1200 lbs., 12½@13; medium to good, 950 to 1050 lbs., 12@12½; good grass steers, 1000 to 1200 lbs., 12@12½; other steers, 950 and over 11@12. Cows, 1000 lbs. and up, 10@10½; medium to good cows, 9@10; canners, 5@6.

Hogs — Hard, grain fed, well finished, 175 to 250 lbs., 19¼; 150 to 175 lbs., 18½; under 150 lbs., 17¾; 250 to 300 lbs., 18½; 300 lbs. and up, 18.

POTATOES

Supplies heavy. Demand and movement slow. Quality and condition generally good, market dull, little change in prices. Sales to jobbers—Oregon, U. S. grade No. 2, fy., 2.15@2.25; Burbanks, U. S. grade No. 1, 1.75@2.00. Washington, Carmens and Netted Gems, U. S. grade no. 1 mostly 1.75@1.90; Netted Gems, U. S. grade No. 2, 1.50@1.65. Idaho, Netted Gems, fy., 2.15@2.25. New, street sales, Garnets, sacked per 100 lbs., 5.00@5.50; Early Jackson, 4.00@4.50; Democrates, 4.00@4.50. New, lb., 3½@5.

Sweets, packed per 100 lbs., 4.50@5.00.

ONIONS

Storage, cwt.	4.00@4.50
Garlic, lb.	6@6½

VEGETABLES

Wholesale selling price:

Artichokes, doz.	50@90
Asparagus, lb.	4@8
Beans, string, L. A., lb.	15@25
Wax	15@20
Beets	1.00@1.50
Cabbage, Early Flat Dutch, cwt.	2.00@2.75
Carrots, sk.	2.75@3.25
Celery, cr.	1.50@5.00
Cauliflower, doz.	50@1.00
Cucumbers, hothouse, bx. of 30	3.75@4.00
Eggplant, Imperial, lb.	35@40
Lettuce: Best in cabbage cr.	50@60

Carlots: Demand and movement moderate. Quality and condition generally good. Market dull, prices lower. Street sales, Los Angeles, Iceberg, California, cr. 1.25@1.50; homegrowns, 50@1.00.

Mushrooms, bx.	15@60
Peppers, Bell, lb. 10@20; Chili	10@15
Peas	5@10
Pumpkins, sk.	1.00@1.10
Rhubarb, Strawberry, bx.	1.50@1.75
Spinach	50@1.00
Squash—Summer	1.00@1.50
Tomatoes, Mex., cr.	2.50@4.25
Turnips, bag	1.00@1.75

FRESH FRUITS

Wholesale selling price:

Apples: Newtowns, 3.00@3.50; Winesaps, ex. ice, 3.50@4.00.

Bananas	7@8½
Loquats, lb.	8@10
Pears—Winter Nellis	3.00@4.00

Strawberries, Imperial Valley, cr. 1.50@3.00; L. A., 2.50@3.00; Fresno, 3.50@4.00; chests, 17.00@21.00.

CITRUS

Per box: Lemons, 2.50@4.00; lemonettes, 2.00@2.50; grapefruit, 2.50@3.50, mandarins, half orange box, 3.50@4.00, tangerines, half orange box, 3.50@4.00; new navel oranges, 4.00@5.75; Valencias, 4.50@5.00; Mexican limes, 7.00@8.00.

BEANS

Demand and movement slow. Market dull, little change in prices. Carloads f. o. b. usual terms, choice recleaned sacked per 100 lbs. season's average basis, 6.35@6.50. Large Whites, 5.75@5.90. Pink, 6.00@6.80. Red Mexicans, 5.20@5.40. Cranberry beans, 5.40@5.50. Black Eyes, 3.20@3.50. Tepary, 2.50.

GRAIN AND FEEDS

Barley: Feed, 2.40@2.45 per cental; shipping, 2.50@2.55 and 2.45@2.50 f. o. b. country.

Oats: Red feed, 2.15@2.30 per cental.

Corn: California yellow, 3.00@3.25 per cental. Egyptian, 3.00@3.20 for dry and 2.50@2.65 for rain damaged; Milo maize, 2.80@2.90 for dry and 2.60@2.75 for rain damaged.

Rye: 3.50@3.75.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.66 2-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58½
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48¼

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran, 41.00@44.00; shorts, 42.00@45.00; middlings, 50.00@52.00. Rolled barley, 50.00@52.50; alfalfa, 30.00@32.00; scratch feed, 3.50 per cental.

HAY

Under date of April 26, Scott, Magner & Miller says:

Receipts for the past week, 2464 tons. Large receipts are accounted for by hay brought in to fill government purchases. This hay has to be double compressed for export and therefore requires much extra handling. Hay is still moving to the Southern states and most of the old alfalfa that was not rain damaged has been cleaned up. Considerable of the alfalfa that was damaged in the September rains, however, is still offering with little demand.

Cutting of Volunteer and the first crop alfalfa is proceeding in many sections. Most of the alfalfa contains more or less foxtail. A few sales of clean first crop are reported, but no general market has opened on new hay.

The lower San Joaquin reports unfavorable conditions owing to lack of rain but other sections promise a large crop, with the present cool weather very beneficial.

Fancy Wheat Hay (light 5 wire bale)	21.00@23.00
No. 1 Wheat or Wheat and Oat Hay	17.00@19.00
No. 2 Wheat or Wheat and Oat Hay	13.00@16.00
Choice Tame Oat Hay	17.00@19.00
Other Tame Oat	13.00@16.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	16.00@20.00
Stock Hay	12.00@14.00
No. 1 Barley Straw, bale	50@80

Citrus Fruit Market

Los Angeles, April 30, 1919.

Navels are showing some little decay. Some of the heaviest shipping of the season has been the result of the past week's work. Shipments now are running close up to 100 per day. Markets somewhat easier.

California grapefruit is becoming somewhat of a factor and is being well received.

Lemons showing considerable improvement. Better prices will prevail as the weather warms.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California: Oranges, 17,895 cars, lemons 4192, total 22,087. To same date last season, oranges 8266, lemons 2199, total 10,465. Central California this season, oranges 3182, lemons 334, total 3516. Last season to same date, oranges 2422, lemons 115, total 2537. Northern California, oranges 244, lemons 2; last year same date, 202.

AT THE AUCTIONS

April 23:

New York: Market active, slightly higher. Nav. 3.10-5.20, Bloods 3.30-5.65, Seeds. 2.95-3.80, Sweets. 3.00-4.05, Mikes. 3.95-5.10, Tang. halves 3.00-3.40, lem. 1.75-4.00.

Boston: 18 cr., 4 lem. Nav. 3.55-5.35, Sweets. 4.15, Seeds. 3.80-4.20, Mikes. 3.65-4.75, lem. 1.55-3.85.

Cincinnati: 6 cr., 2 lem. Nav. 2.85-4.30, Val. 3.55-4.55, Seeds. 4.35-4.55, grapefruit 3.60, Mikes. 3.00-5.55, lem. 3.95-4.20.

St. Louis: 6 cr., 2 lem. Nav. 3.55-4.90, Sweets. 3.65-4.30, Seeds. 3.95, Mikes. 4.90, lem. 4.20-4.75.

April 24

New York: 41 cr., 3 lem. Nav. 2.95-5.35, Sweets. 3.45-4.15, Bloods 3.45-5.55, Mikes. 4.95-5.70, Val. 4.85, Seeds. 3.70-4.00, lem. 3.40-4.25.

Boston: 18 cr., 3 lem. Nav. 3.50-5.60, Val. 3.80-4.75, Sweets. 3.70-4.00, Mikes. 4.55-5.65, lem. 2.30-4.25.

April 28

New York: 48 cr., 5 lem. Nav. 3.65-5.70, Val. 3.85-4.95, Sweets. 4.00-4.65, Seeds. 3.85-4.00, Bloods. 4.15-5.00, Mikes. 5.00-5.25, Tang. 4.75, lem. 1.85-4.50, grapefruit halves 2.80.

St. Louis: 4 cr., 2 lem. Nav. 3.90-4.10, lem. 3.75-4.65.

Cleveland: 9 cr., 2 lem. Nav. 2.70-5.50, Sweets. 3.50, Seeds. 4.20, Mikes. 4.35-5.05, lem. 3.60-4.50.

Boston: 26 cr., 4 lem. Nav. 3.10-5.50, Val. 3.75-4.20, Mikes. 4.05-5.30, Sweets. 2.85-3.55, Bloods. 3.65-5.50, Seeds. 3.40-4.30, grapefruit 3.45-4.15, Tang. 3.20, lem. 1.50-1.35.

Philadelphia: 14 cars. Nav. 3.15-5.30, Val. 3.50-4.30, Bloods. 3.35-3.50, Seeds. 2.10-5.15, Mikes. 4.15-5.00, lem. 3.60-4.30.

April 29

New York: 37 cr., 3 lem. Nav. 3.30-6.15, Val. 3.90-4.55, Sweets. 3.65-4.85, Seeds. 3.20-4.20, Mikes. 4.70-5.25, Bloods. 4.10-4.85, lem. 2.85-4.45.

Philadelphia: 13 cr., 1 lem. Nav. 3.35-4.75, Sweets. 3.30-4.00, Bloods. 4.00-4.35, Mikes. 3.90-5.20, lem. 2.30.

Pittsburg: 4 cr. Nav. 3.30-4.20, Mikes. 4.35-4.75, Sweets. 4.50-4.55.

Boston: 17 cr. Nav. 3.65-5.85, Val. 4.00-5.00, Sweets. 3.75-4.45.

TRACTOR DEMONSTRATION NOTES

Continued from Page 612

J. I. Case Tractor

The Case people will be there with four sizes of tractors. The Case people are not only manufacturers of tractors, but of threshers, and, in fact, full line of agricultural machinery. The Case tractor will be given field test and will answer lots of such questions as "What will the machine do?"

Barn Equipment and Pumps

The American Pump Company of San Francisco and Los Angeles will be on the grounds demonstrating Louden Barn Equipment, Universal Milking Machine and Special Oil Pumps. This exhibit will be in one of the tents.

OilPull

The three-plow size of OilPull will be there. It's the 12-20. It has a motor built for heavy duty and a vast number of strong working points. Advance-Rumely Thresher Company of Indiana will show it off.

Monarch Tractor

The Monarch Tractor Sales Company and branches will demonstrate the tractor which will turn in its own length, responds quickly to the desire of the driver—but see it at the demonstration. It'll be there.

WEATHER CONDITIONS

San Francisco, California, April 26, 1919.

Stations	Rainfall Wk	Rainfall Season.	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.00	38.12	42.01	56	42
Red Bluff	.00	26.07	23.05	82	46
Sacramento	.00	17.17	18.80	74	46
San Francisco	.00	25.43	21.16	67	48
San Jose	.00	18.82	15.94	72	36
Fresno	.06	9.80	8.78	82	48
San Luis Obispo	.08	17.89	19.22	72	40
Los Angeles	.16	8.38	15.00	72	48
San Diego	.10	8.20	9.48	68	52

Cantaloupe Production in Imperial

By R. G. Risser, Bureau of Crop Estimates

THE commercial production of cantaloupes in the United States is highly localized. The total number of cars shipped in 1918 as reported by the bureau of markets was 13,277. Seventy-five per cent of this volume originated west of the Kansas-Colorado state line, 51 per cent in California, and 33 per cent in Imperial County. The three states which shipped over 1000 cars each were California, Colorado and Arizona.

For several years Imperial Valley has maintained a big lead among important cantaloupe districts in earliness, acreage and total output. For the past five years between four and five thousand cars have rolled from this district each season to supply the tables of the nation. Cantaloupe production in the Imperial Valley has thus become firmly established as one of the big things in the truck crop business of California and one of the important industries of the valley.

Present Situation

The acreage of cantaloupes grown in the Imperial Valley is larger this year than ever before. 13,822 acres have been reported under contract or otherwise grown on the extensive irrigated ranches of this reclaimed portion of the desert. Fields now under cultivation are developing a crop for May, June, and July shipments which promises to break the shipping records of former seasons. The rush of harvest will soon be on and melons now in the making will be carried forward under refrigeration to all the important markets of the United States.

Early Development

The commercial cantaloupe business received its start in the desert portion of Southern California in 1900, when the value of the product as grown in a Coachella Valley garden was first recognized and a trial shipment was made to Chicago. The next year an acreage was arranged for and 11 cars were shipped. Later the industry was transferred to Imperial Valley, and in 1905 297 cars were shipped. The second year 577 cars were shipped, but the selling agencies had difficulty in distributing this quantity and the pioneers in the industry little dreamed of the magnitude which would be attained by the cantaloupe business of this section a few years later. The earliness of the shipping season, however, gave Imperial Valley a unique place in the production of cantaloupes, and this advantage was sufficient to stimulate a much further expansion of the enterprise. Yet it was not until the bureau of markets sent its representatives into the field in 1915 that a satisfactory system of distribution was established and the future of the industry assured.

Recent History

The cantaloupe industry of Imperial Valley is 20 years younger than the same industry of the famous Rocky Ford district, but during its brief period of existence it has encountered many discouraging experiences which cannot all be recounted here. Perhaps the changing of the course of the Colorado River in which cantaloupe fields were washed away by the raging current was the most spectacular, but every season there were obstacles overcome in the growing, packing, shipping and marketing of the big volume of this perishable product. Aphis, frost, nematodes, and winds often injure the growing plants, but growers are at least no more affected by these troubles than they are in other districts and are particularly fortunate in escaping damage from rust and hail. The story of the business can best be told by the following records which cover recent years:

Season	Acreage	Shipments Cars	Yield Crates
1915	8156	4722	194
1916	8492	4617	182
1917	12939	5041	130
1918	10896	4102	156

The yield of shipping stock is computed in standard crates on the contracted acreage as this is the most definite basis. The actual number of crates on the net acreage would be somewhat higher, but the system used is the most satisfactory for comparing different seasons and for arriving at the usual commercial production on the area commonly used for growers' advances.

Shipping Season

Records from 1913-1918 show that the earliest date a car was shipped was May 16 of 1916, while the latest seasons were those of 1913 and 1917, when the first car did not go out until June 4. The peak of the season usually comes on June 15, though in one season, that of 1915, the greatest output was on June 23. The last car shipped is usually around July 20, though one year, 1917, it was as late as August 1. The season usually covers 55 to 60 days, the longest season being in 1916, covering a period of 65 days.

THRIFTY BELGIUM

We in this country can learn a wonderful lesson of thrift from the people of Belgium. It has been aptly said that farming in Belgium is like gardening on a large scale. The soil for the most part is thin. Yet so carefully does the Belgian farmer cultivate every inch of ground that the crops per acre often double in quantity those raised in our own country.

The farms in Belgium are smaller than those in any other European country. The average size of a farm is less than six acres—5.7 acres to be exact. Although the people of Belgium are by no means wealthy, there are surprisingly few paupers. Farm hands, it is said, stand a better chance of becoming land owners than in almost any other land.

Before the war there were in Belgium 156 head of cattle to the square mile. This is a greater number than in any other country in Europe. The Belgians are excellent dairymen. The most scientific methods are followed; the health and productiveness of each cow are carefully guarded and great pains are taken that there shall be no wasting of the milk and cream which are produced.

Of all the independent nations of the world, Belgium is among the smallest. It is less than one-fourth the size of New York state. Twenty-three countries the size of Belgium could be placed in Texas and there would still be a little room to spare. In exports and imports, this small country holds sixth place among all nations. In wealth it stands eighth.

PLAN FOR THE SILO

California has seen great increase in the number of silos during the past few years. This increase has not been so great as it should be. The fact that the state can to an extent produce green pasturage the year around has given an idea that it is hardly the state for the silo.

This is planting season, or at least planning season, for the crop and for the silo to hold it a very few months later. "It pays for itself in a year", is the assertion of some who have tried it out. In fact, here are a number of one-sentence reports secured by the Colorado agricultural college from silo farmers of that state:

"My silo saved me $150 the first year in hay."

"The silo keeps the feed where it cannot dry up, blow away or rot."

"Everything thrives on good corn silage, even turkeys and geese."

"My silo cost $450 and it has paid for itself in two years."

"Silage is fine for weaning calves."

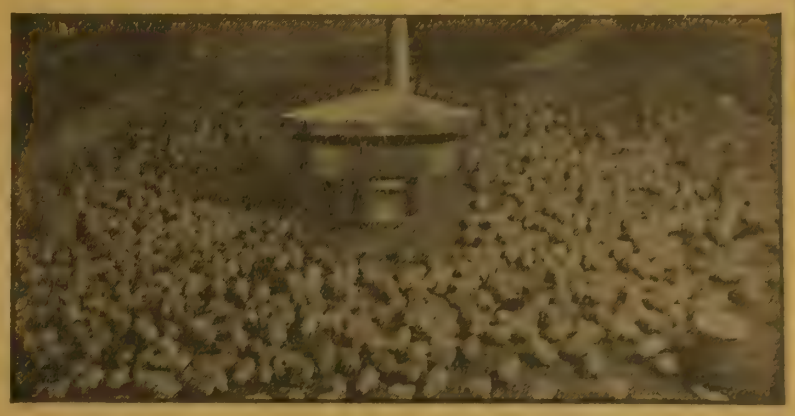
"My silo cost $289 and paid for itself the first year."

"I feed ensilage to hogs once a day. They clean it up in good shape if not given too much."

"Silage saves all the feed and retains the strength."

Reports are common in the Santa Clara Valley of offers of as high as 11 cents for prunes. The California Prune and Apricot Growers' Association refuses to name price until crop is known.

The Pride of Petaluma



VENTILATING BROODER STOVE

Solves **VENTILATION**, gives about ten times more **WARM FRESH** air to chicks than any other brooder stove.
It's the only brooder stove with two **RADIATORS** hence compound **ECONOMY.**

It keeps chicks from crowding by proper application of heat, the only **SENSIBLE** way.

It's the only brooder stove using **CHEAP OIL TOPS** successfully as fuel.

It's **PETALUMA'S** latest sensation, and only brooder stove. It skins the bunch in **ECONOMY, Volume of VENTILATION** and **PROPER APPLICATION** of **HEAT. GUARANTEE—SIMPLY** send it back any time within 30 days' trial if you don't think it beats anything you every saw.

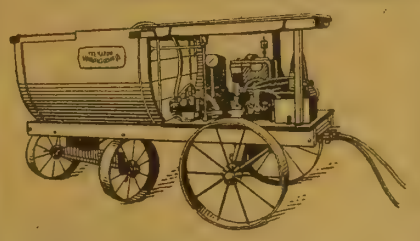
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All for $300. Delivered anywhere in this state

If truck is not needed, deduct $55.00.

These prices are subject to change without notice. The wise buyer will place his order now.

This low price is made possible by big production.

If you are interested in other types and sizes of the **HARDIE POWER SPRAYER** write us for the big spray catalog, and learn why we can offer more spray pump value than any other spray pump manufactured.

The **HARDIE ORCHARD GUN** is now $12.00, none better, all guns are guaranteed to satisfy the user or their money refunded. The Hardie spray hose is the safest hose to buy.

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Office, 1023 Leighton Ave., Los Angeles

Hardie Agent, A. F. George Co., Los Angeles
Hardie Agent, H. V. Carter Motor Co., San Francisco



The California Cultivator

Weekly—24 to 48 Pages One Dollar per Year

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International Motor Trucks

are built with *service* as the foundation. These trucks will serve you well because they are "factory built" all the way through — not assembled—and because the Company that makes them has at stake an enviable reputation for building high-grade machinery—a reputation which has endured for nearly a century and which is bound to be maintained.

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Motor Truck Sales Department

International Harvester Company
of America, Inc.

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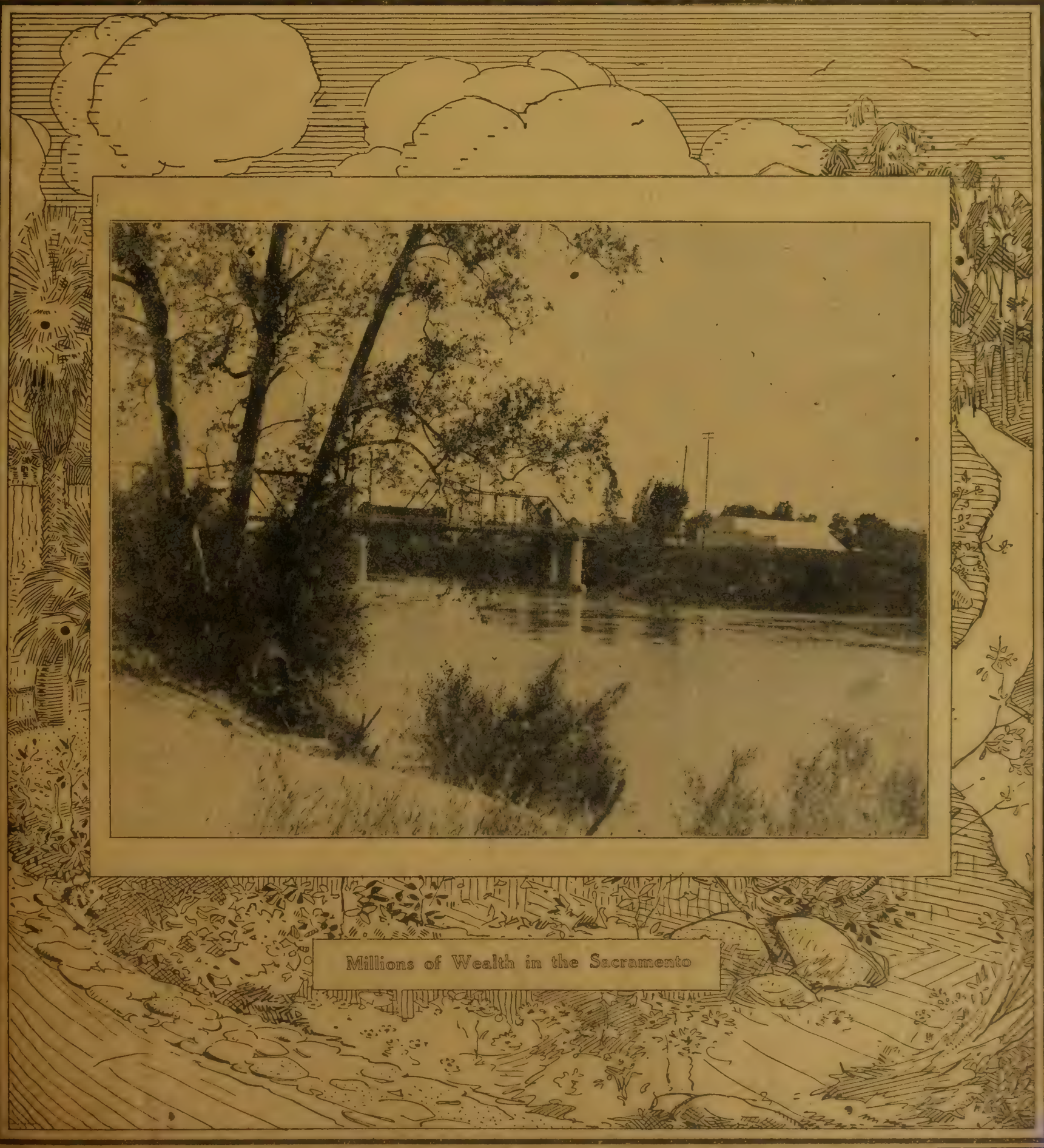
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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. VII — May 10, 1919 — No. 19



Millions of Wealth in the Sacramento

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
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Saturday, May 10, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Millions of wealth in the Sacramento River and other millions of wealth taken out grow alfalfa, rice cotton, sugar beets, all kinds of fruits, and make the desert blossom. Some of this wealth is shown in the illustration on this week's cover. This photograph was taken by the Cultivator camera at the bridge crossing the river at Butte City. A lot of us Californians are surprised once we see the two great rivers which drain the great central valleys. The dry wash is our ordinary impression of the California "river," but the Sacramento and the San Joaquin are different, and in fact are larger examples of what many smaller rivers are to the state in supplying wealth giving irrigation. This scene was taken nearly 200 miles from the mouth of the river, and yet far above this point navigation affords cheap transportation for California's hay, fruit and other crops.

KEEPING BOOKS?

Speaking of that income tax which many Cultivator readers have just finished paying, permit us to remark that carefuly kept accounts will save lots of sleepless hours next January and February.

AUTOMOBILES

This country has more than 6,000,000 automobile owners. This is approximately one to every 18 people, and the ever-present estimator estimates that at least 15 of these 18 people ride in autos. No wonder we are demanding better roads, and the roads will be still better before they are worse.

WHEAT

The United States sure has one government contract on its hands to meet the $2.26 price on its billion bushel crop, in fact, it will be a billion plus from present indications, for winter wheat alone promises well up towards a billion bushels. Spring wheat sections report all seedings looking fine. The production will be far in excess of any former year.

TRACTOR DEMONSTRATION

These are days for the Cultivator's camera which is taking everything and everybody at the great tractor demonstration at Arden Acres this week. Members of the Cultivator staff are on the ground and will endeavor to absorb some of the producers impressions of farm power as shown at this great demonstration and give them to Cultivator readers in the next issue.

MORE HIGHWAYS

It is predicted that there will be more improved highway construction in 1919 than any preceding year. The department of agriculture and other activities at Washington are pushing for a big campaign. Almost every state is contemplating liberal bonding movements and the construction of thousands of miles, and within California many counties are also anticipating active campaigns.

LOOMS IDLE

At the price one is compelled to pay for wool in clothing it is hard to understand why there are so many looms and so much wool machinery idle as reported by the bureau of markets. Almost 50 per cent of this wool machinery is idle. Government contracts have been absolutely cut off, but if clothiers claims that it is impossible to secure sufficient woolens are true the ordinary consumer is compelled to ask why. This country grows the wool; there are the factories to work it up; let us have better clothing.

WAR INSURANCE

The treasury department is calling the attention of beneficiaries of war insurance policies to a misunderstanding which has prevailed with many. It seems that in addition to the war insurance, compensation has been provided for the dependents of those who carried no insurance but lost their lives in the war. This compensation takes the place, in a way, of the old-time pension system. In order to secure this pension, or "compensation," dependency must be proved. This has created a misunderstanding, and the treasury department is asking the press to pass on the word to beneficiaries of these war insurance policies that there is no necessity of proving dependency in case of the insurance. This is a straight business proposition, or, as the department states it: "Insurance is payable regardless of any dependency and a beneficiary designated in an application for government insurance if within the permitted class of spouse, child, grandchild, parent, brother or sister, is entitled to receive the insurance in monthly installments without proving any dependency upon the insured."

Many of the returning boys are also ignorant as to advantages in vocational training which may be had by the wounded or incapacitated.

FARM SOCIETIES

"National Farm Associations are becoming about as numerous as church denominations. Even Heinz 57 varieties are paling into insignificance." This rather discouraged expression appears in the Nebraska Farmer, which goes on to enlarge upon the near catastrophe which is visited upon the farmers in this country by this "jining" spirit, and the fellows who wax fat on the promotion are waxing fatter by encouraging this spirit. Quoting again from the Farmer:

"As an illustration, two promoters blew into a prosperous Iowa community, called a meeting of farmers, told them how badly they were abused and that the only remedy was combination. They started a national association, took over $500 from 50 farmers and left them the sole members and possessors of a local, state and national farm organization."

There are some dependable farmers organizations formed and maintained by real farmers. When the farmers are ready to organize, let them organize, whether it is for their own local cooperative marketing or in a larger way for shaping national affairs. Every farmer should "join up" with some good strong national, and surely some good local, organization, but don't let the promoter farm the farmer.

GREATEST LIVE STOCK PROBLEM

On another page appears an article regarding the live stock marketing situation existing in this state. The pitiful weaknesses of our present archaic system are pointed out and the suggestion made that the time has come when a more modern system is needed.

California is on the threshold of an era of marked live stock expansion. From Siskiyou to the Mexican line live stock men are manifesting more interest in their business than ever before. Better bulls are finding their way to the ranges; better methods of management are being adopted. Last year, for the first time California produced enough pork products for home consumption—and the surface has just been scratched.

The one limiting factor—and it is the most important—in the future development of the live stock industry of this state is the lack of a satisfactory marketing system.

Until producers are provided an open market with competitive buyers and quotations based on grades, it can not be expected that the industry will expand to anywhere near the proportions that our natural conditions warrant.

The time has come when cattle, hog and sheep producers should demand a marketing system that will enable them to receive every dollar their stuff is worth. We believe that a properly regulated union yard will provide such a market, therefore we commit the Cultivator to any sound plan that will hasten the day when California producers of meat animals will have the same advantages as Eastern producers.

We recognize the fact that certain evils have developed in Eastern yards, but we believe that Coast interests can and will profit by the mistakes of the older producing centers. We further believe that any plan for better markets must originate and be forced through by the producers, and that now is the time to start.

We will welcome an expression on this subject from any of our readers.

PRACTICAL CENTENARY

The Methodist church is observing the centenary of its first missions and is making a drive as one feature of that centenary to raise $105,000,000 for the extension of missions and the work of the church during the world's reconstruction period. The $105,000,000 is to be raised during the next five years. Every district in which the church has already pulled off this campaign has gone over the top with more than its proportion. There is one very practical feature of this campaign. The Methodists have for years made their hospital or nursing service a great factor in the foreign work and now throw their energies not only in that direction but also toward agricultural development. This in lands which sorely need such help. The first work along this line is to be taken up in southern Sicily where native farmers are still using the implements of a thousand years ago. One feature of the work has to do even with a large cooperative farm to give opening for laborers unable to own land themselves.

FRUIT GROWERS AND FARMERS

"The greatest horticultural and agricultural week yet on the Coast" will be that of May 26-30. The announcement was first made more than a year ago that this event would be held last fall. "Flu" ordained otherwise, and postponement was had until the time of the spring convention, and there has been material gain because of this postponement, for now, instead of one convention, come six.

First, there is the State Fruit Growers and Farmers Convention, formerly the State Fruit Growers Convention, held in California from olden time, in fact, this is the fifty-first of these conventions. Next in age comes the State Nurserymen's Annual. The State Association of Horticultural Commissioners will also convene. Then there will be the Vegetable Growers Conference, the conference of the Pacific Slope Branch of the American Association of Economic Entomologists, and, most far reaching of all, the Interstate Plant Quarantine Conference.

State Horticultural Commissioner Hecke has given much of his time to arrangements, and Deputy State Commissioners Weldon and Mackie, together with efficient local committees in Riverside, are making preparations for the noted event.

Riverside people have made provision for camping in one of Riverside's most beautiful parks where free ground, free firewood, free baths in the plunge, boating and other privileges will be given. For others who prefer hotel accommodations, Riverside has abundance. General outline of program in next issue of the Cultivator.

The department of interior has agreed to leave the decision of the matter of lands to be irrigated from the proposed dam on the Verde River, Arizona, to a board of engineers, one to be appointed by the Salt River Valley Water Users' Association, one by the Paradise Valley Verde project and one by the United States reclamation service. Homer Hamlin of Los Angeles has been nominated to represent the United States reclamation service in the matter.

Grain sorghum is grown in the West Indies under the name Guinea corn, the original seeds probably coming in slave ships from the African coast.



Irrigation of Rice Fields Has Added to California's Wealth
This is one of the rice irrigation districts of Northern Sacra mento Valley and shows a fertile stretch of miles of rice fields.

Do It Now---Later is Too Late

IT'S funny how we all have our way of looking at things, at least as to how we think we look at things. Take, for instance, the Irwin irrigation measure which was passed by the recent session of our state legislature. One man thinks he sees relief for the small land holder, and he says: "The land barons are doomed." Another's strabismus induces him to say: "This bill is for special interests as against irrigation districts in general." There you are. Pay your money and take your choice.



Imperial Valley Methods
In the Imperial Valley the method of irrigation shown above prevails with cantaloupes and many other irrigated crops. The cantaloupes, lettuce, etc. are planted along the sides of the levees above the water line and receive most of the moisture from the seepage of water flowing between rows.

Our choice is that this bill will bring relief to many people who have long desired irrigation and have been unable to secure it because of the requirement of the old irrigation district law that at least two-thirds of the property owners must unite in the demand for formation of a district. Under the Irwin act a majority is sufficient.

One of the satisfactory features of the passage of this bill is the exceptional majority given to it. In the assembly the vote was 57 to 14. We trust the results of the passage of this bill will be so satisfactory that later sessions of the legislature will pass other measures that will encourage irrigation, more intensive farming, greater prosperity and happiness for the small farmer, and, of course, greater prosperity for the state.

The last two years of agriculture in California have shown an anomaly in this, that the greatest crops ever have been produced with the least labor. The war took our boys; the country demanded more; and the producer was continually asking, "How may we secure power or improved equipment to produce better, greater and more economically?" The tractor, power and implement people anticipated the need and in large measure met it. The irrigation people, likewise, have been busy, and today's irrigation equipment has been perfected so that labor saving appliances have multiplied and are being used. This has not only meant labor saving, but it has meant in many cases water saving, and water saving means increasing California's wealth, for the waters so far conserved are woefully insufficient to irrigate thousands of California's rich acres.

The making possible through the Irwin bill of organization districts may still further aid in conservation of waters now going to waste. Direct state aid should also be given to every effort to store up the floods. Still more should our national government be appealed to to aid in conservation. California has felt, and justly, that the reclamation service has not given this state proper consideration.

But this will be one good year for every Californian to conserve both water and labor, and to that end here are a few conservation hints:

A Hint to the Wise is Sufficient

Throw out the old dirt head ditch; use concrete with latest improved gates, or outlets, or at least a board flume with the thin metal or board outlets. The labor saved by these appliances soon more than covers their cost. If the long supply ditch or canal has dirt surface, at least look out the gravel beds and line so as to prevent the immense seepage often suffered. A thin coating of cement on the dirt will answer for a short time. If this is impossible, at least oiling will make a saving of water. Where dirt head ditches are necessary, every convenience, such as division boxes, sluice gates, boards set in the bank with small outlets, tappoons, canvas dams, etc., should be used.

For underground or pipe line delivery systems there are all kinds of gates, valves, measuring weirs, and—it appeals to us as the most satisfactory of all—several forms of meters which, more accurately than the engineer can give measurements, aid the cultivator in knowing exactly the amount of water he is receiving.

"But these improvements cost." Sure. They likewise save.

"But prices are high; some time they will be lower." Maybe. But that, likewise, costs again. That is, it costs in time, in labor, in water.

We have always maintained that as a general thing the producer who markets his crops as soon as they are harvested and ready for a market is generally more successful than he who holds and waits for the top of the market. It's a wonderfully long-headed man who can put his finger on the peak of the prices. Likewise, in buying needed appliances used in production, it's the long-headed man who can put his finger on the greatest depression in prices and thus buy most advantageously. While one is waiting for this time to come, lost opportunity, loss of satisfactory prices—which may not obtain later—and other losses may far more than cover any gain. If your irrigation system needs perking up, do it now. Or, as an Eastern agricultural association states in its slogan: "Don't ask questions; go to work."



Irrigation Depth Tester
Slender steel rod for testing depth of irrigation on heavier soils of Riverside Heights section. Sub-soil becomes very hard if allowed to dry, but when thoroughly watered after several hours run it is easy to shove the above tester two, three, or even five feet into the soil.





A Multiple Arch Dam
One of the latest in dam construction, Lake Hodges on the San Diegito River in San Diego County. It is of reenforced concrete construction. The upper picture gives the view from above over the reservoir side; the lower shows dam from below. This dam creates a storage reservoir and will back the water for many miles and supply water for several thousand acres.

There may be a bit of interest in a statement which has been issued by a large manufacturer in this particular matter of prices. We quote it without indorsing or otherwise.

It is interesting to observe that many manufacturers think that prices must come down, including the price of labor, but they are ready to demonstrate to you that their own prices can not come down, nor can they pay lower wages. Almost everything they buy somehow costs twice as much as before the war, and their labor is twice as dear. They cannot pay their labor less if labor is to meet the increased cost of living.

Now, as a matter of fact, when we investigate almost any individual one of the so-called high prices for industrial products, we are likely to find that individually it is not high; that is, it is not high relatively to the rest. Our quarrel is with the general level of prices.

All prices have risen, but some have

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Agricultural News Notes of the Pacific Coast

Northern California

The olive interests of the state are calling for a tariff on olive oil.

A carload of California asparagus sold in New York last week for $6000.

The first box of cherries sent out from Vacaville was sold in Chicago for $50.

Colusa County appreciates the over half an inch rainfall of the last week of April, which was a great help to the grain crop.

The farm bureau of Eldorado County is backing the chamber of commerce in the effort to secure the location of a creamery at Placerville.

Construction has begun on a big rice mill for Colusa. There is a call for new houses to shelter the workers who will come to operate the mill.

The Newcastle Fruit Growers Association has just held formal opening of what is said to be the largest shipping plant in Northern California.

Experiments are being made by C. A. Wetmore of Marysville in the crushing of olives on a small scale for the making of oil by growers of a few trees.

The new gin of the Dodge Land Company at Chico is now started on regular ginning work. The seed is not pressed for oil but is to be saved for planting.

The Sonoma County farm bureau is already laying plans for the county fair to be held the coming fall. The fair will be under the direction of the farm bureau.

The grape growers of the state have begun a campaign to secure signatures to the two referendum petitions they will put forth against national and state prohibition.

The Lake County Bee is authority for the statement that nearly all the Lake County Bartlett pear crop has been contracted at $75. Crop indications are extremely good.

Manager Madden of the Auburn Fruit Exchange, Placer County, estimates all fruit crops in excellent condition, except cherries and early plums, which show somewhat spotted condition.

Truck owners of the Sacramento Valley have formed the Sacramento Valley Motor Truck Owners Association. It is expected to extend the organization all over California. These truck people handle farm products.

The old established fruit packing and shipping house of Geo. D. Kellogg and Son of Newcastle, has been sold to the Producers' Fruit Company. Kellogg was one of the first Californians to ship fruit to Eastern markets.

Many of the farmers of the Sacramento Valley have this year added small flocks of sheep to their farm stock. Fred Mendosa of Colusa County reports an average of better than 14 pounds wool to the sheep at 50 cents a pound. He raises Merinos and blackfaces.

At the recent meeting of the Amador-Eldorado Live Stock Association it was unanimously decided to affiliate with the California Cattlemen's Association. The following officers have been elected to head the association for the coming year: President, Frank S. McCullough; vice-president, R. S. Swift; secretary-treasurer, B. C. Celio. New directors elected were E. Bamert, Elmer Rupley.

Central California

Manteca, San Joaquin County, is planting extensively to cantaloupes.

Several plantings of peanuts have been made in the Turlock district.

Large additions are being made to the creamery at Oakdale, Stanislaus County.

The Tulare Live Stock Association has decided to hold a fair some time in October.

The 1919 irrigating season has started in the Terra Bella district of Tulare County.

Some growers of canning peaches say they are expecting to sell for $60 or $70 per ton.

James Madison of Fresno has sold a vineyard tract of 520 acres near Reedley. Sixty acres are in figs.

Several counties are investigating as to advisability of uniting with state organization of farm bureaus.

It is estimated that the almond crop of Stanislaus County will show an increase of 150 per cent over last year's.

The state fish and game commission has decided to locate a fish hatchery on the Kaweah River in Tulare County.

Plantings of nursery trees are being made later this year than ever before. Tree planting is usually finished in March.

Santa Cruz County has had successful squirrel "drives". The farm bureau is now supplying several tons of poisoned barley at cost.

The Alfalfa Growers of California held a district meeting at Delano, April 24. This district comprises Kern and Tulare Counties.

Tulare County cantaloupe growers have held farm institute or trip of investigation in cantaloupe growing sections of Stanislaus County.

Tulare County Poland-China breeders recently met at Visalia and discussed county organization to look after interests of that breed.

The fat hog auction held by the farm bureau at Modesto, April 18, brought record prices. One carload brought nearly 19 cents per pound.

The San Joaquin Valley Milk Producers' Association is seeking to organize 16 cooperative plants in the territory between Bakersfield and Merced.

One beekeeper of Santa Clara Valley claims to have recently received an order for $14,500 worth of bees and queens from an alfalfa seed grower of Nevada.

The state board of viticulture is receiving requests for aid in wine grape marketing, and unless other arrangements are made the board is recommending drying all wine grapes.

County Horticultural Commissioner Cody of Santa Clara County, with Dr. Nougaret of the United States department of agriculture, has been making experiments in spraying to control mealy bug.

Santa Cruz County farm bureau management is serving notice on members of the centers in that county that they must pay up or will hereafter fail to receive the farm bureau monthly.

The Yosemite Valley Highway Association has undertaken a campaign to raise the $1,000,000 still needed to guarantee the construction of a paved year-round highway from Merced to El Portal via Mariposa.

Southern California

Redlands has sent out nearly all of its navels.

Plenty of trout reported in the Bear Valley waters.

Riverside is now shipping out about ten carloads of oranges a day.

Cantaloupes are planted on 13,822 acres of land in the Imperial Valley.

J. F. Franke of Santa Ana has just secured patent for his walnut picker.

From $40 to $50 per ton is being offered for apricots in the Hemet Valley.

Brawley has already shipped 13 carloads of cattle to Kansas City markets.

Redlands apricot growers are expecting a big yield; trees are heavily loaded.

In the season from November 1 to May 1 Covina shipped out 1270 carloads of navels.

Cantaloupe growers of Imperial Valley are backing the movement to secure better roads.

There has been a light planting to potatoes this year in the Fullerton district of Orange County.

Horticultural week at Riverside May 26-31 will attract fruit growers from all sections of the state.

Imperial Valley wheat growers are hoping to get better than the government minimum for their early wheat.

The San Fernando district shipped out 20 carloads of Cannonball cabbage last week; also 20 carloads of lettuce.

Antelope Valley recently held a three day squirrel "drive", the time being devoted to placing poisoned barley.

Imperial Valley supplies 33 per cent of the cantaloupe crop of the United States; the state of California, 51 per cent.

Cabbage growers of the Fullerton district of Orange County are now getting $80 to $90 per ton for their cabbage.

County Commissioner Kellogg of Santa Barbara is advising the irrigation of walnuts unless there are heavy rains.

The price on Lima beans has been advanced to $7.50. This is the second advance since the formation of the selling pool.

The first carload of onions sent out from the Coachella Valley was shipped by Ira W. Richards of the Flora Del Vale section.

Cantaloupes are growing well in the Thermal district. From present indications shipments will start about the 20th of this month.

San Fernando last year shipped 168 carloads of potatoes during the month of July and prospects are for a 40 per cent larger crop this season.

The Orange County farm bureau held a picnic meeting at Orange County Park on last Saturday. There were addresses on soil fertility and an exhibit of tractors.

Los Angeles County sent out its first Eastern carload shipment of strawberries on the 15th of April. About 20 carloads per week will be shipped in the height of the season.

Poultrymen of San Diego County are hoping to secure a Poultry Extension school of the University of California. Members of the farm bureau who are interested in poultry are pushing the campaign.

The Coast and General

Latest quotations of Pima cotton at New Bedford are 55 to 57 cents.

Large acreages of potatoes, corn and beans are being planted in northern Arizona.

Damage done by wireworms to wheat is reported from the Walla Walla section of Washington.

Latest estimates of the cantaloupe crop for Arizona indicate it to be 4500 acres. Most of this is in the Salt River Valley.

Easter eggs in Arizona brought the highest prices on record for the season. Wholesale prices were $12.00 to $12.50 a case.

Ralph Tuttle of Walla Walla recently received five Holstein cows with world records from the J. von Herberg stock farms at Kent, Washington.

It is reported that 48 cars of lettuce was the total shipment from the Salt River Valley of Arizona this season. The crop was somewhat smaller than early estimates.

The Salt River Valley, Arizona, Water Users' Association is to take over the ditches caring for the waste water. This, it is believed will do away with the menace of flooding the roads and will also result in saving considerable water.

Several attempts have been made to grow rice at the Yuma Experiment Station, Arizona, but these experiments have not proved successful and it is not likely that rice can be successfully grown in irrigated lands similar to the Yuma Valley.

The Walla Walla Valley Cooperative Jersey Bull Association has been organized with C. M. Christiansen of College Place, president; H. C. Gordon, Walla Walla, vice-president; and R. E. Bean, Freewater, secretary-treasurer. The purpose of the association is to secure high quality bulls for improving the herds owned by members. Two bulls are now owned and the third is being bargained for.

Cotton experts of the Salt River Valley estimate the acreage planted to be 80,000 acres. While cool weather delayed planting somewhat, it is expected that it will show about the same condition by the middle of May as in ordinary seasons. Most of the cotton has been put in under first class conditions as there has been plenty of labor and a large number of tractors for a thorough preparation of the land.

Sheep shearing is half over in the Yakima Valley, some weeks earlier than usual, and there is considerable dealing for sales. The E. Berg clip, 40,000 pounds, has been bought by Webb of Boston; Stice Sheep Company clip, 12,000 pounds, by Charles Green, and William Wilson clip, 20,000 pounds, by The Dalles Scouring mills. The price for all lots was 35 cents a pound. Indications are that the 1919 clip from the valley will be slightly over 1,000,000 pounds.

Transcontinental railroads have been authorized by the Interstate Commerce Commission today to file package specifications, estimated weights and loading regulations governing shipments of dried fruits from California, Nevada and Utah to destinations in Iowa, Minnesota, North Dakota, South Dakota and Ontario without formal hearing. It was represented that the proposed regulations would prevent serious loss to carriers and wastage of fruit products.



One of California's Pumping Stations

Irrigation and drainage in this state show a great advance, and stations like this and others, in sizes all the way down to the little "put—put—put'er" in the corner of the small truck farm, are to be seen in all parts of the state. This plant is the pump house and outlet at Sacramento River drainage plant of District 108.

Work of the State Water Commission

By W. A. Johnstone, State Water Commissioner

The state water commission, like all other "commissions", has been discussed somewhat as to its advantage to irrigators of this state, but it has been a factor in straightening many a muddled situation created because of lack of satisfactory water legislation. California's water legislation can never be entirely satisfactory to all. In the earlier days of the state's history rights were created and perfected under the old common law of England and such laws as had established precedence in this country, and these were all more largely influenced by navigation than by irrigation. However, the rights were established, crops grown and values created which would not permit of complete revision of irrigation laws. A few years ago a state water commission was organized and an outline story of this is told by one of the members of the commission, W. A. Johnstone, representing the southern end of the state. Other members of the commission are A. E. Chandler, its president, and R. L. Riley. Ex-officio two others are members of the commission, Governor Stephens and State Engineer W. F. McClure. The northern office is at 74 New Montgomery Street, San Francisco, presided over by Josephine A. Patten. The southern office is in Room 308, Union League Building, Los Angeles.—Edit.

THE legislature of 1913 adopted a water code which takes the place of the few old codes governing the appropriation of water up to this time. A referendum was invoked which delayed the operation of the act, called the Water Commission Act, until December 19, 1914. The members of the commission were appointed in March, 1915, and consist of three active members. The governor and state engineer were named ex-officio members but neither of these very busy men have had any time to give to this work. The main office is located in San Francisco and a branch office is maintained in the Union League Building, Los Angeles, for the convenience of the people of this part of the state

The two main functions of the office are to supervise the acquisition of new water rights under appropriation and to keep a permanent record of such and to ascertain or determine in a special procedure all of such rights acquired before the act went into effect so that in the end there shall be a permanent record of water rights similar to those of land titles. The commission has many other duties and is performing useful functions in the adjustment of pending disputes and litigation and is assisting in this way in the material progress of the state both as referees and as arbitrators. It is also authorized to pass upon the progress made in carrying out incomplete projects initiated under the old codes and to supervise their completion; to make investigations in the public interest of proposed storage or other projects and to cooperate with other state and federal departments where the use of water is concerned.

California has been very much behind most of the other irrigating states in adopting an orderly system for the acquiring of title to the use of water and is one of the last few to take this step. There now remain but two or three of these states which have not adopted a water code. Because of this long delay the resultant confusion is much greater and it will take a much longer time to bring order out of the existing confusion and uncertainty. The necessity of taking such a step is clearly indicated by the fact that most of the normal flow of our streams has been taken up and in a state where there is at best but half enough water for the land that might be irrigated and that we must now proceed to conserve and use the flood waters which have heretofore wasted in the sea or desert sinks. To accomplish the fullest use of our water supply we must first take stock of what we have in order to learn whether or not any of the normal flow remains unappropriated and second to remove the obstacles to storage where this may be accomplished.

To have a better understanding of Continued on Page 658



Wells Furnish a Wealth of Water for California Irrigation

A 16-inch well is handled by this one pump on the Noxen Ranch, Stanislaus County. This pump is lifting 3100 gallons per minute and three such wells furnish a supply of water to cover 1700 acres. The lift is about 60 feet.

Some Methods of Marketing Live Stock

By F. P. Allen

CALIFORNIA is an ideal locality for the production of meat animals of all classes. On the hills and mountains, sufficient range can be found to supply forage for sheep and cattle and in the valleys below, feeds to finish the stock for market can be grown. The climate, being mild throughout the winter, affords an opportunity for the stock to add both bone and flesh during this season, where in most stock raising sections, the bulk of feed in winter is required to keep the animal warm.

The rainfall in the mountains and hills provides grass in its season and the irrigated valleys supply alfalfa, cotton seed and other grains for the balance of the year. Many thousand cattle and sheep are now bred and fed south of the Tehachapi and an abundance of hogs is produced but with all this production and the ideal environment incident thereto, present marketing methods in Los Angeles and adjacent counties have outlived their usefulness. The dawn of a new era in the live stock industry brought about by the world war which has created a new outlet for the finished product will sound the trumpet to awaken the live stock man from his spirit of quiescence to demand a better market for his wares.

There is but one public live stock market on the Pacific Coast. Located in the extreme northwest section, Portland, Oregon, alone, boasts of a store to properly assemble and display these wares. These stock yards in the north are properly managed, are successful in their functions in that live stock community, and are considered as necessary in that locality as are the Kansas City yards in the heart of the corn belt.

Two great metropolitan cities on the Pacific Coast, San Francisco and Los Angeles, have no public stock yards.

Office records in possession of the local representatives of the bureau of markets, United States department of agriculture, in these two cities, prove that there is a greater need in either of these cities for stock yards than at Portland because of the greater numbers of meat producing animals slaughtered there, to say nothing of the large amount of feeders that change hands through the medium of brokers in both cities.

In all lines of commercial activity business methods are being modernized to keep pace with and surpass competitors who seek enlargement of their volume of business, and the time has actually come when it is a case of the survival of the fittest, who shall hold their place among modern business men.

In the days gone by the itinerant merchant carried his pack of wares on his back, displaying them at your doorstep. He was successful in his small way, but a few years later he opened a large store on the corner of one of the main streets where he could properly display and bring out the qualities of his wares. He saw where better marketing methods would increase his sales, accord him larger profits and create a demand before unknown. The present methods of marketing live stock in Los Angeles are easily comparable to those of the itinerant merchant, but the time has arrived when we need a store, a stock yards to properly grade and display the product to the buyer. There will be competitive bidding. New outlets for various and sundry classes now unknown will appear. It will be the means of expanding the live stock industry far more than any other agency.

Local slaughterers now secure their supply of stock direct from the producer when it is possible, by sending a shrewd buyer who is an expert judge of meat animals and familiar with live stock values, to the seller in the country who is not such a keen bargainer and is not familiar with the daily pulsation of the markets. Thus

Continued on Page 666

Come on Everybody

Vacation time is here and WHEELERS SPRINGS is the greatest place of all to go to.

Only 90 miles from Los Angeles over good roads and there you are --- WHEELERS.

Big out-of-doors swimming plunge, tennis court, dancing, hiking, horse-back riding, good trout fishing and lots of good things to eat.

WHEELERS is the biggest and the best resort in Ventura County and now is the time to plan your trip there.

Write today for folder No. 21 --- or better yet --- phone in your reservation.

Elevation 1564 feet. Hotel and camp accommodations.

WHEELERS SPRINGS, Ventura County, Cal.

Webb W. Wilcox, Mgr.



Successful Planting in Dry Weather

By Isaac F. Tillinghast

IN a country where copious rains are frequent or where water may be plentifully used so that the surface may be constantly kept moist, it is comparatively easy to make small flower and vegetable seeds germinate and grow quickly and small plants readily grow when transplanted into the open field, but in a country or season where little or no rain may be expected, to be always successful in performance these little stunts become a very different problem.

Most garden soils will crust over, if not frequently stirred, to such an extent that small seeds when covered a half inch or more have great difficulty in breaking through this crust, and in many instances perfectly good and vital seeds will in consequence fail to appear. On the other hand, if not covered with soil when planted, the surface will dry out before they have time to absorb sufficient moisture, to such an extent that they will not germinate.

The above conditions present a serious problem to many planters, and here is the solution: First make a small furrow or mark not more than one inch deep, which will usually simply remove the dry earth and present a moist surface, on which scatter your seeds evenly, but do not cover them at all. Now make use of your feet. Walk along each row, two at a time if but a few inches apart, moving the feet forward six inches or so at a time, so as to bring your full weight on every part of the row. This forward movement of the feet will give all the covering necessary, and the earth will be compressed firmly around each seed. Now if you have water, sprinkle the bed well, and the surface will remain damp all along the bottoms of these depressed rows, even when the loose soil between them has dried out, and your seeds will all come up quickly.

Recently the writer saw a large tomato plant bed which had been sown broadcast and the seeds raked in. Then evidently some one had carelessly walked across the bed. The result was that every footprint was green with plants, while scarcely another plant could be seen, being unable to break through the dry crust which had formed, or having insufficient moisture to enable them to germinate.

To successfully transplant small green plants like cabbage and tomatoes in hot dry weather is another equally difficult problem but which may be easily performed if properly managed.

When a plant is first pulled and removed from the seed bed, many of its little feeding mouths at the extremity of the rootlets are severed, and if the plant is at once transplanted the evaporation of its moisture goes on through its leaves so rapidly that it is thrown out of balance. Its first tendency then is to wilt and die like a person who has been seriously injured in an accident. But take these same plants, dip their roots in water, or better still, "puddle" them in a solution of loamy soil and water which will adhere to them, and place them in bunches in some cool, shady place for from 24 to 48 hours, where thousands of fine new rootlets will form. The plant will now stiffen up and is ready to take hold and grow. It is now convalescent, we may say. It has changed its mind and given up the sorrowful thought of dying, and with its new determination to live, if now replanted, with its new roots placed in moist soil it may imbibe moisture faster than the evaporation goes on and be ready to start new growth at once.

And right now a little watering is a dangerous thing, for it will simply cause the surface to crust over and do more harm than good. Either water copiously or not at all, and see that the surface soil is kept broken and loose around each plant. Dry dust around each plant on a hot sunny day is a protection, but a dry crust never.

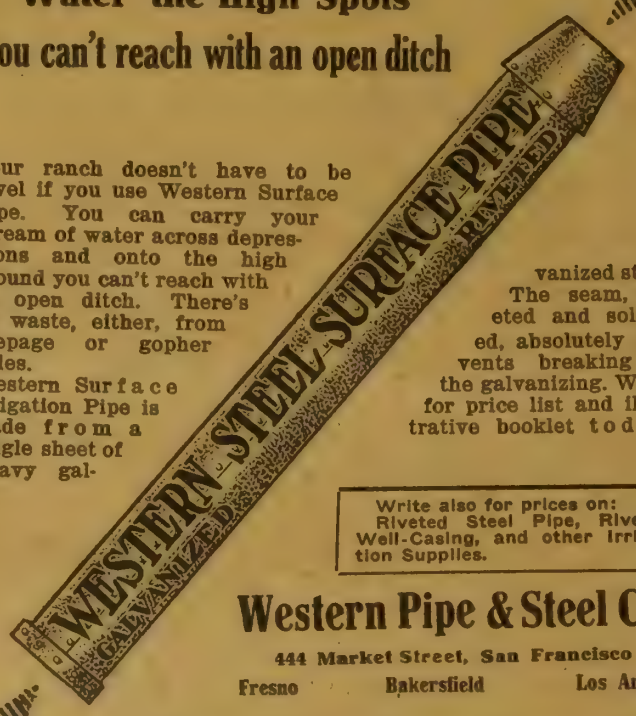
It is much safer not to try to set plants while too young and green, but allow them to stand in the seed bed until the stems are quite hard and woody. If they get too tall cover the bodies up to within a few inches of the top and new roots will form on the covered portions, which will give them greater support. If some of the larger leaves are removed it will reduce the evaporation and the plants will not wilt down so badly.

We of Northern California who sit idly by during the winter months and permit untold billions of gallons of water to flow past us back to the ocean and then measure the precious drops the next August when we want to irrigate our orchards, are about as thrifty as the proverbial grasshopper and as consistent as the Arkansas traveler. We have the winter flow of water, the sites for storage reservoirs and the summer demand, but not enough enterprise or forethought to conserve some of the winter waste for summer use. We enthusiastically subscribe millions of dollars for war's destruction, but hesitate to spend comparatively small amounts for the development of our own resources. God helps those who help themselves. Suppose we give it a try.—North California Real Estate News.

Irrigate through this pipe –

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You can't reach with an open ditch



Your ranch doesn't have to be level if you use Western Surface Pipe. You can carry your stream of water across depressions and onto the high ground you can't reach with an open ditch. There's no waste, either, from seepage or gopher holes. Western Surface Irrigation Pipe is made from a single sheet of heavy galvanized steel. The seam, riveted and soldered, absolutely prevents breaking of the galvanizing. Write for price list and illustrative booklet today.

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P. E. Building, Los Angeles, Cal. Branch at Fresno



Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Actual Measurement for Irrigators

By E. Earl Glass, C. E.

During the past three years many water users have proven the worth of the irrigation meter as a peace maker. some companies, as the Lindsay-Strathmore irrigation district, having several hundred meters on one system. These companies have placed their water deliveries on a business-like basis and every user is assured the same fair deal. The meter shows exactly the volume of water passing through it and does its work better,



Doing Things Large

It takes power to quickly and economically prepare lands for irrigation. Here is the California way of doing things, or, more correctly perhaps, we should say, it is Yolo County's way, for this is a Yolo County scene.

year in and year out, night and day, than if one were to stand and watch his old weir box ceaselessly. And no irrigator needs reminding that his water is constantly fluctuating and he cannot afford to drop everything else to watch the weir. But that is better done by the meter for it is always on the job and more accurate than the best weir that can be built. With the meter the hired man or a boy can actually measure the water better than the best civil engineer can without it. This because the meter uses his best method, perfected by elimination of all approximations and the reduction of all calculations by mechanical means like a calculating machine.

There is surely no other commodity involving the cost to the rancher of his irrigating water that he accepts without measurement or at best only a rough approximation. If the variation were only 10 per cent of the amount received (and it is often 50 per cent or more) one may lose enough to pay for the meter in a few months.

DO IT NOW

(Continued from Page 653)

risen more, some less than the average for particular reasons affecting each industry. In some cases an improved organization of both employers and employes has enabled them to combine against the public and take full advantage of the price advance. The war brought about an abnormal demand for certain products like copper and steel, and they advanced faster than the average. The abnormal demand having disappeared, these prices are being adjusted downward.

In some cases, as in many of the industries making building materials, the war meant a great slackening in demand, an enforced curtailment in use by government order. In such instances we are likely to see an upward swing in prices as the suppressed demand again makes itself felt. Today we are witnessing throughout the country such price readjustment, up and down, but the general price level has shown little sign of falling. It is apparent to every thoughtful observer that some great force has affected all prices, creating a new standard to which they are all conforming.

The fundamental practical question confronting business men is whether the general level of prices is going to fall. In my opinion, it is not going to fall much, if at all. We are on a permanently higher price level, and the sooner the business men of the country take this view and adjust themselves to it, the sooner will they save themselves and the nation from the misfortune which will come if we persist in our present false hope.

IRRIGATION INTEREST INCREASING

Oakdale Irrigation District

The Oakdale irrigation district has made application to the Modesto irrigation district directors for a spillway into the main canal of the Modesto district at Pelton drop. The matter was referred to the president of the board and the engineer.

The engineer reported the completion of the agreement with J. T. Morehead for excavating and spreading dirt in the Jacobson ditch.

The engineer was authorized to sell an 8-inch centrifugal pump for which the district has no further use.

Application of D. M. Hackett for 1000 feet of 16-inch pipe in the Hayworth drain was granted and the engineer authorized to proceed with the work.

Six Mile Levee on San Joaquin Completed.

The six-mile levee along the San Joaquin river in reclamation district 1604 was completed this week. The building of the levee started August 10, 1918, with two dredgers on the job, which have been busy most of the time. About 3,000 acres of land in the district are under cultivation now and the crops are looking fine.

Irrigation Started at Terra Bella

"The 1919 irrigation season in the Terra Bella irrigation district started off nicely on Friday, April 18," says the Terra Bella News. "A few water users had irrigated their groves previous to that date, utilizing water from No. 3 station, where one of the two booster pumps was employed.

"All users are working harmoniously in the effort to make this a very efficient season, and it is hoped that those not yet taking water will hold to a similar purpose.

"Wednesday's run totaled 576 miner's inches of water. Eight valley wells, together with the full capacity of the infiltration gallery, are being employed in furnishing the supply. More capacity will be required, perhaps, after the first of May.

"It is apparent that the ground irrigated in the early part of the season is not taking as much water as in former seasons, and particularly is this true where the orchards have been kept clean and well cultivated during the winter.

"The pumping equipment at the several stations is doing efficient work, everthing having been put in tip-top shape before the beginning of the season.

"Riveted steel pipe for the service extensions has been slow in arriving but several carloads are promised in the immediate future. The pipe will be laid under Supt. I. H. Althouse's supervision."

Irrigating Wheat at Gridley

The Oroville Register says: "For the first time since the inauguration of irrigation in this section a large acreage of wheat is being wet with water from the canal. Many small fields have been irrigated in past seasons, but this is the first time irrigation has been practiced on the large grain ranches.

F. A. Onstott, who has a large ranch near Gridley, is irrigating 288 acres of wheat, and will finish next Monday. It is believed that the application of water means the saving of the crop, as the ground is so dry that without irrigation there would be very little matured to harvest. Many of the smaller fields have or will be irrigated soon.

"The canal company turned water into their main canal on April 15, and into the Richvale extension canal on April 21. Some of the rice growers in the Richvale neighberhood began to use the water on their crops on April 23. The rice farmers of that section can begin using water earlier in the spring because of the fact that they have drainage, a significant hint for our own section."

Garden Grove Considers Drainage

The drainage committee of the Garden Grove farm bureau reported at the last meeting of the bureau, through H. O. Arkley, chairman of the committee.

A closed tile system was suggested in preference to the open ditch system for the developed fruit sections of Garden Grove. Figures were given in approximate cost of tile of various sizes and on the cost of laying it. Conferences were held with attorneys of the drainage districts to the south of Garden Grove. It was learned that if the Garden Grove district desired to join on to the other canals, they would be assessed for 50 per cent of the maintenance charges of the old districts. The committee will report further at the next meeting. Farm Advisor Wahlberg will obtain data from drainage engineers of the college of agriculture to present with this report. port.

Flood Control Legislation

A bill has been passed by the state legislature appropriating $5000 for the purpose of gathering flood control data concerning the Santa Ana River.

Melville Dozier, Jr., of the state reclamation board and George W. Peltier of Sacramento have been visiting southern districts to learn the sentiment in regard to state control of flood conditions. Particularly they are seeking support for the proposed $3,000,000 appropriation for control work along the Sacramento.

These two bills are awaiting the governor's signature.

Support for All-American Canal

Senator Lenroot of Wisconsin has just made a visit to the Imperial Valley and on his departure announced that he would do everything possible to make official Washington accept the valley's viewpoint that federal assistance is not only desirable, but absolutely necessary.

NET PROFIT

is the difference between gross income and operating expense. Your operating expense for irrigating your lands may absorb the gross profit. Reduced operating expense will increase net profit—because you can:

Bring waste lands under cultivation,
***Pump more water at same cost,* or**
***Pump same water at less cost,* all spelling**

NET PROFIT

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Soils and Other Factors in Relation to Crop Production in California

The Rational Use of Nitrate of Soda in California

Acid and Basic Residues In the March 8th issue of the California Cultivator we discussed the limiting factor in crop production and the rational and irrational use of different forms of fertilizers, and the question of acid and basic residues, and of physiologically acid salts.

Sulphate of Lime and Acid or Superphosphate Even in instances of unfavorable physical soil conditions which may occasionally exist in California, such conditions can be ameliorated by the use of land plaster and acid or superphosphate, whilst merely from the standpoint of plant feeding it is advisable to use these materials in connection with sources of Nitrogen.

Early Applications of Nitrate Desirable Without doubt, in California early applications or even autumn applications of fertilizers, and especially of Nitrate of Soda, are desirable in many cases; and whenever cereals are sown in the autumn, Nitrate should be applied at the time of seeding, and in the case of spring sown cereals it is preferable to apply it a day or two in advance of the actual seeding, or just prior to the last harrowing in preparation of the land it is best of all.

Nitrate to be Thoroughly Cultivated into the Soil Generally, in rainless or very dry countries, staple crops root very deep in search of water and nourishment. When there is little or no surface water to render plant food available, Nitrate of Soda and other fertilizers should be thoroughly cultivated in at the time of application, so that the plant roots may secure nourishment during the growing season. Generally, fertilizers should not be allowed to touch the seed.

All arid soils lack Nitrogen on account of having but little humus in them, so the application of Nitrate Nitrogen helps give good crop increases.

We would suggest the use of land plaster and sulphate of lime in the formulas for citrus fruits, and especially when potash is unobtainable or too high priced.

Destruction of Humus to be Avoided In this connection, it is important to observe that care must be exercised in soils containing black alkali to avoid materially increasing the content of carbonate or bi-carbonate of lime, since this would help promote the destruction of humus.

Have your soil occasionally examined by an expert, and *do not put any more lime in any form than advised for your particular case.* In other words, take good care to preserve your humus. Do not destroy it by excessive liming on any account. Wetness, stickiness, i. e. puddling, will not result from the rational use of Chilean Nitrate, and the productivity of all soils may be increased by its correct use.

Everywhere in the world where there is enlightened experiment work, the unique qualities of Chilean Nitrate are putting it ahead of other Nitrogenous plant food.

Rational Use of Nitrate No reputable authority has ever advocated such large quantities of Nitrate per acre as would result in any abnormal accumulation of alkali. Moreover, the use of acid or superphosphate, containing as it does sulphate of lime, aids in converting any alkaline residue into harmless forms. The vast majority of soils in the United States have a tendency to grow acid rather than alkaline.

Purely Fanciful Notion that Black Alkali Comes from Nitrate The use of mixed fertilizers tends to leave acid residuals, and when acid or superphosphates are used rationally, *and in quantities suitable for proper plant feeding,* the question of Nitrate leaving abnormal amounts of alkaline residues becomes a purely fanciful one, and is not worthy of serious attention on the part of the practical horticulturist or farmer.

What an Acre of Soil Weighs An area of ground six feet deep includes practically all the active service part of the soil and, to a large extent, its chemical composition determines its usefulness. This service soil weighs on an average 2,000 tons per acre-foot. Six feet of soil would therefore weigh 12,000 tons per acre.

How Application of Nitrate Compares with Weight of One Acre of Soil Since we never recommend the use of Nitrate alone, except at the rate of from one hundred to two hundred pounds per acre, this small amount would have no material influence in increasing the content of soil alkali of so great a bulk as 12,000 tons. Two hundred pounds of Nitrate per acre is a mere trifle, hence even the continued use of Nitrate when used in rational fertilizing would not add but rather diminish the quantity of alkali in the soil, for the associated gypsum and acid or superphosphate loosen heavy clay soils which need improvement in texture and prevent black alkali accumulations.

Rational Use of South American Nitrate Advised In all our literature we recommend the rational and not the irrational use of fertilizers; i. e. normal amounts of the three elements of fertility. We always advise, when larger amounts of Nitrate are to be used, that the horticulturist or farmer use an equal quantity of acid or superphosphate.

All chemical fertilizers are capable of being used without discretion and any chemical fertilizer if thus used irrationally would naturally injure both soils and crops.

It is not claimed that Nitrate can take the place of proper soil management, good water supply, or an abundance of humus. It will not convert inferior varieties of fruits into superior ones, nor will it make a good season out of a bad one.

Eighty years of successful experience throughout the world have proved that the rational use of Nitrate of Soda is followed by larger crops, without detriment to soil conditions.

W. LAMBERT MYERS
ROOM 218, ACHESON BUILDING
BERKELEY, CALIFORNIA

WORK OF STATE WATER COMMISSION

Continued from Page 655

what this means it may be well to give as briefly as possible some idea of the confusion in our water laws which exists mainly because of the existence of two conflicting doctrines relating to titles to the use of water and to the negligence of our legislatures in not providing adequate laws for the control or supervision of such rights. In the old days when water was plentiful and the users few and generally far between the old miner's rules were sufficient and it was during these days that our few codes embodying these rules were enacted. From time to time as the necessity arose the courts adopted rules to meet new conditions which have become a part of the law of appropriations. About 35 or 40 years ago the old English common law doctrine of riparian ownership was recognized to exist through a decision of the Supreme Court of the state in the famous case of Lux vs. Haggin over the waters of the Kern River.



Up Along the Headwaters

Near the headwaters of the Sespe in Ventura County. These waters are later taken out of the Sespe Creek and made a source of much of Ventura County's wealth in lemons, beans and other field crops.

The court itself was divided and it was decided by a four to three vote of the judges. The decision has been regarded as most unfortunate by many of our ablest engineers and lawyers. It certainly has been the cause of endless litigation and is charged with many of the difficulties encountered in putting our limited water resources to their fullest use.

The legislature has but barely recognized this doctrine to exist and indeed its efforts have been directed against breaking the monopolistic control of large riparian ownerships, which, unwilling to utilize such rights themselves, refuse to allow others who are most anxious to do so to apply these waters to their lands. In the Water Commission Act a clause provides that failure to exercise such rights within ten years from the passage of the act will act as a forfeiture of these rights. Whether or not the Supreme Court will hold such action by the legislature as constitutional remains to be seen but inasmuch as the act was finally adopted through the referendum by a vote of all the people of the state it is doubtful if the court will override this expressed will of the whole people.

As has been said before the riparian law has been entirely created by our courts. After recognizing the principle the court has had an interesting time in making it applicable to a semi-arid state where the public interest demands the taking of water from the stream to the land rather than to maintain the integrity of the stream flow, so that we now have an intricate set of rules governing both riparian rights and uses as well as the use of water under appropriation, each running counter to the other. That the doctrine of appropriation which recognizes the ownership of the corpus of the water in the state and not in an abutting land owner on a stream is much the better system for the state at large is now generally recognized but we can now only make the best of a bad situation. The riparian doctrine is peculiarly inimical to storage projects for to be useful these must be made at the highest elevation possible so that before storage can be accomplished the project must clear all the conflicting riparian claims dormant and useless or otherwise before the work can be undertaken, and this frequently, if not always, adds enormously to the cost of the undertaking. I know personally of one project the building of which has not yet begun where over three million dollars of property has been bought so that the riparian ownerships might be acquired by the project so that it might be permitted to go ahead with storage that will add very greatly to the development and progress of this part of the state as well as safeguard these very same riparian lands from a repetition of the enormous damage inflicted by the 1916 floods.

Under the present law all new appropriations must be made under the supervision of the commission. An application is filed giving sufficient data to completely describe the project with necessary maps. When this is in proper order it is advertised in order to bring out any conflict with existing rights. If the commission is satisfied that there is water available it issues a permit limiting the amount of water and fixing the time for the completion of the project with another limit for the complete application of the water to the proposed use with such other conditions as may be applicable. On the completion of the project, after necessary inspections have been made, the permittee receives a license which is in effect a certificate of title good as long as the right is properly maintained.

The procedure to ascertain what existing rights were acquired under the old law is confined to appropriations. Under the original act it was found impossible to proceed so that this machinery of the act had to be amended and this was done by the legislature of 1917.

This procedure provides for a settlement of such rights by stream systems. The first step is taken by the filing with the commission of a petition to have such work undertaken although the commission may act on its own initiative. A complete hydrographic study of the situation is then made to gather data showing all of the rights and ditches in use, showing all of the land irrigated or available for irrigation, size and capacity of ditcher and other works, power projects, etc. After this work is done all claimants are required to file proofs

of claim giving a complete history of such rights. Hearings and conferences may then be held to get such oral testimony as may be necessary. When all of the information is assembled the commission must then make a finding showing all of the valid rights with their extent, priorities and uses. This finding when completed is filed with the clerk of the Superior Court of the county where the right exists and is subject to public inspection. Any claimant dissatisfied with the findings of the commission has the right of appeal to the court and the court after hearing such appeals hands down its decree either approving the findings of the commission as a whole or with such modifications as may seem proper. In this way all of the rights on a stream system may be adjusted in one action doing away with the endless piecemeal litigation we have heretofore had. This system or method has been fully approved in suits from other states before the Supreme Court of the United States and no question is now raised as to the validity of the procedure. It has the advantage of a method whereby the evidence and date in a trial of water rights is assembled by the state itself guaranteeing to the litigant as well as to the court an impartial statement of fact with the final approval by the court itself.

The manifest advantages of such a system are very apparent but if proof is required the experiences of the states of Oregon and Nevada, our next door neighbors, which have almost identical laws, furnish ample evidence of its effectiveness. Oregon will, in the short space of ten years after the adoption of its act, have practically cleared and listed all of its existing water rights. Fortunately for this state while the riparian law was recognized such rights have been regarded as inferior to those under appropriation so that the task has been much simpler than the one before our people.

This office takes just pride in the accomplishments effected during the short time it has been engaged in this work. It has already saved many times its cost in preventing unnecessary litigation and in allowing of the early use of water which would otherwise continue to waste unused. It is acting in other important cases as referee by agreement between the litigants in order that a just settlement may be arrived at other than by a continuation of the matter through the courts. The most notable case we have to settle is the pending suit between the Spring Valley Water Company of San Francisco and the Alameda County Water District, comprising farmers and fruit growers having lands in the East Bay district south of the city of Alameda. The company is constructing a very large storage dam on the headwaters of the Calaveras Creek above the lands of the district which draws its supply from over 1200 wells on the Niles cone. A most intricate and careful study of the conditions is being made by expert engineers in the employ of the commission and it is believed that after this work is done a decision may be arrived at that will be accepted as just by both sides. Similar work is being done that will permit the accomplishment of long planned and much needed storage on other stream systems in the state. Nearly fifteen hundred applications for new appropriations have been received and acted upon by the commission and many large and important developments are proceeding throughout the state under its supervision.

WHERE CROPS CAME FROM

To the total crop value of the five years 1910-14, the geographic divisions contribute the following fractions: The North Atlantic States (from Maine to Pennsylvania), 11 per cent; South Atlantic, 15 per cent; North Central, east of the Mississippi River, 18 per cent; west North Central, 23 per cent; total North Central, 41 per cent; South Central, 23 per cent; and far Western, ten per cent. Total for the North, 52 per cent; for the South, 38 per cent; Atlantic Coast, 26 per cent; Mississippi Valley, 64 per cent; Mountain States and Pacific Coast, ten per cent. Measured by value alone, the crop importance of the Atlantic Coast is more than one-quarter of the total, of the Mississippi Valley nearly two-thirds, and of the far West, one-tenth.

Garden Irrigation

By Ernest Braunton

BOTH flower and vegetable gardens suffer more during summer from lack of thorough irrigation than from all other things combined. When growing plants and hot dry air are both pulling on the soil moisture the exhaustion is heavy and fast. A mere sprinkling or wetting of the surface, even though given every day does not get water down to the roots. A soil may be muddy on top and dry at a depth of six inches. All plants should draw their moisture supply from below, rather than from above. You must put the water down deep in the soil once each week and cultivate the surface, pulverizing it as much as possible; just as soon as it is dry enough to work.

There are some crops that also need sprinkling on top, but this should be done for spraying purposes and not be made to take the place of a thorough irrigation. Beets, cabbage, carrots, cauliflower, celery, lettuce, onions, parsnips, radishes, turnips, and many other of such classes are things that delight in water from the top. The best way to apply this is to set lawn sprinklers and allow them to run until you know the soil is well wetted to a good depth. Then every day or two spray them by hand. You should not top-sprinkle beans and peas, potatoes, tomatoes, or vines of melon, cucumber, or squash, pumpkins, etc. If you are to sow seeds do not plant in dry soil and depend upon subsequent surface watering to start the seeds. Wet the soil thoroughly first, then when dry enough, sow the seeds and rake over the soil. Then water again, lightly. But if you give this last sprinkling you must rake over surface just as soon as soil is dry enough, or a dry crust may be formed hard enough to prevent the tender seedlings from coming through. If the soil is wet enough no top-waterings will be necessary until plants are up. Irrigate in furrows and remember, plants with large tops, or surface crops, need more frequent irrigations than those largely below the surface. For potatoes, if irrigation is needed at all, it should be but once or twice, and thorough enough to soak down two feet into the soil. In gardens, a summer mulch, on crops, where it can be used and maintained, is of far greater value than frequent irrigations given exposed soils. Otherwise frequent cultivation is necessary.

REPORTS BEET SUGAR CROP OF 1918-1919

The beet sugar output of the United States for the 1918-19 season, which has just closed, was 764,867 short tons, or 1,529,734,000 pounds. This total is from the final reports made by factories to the bureau of crop estimates, United States department of agriculture, and is almost the same as last year (1917-18) when 765,207 tons were produced. The beet sugar production of leading states in 1918-19 was: Colorado, 191,880 tons; Michigan, 132,092; California, 122,795; Utah, 105,794; Nebraska, 63,494; Idaho, 44,682; Ohio, 35,476; Wisconsin, 13,358; other states, 55,297 tons.

The beets from which this sugar was made, the crop grown in 1918, were harvested from 593,887 acres and amounted to 5,890,227 tons, valued at $58,908,000. In 1917 there were 664,797 acres havested, yielding 5,980,377 tons of beets, valued at $44,192,000.

The great desirability of keeping insects reduced by modern orchard practice, as fertilization, thorough cultivation, and attention to pruning and other operations, can not be emphasized too strongly and is well appreciated by most progressive and successful growers.

Which wins, thrift or spendthrift? Buy W. S. S.



Tractor Use, Profit, and Safety

TRUE progress is always slow. The change to mechanical power for farm work has been twelve years in the making, but today there are few American farmers who have not given serious thought to the question of tractorizing their farms.

For the benefit of those who may not yet be convinced that the tractor is a useful, profitable farm power machine, we present again a few of the opinions of farmers who are using the International Kerosene Tractor. Some of these are about essential features, and some mention only conveniences, but taking them altogether, almost any farmer will feel, after reading them, that the International 8-16 is a tractor worth considering.

"My International supplies a power flexible enough to handle the large amount of seedbed, harvest and other work without delay."

"It can be used for continuous work if emergency demands it."

"It produces power at much lower cost than horses, and it can be used for both drawbar and belt work."

"I like the steady way it works. Without seeming to hurry, it gets through a surprising amount of hard work."

"It does a lot of good work at a cost so low I could hardly believe it. You did a wonderful thing for Eastern farmers when you made this tractor to run on kerosene."

"It is not bothered by flies, nor by bumble bees. It works steadily on the hottest days."

"Requires very little care. When the day's work is done, I run the tractor tail first into an inexpensive shed. In the morning, I fill the fuel tank and the oiler, look into the radiator, and am ready for another day's work."

These opinions are typical. They prove at least that the International 8-16 is a useful, profitable tractor. Now consider just one other thought for a minute.

This tractor is the outgrowth of twelve years of active tractor experience by a company that has sold all kinds of farm machines for many years. The beginning of this business goes back to 1831—almost 88 years ago. Does it not seem reasonable that with this experience we should offer you a tractor that you could use with profit, especially when we expect to come back some day and sell you more of the machines listed in this advertisement?

If you are now convinced that the International 8-16 is a useful, profitable tractor on some farms, and that you don't have to be an expert to buy one safely, write us to find out what this tractor will do for you, on your farm. A post card will bring you full information.

The Full Line of International Harvester Quality Machines

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Binders — Push Binders
Headers — Rice Binders
Harvester-Threshers
Reapers — Shockers
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Tillage Implements
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Spring-Tooth Harrows
Peg-Tooth Harrows
Orchard Harrows

Planting & Seeding Machines
Corn Planters — Corn Drills
Grain Drills
Broadcast Seeders
Alfalfa & Grass Seed Drills
Fertilizer & Lime Sowers

Haying Machines
Mowers — Tedders
Side Delivery Rakes
Loaders (All Types)
Rakes
Combination Side Rakes and Tedders
Sweep Rakes — Stackers
Combination Sweep Rakes and Stackers
Baling Presses
Bunchers

Belt Machines
Ensilage Cutters
Huskers and Shredders
Corn Shellers — Threshers
Hay Presses
Stone Burr Mills

Belt Machines—Cont.
Cream Separators
Feed Grinders

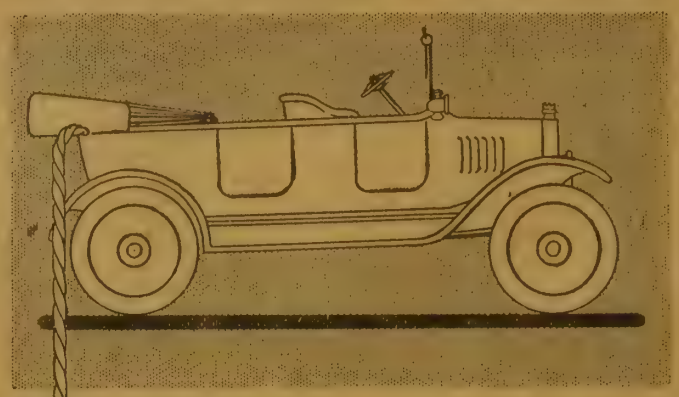
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San Francisco, Cal. — Spokane, Wash.



A Car Overload is A Tire Overload

MOST cars, particularly Fords, are often overloaded. To give real service under such conditions, a tire must have very tough side walls, built of the best fabric. It should be at least its full rated size—not skimped to save cost.

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Fruit Crop Report Continued

THE more the season advances the better the reports are from almost every fruit section. The principal complaints as to unsatisfactory conditions are from nearer coast sections where the coolness and the moisture of the season are encouraging fungous and bacterial troubles. This is especially true in walnut growing districts, but in the main the reports being received by the Cultivator and those given by local papers over the state go to show that we are raising a bumper crop which will command exceptional prices. On this line we note this in the

Hanford Sentinel

Prices that are being offered for dried fruit on the coming crop are still maintained at a high mark and in some instances there has been an increase over the figures of several weeks ago.

As far as can be learned some of the recent prices made are 18 cents for apricots, 15 cents for peaches, 10½ cents base for prunes, and 7 cents for Muscat raisins.

In green fruit $60 per ton is offered for apricots, and $25 for Muscat grapes.

Paso Robles Press

Almond orchards around Paso Robles are showing a heavy stand of the young nuts, varying according to variety and locality from the size of peas to the size of small walnuts. Pear and prune orchards are in full blossom now, peaches have already set for the young fruit, and the fruit and nut outlook in this section has never been better.

Placer Herald

Elmer Madden, manager of the Auburn Fruit Exchange, says the prospects are excellent for a good big crop of fruit this season. Everything except cherries in spots and some early plums will be abundant, and there will be plenty of these. Mr. Madden also predicts good prices.

Lake County Bee

Nearly all the Lake County Bartletts have been sold and $75 a ton was offered last week for remaining lots. The crop indications right now are extremely good but as the fruit has not yet completely set, neither has the danger of scab passed, no one can positively state whether the crop will be normal.

Some local prunes have been bought on 10 cent basis, a raise of one cent during the past ten days.

* * *

Not all of the returns from our correspondents are yet received, but so far as received we give report in this issue in addition to the long list of intelligent estimates made in last week's paper.

* * *

Fred P. Roullard, Horticultural Commissioner, Fresno County

Present conditions indicate a normal crop of peaches, grapes, and figs. Peaches have bloomed heavily, and most of the crop has set. The cool, moist spring has caused more or less curl leaf in certain sections, but the damage so far has been very slight.

Apricot orchards have apparently escaped their usual bud drop trouble and have also set a fairly good crop. While it is too early to predict grape crop conditions at the present time, no abnormalities have made themselves apparent, and the outlook generally is good. The usual outbreak of cutworm has occurred, but the damage has not been serious. The efforts of growers to control fruit pests of all kinds have been more determined this year than ever before.

Leonard H. Day, Horticultural Commissioner, San Benito County

Apples, 100 per cent; apricots, 75; cherries, 100; peaches, 100; pears, 100; prunes, 100.

Lester C. Reed, Simi, Ventura County

The Simi Valley has a 100 per cent crop which with a number of new apricot orchards coming into bearing this year is going to make a good tonnage for the valley. I have been over most of the 'cot growing sections of the county and find conditions very much the same.

A very attractive price prevails for future deliveries, which has been accepted by a large percentage of growers, it being from 15 to 18 cents.

Wm. B. Jackson, Ontario, San Bernardino County

The apricot crop in this part of the valley will not be much more than a half a crop. There were three separate crops of bloom, the first set all right and part of the second, but the third has about all dropped off. The old trees have the lightest crop but younger trees have a little larger crop. Peaches are full of bloom and if the weather stays good there will be a good crop.

Norman G. Buhn, Horticultural Commissioner, Kern County

Almonds, apricots, peaches, and prunes have a 100 per cent set but the season is too early to tell anything much about the apple and pear crop but there is a heavy bloom on at the present time.

Up to the present time the prospects for the grape crop are very promising and we are looking forward to bumper crops.

Fred G. Stokes, Horticultural Commissioner, Lake County

Almonds, 100 per cent crop; apples in full blossom and indicate 100 per cent; pears, A-1 prospect, blossoms falling, 100 per cent crop; prunes, A-1 prospect, have just set, 100 per cent crop.

There has been keen competition for Lake County Bartletts. Prices ranging from $52.50 (three weeks ago) to $75 a ton orchard run now. Most of the pears now sold for drying purposes. Twenty cents a pound recently paid for orchard run dried pears. Pears now clean; no signs of scab.

A. A. Brock, Horticultural Commissioner, Ventura County

Almonds, 100; apricots, 85; cherries, 100.

Claud D. Tribble, Elk Grove, Sacramento County

Apricots, about 60 per cent; almonds, 40; pears, 90, most too early to estimate as the usual drop has not taken place; apples, 120; peaches, 75; prunes, 70; plums, 45, Japanese types; plums, 100, European types; cherries, 35, lightest crop in years.

Arthur E. Beers, Horticultural Commissioner, Merced County

Almonds show a very good crop although not quite equal to the promise of the blossoms. Apricots show a very good set of fruit though on the sandier lands the trees show considerable gumming and disease. Peaches show only a fair set. Pears and prunes we do not raise commercially although there is a large acreage of young trees coming on.

A. Hancock, Bakersfield, Kern County

Almonds, small acreage, crop fair, 75 per cent; apples, small acreage, crop good, 95; apricots, good average all varieties, 95; peaches, crop fair, spotted, 75; pears, prospects good, 90; prunes, prospects also good, 90.

As to conditions in Kern County fruit prospects are excellent. Peaches are a little shy on account of not blooming real good, and stormy weather at the blooming period. All other fruits are in good condition and I understand that the prices are also good, which will make a good combination for the fruit raiser.

Having just had a rain after a long continued dry spell the dry land farmers are also rejoicing, for up to this last rain it looked like an almost complete failure. The rain was too late in some cases but in the majority it will be a wonderful help.

Geo. Marchbank, Horticultural Commissioner, Madera County

Almonds, 65 per cent; apricots. 55; peaches, 85; plums, 70; prunes, 85.

Sanitary Fruit Company, Inc., Red Bluff, Tehama County

Almonds, fair, some dropping, some orchards full, others very light. Apples, prospects good. Apricots, fair, dry weather last year killed considerable number of trees, curtailing output somewhat; set is heavy. Cherries, light to fair. Peaches, heavy. Pears,

heavy. Prunes, heavy. Frost danger practically over and prospects flattering.

J. P. Dargitz, Soulsbyville, Tuolumne County

Our principal fruit up here is the apple. In full bloom now and very promising. Peaches have set well and will require thinning unless later frost prevents. Pears have apparently set a good crop. Barring very dry at present everything is promising.

G. R. Gorton, County Horticultural Commissioner, San Diego

Almonds, 100 per cent; apples, 100; apricots, 85; cherries, 80; peaches, 100; pears, 100; prunes, 90.

The conditions have been very favorable this season for the development of small fruits in our county. Of course, the estimates given are subject to change in one or two instances, as for instance, the estimate on apples might yet be affected by frost condition in the mountain country. Moisture conditions have been fairly favorable and what little frost we have had has not affected the deciduous fruits, nor indeed has a great deal of damage been done to citrus, either orange or lemon. The young lemons were considerably damaged in the early part of the month by hail which will make some difference in the later picking.

J. N. Ballantyne, Lodi, San Joaquin County

Almonds, soft shell varieties very light; probably not over 40 per cent; while later varieties run better as a rule; may make 70 per cent; apricots, are spotted but will probably make an average of 70 per cent; cherries, the Royal Annes are lighter than last year probably 65 per cent. The Tartarians are better than last and may make 65 per cent; peaches, the Lovells and Elbertas are badly affected with curl leaf and we cannot get much idea as yet how they will turn out but most others are nearly 100 per cent; pears, from reports they are better than last year about 65 per cent; prunes, from reports the different varieties are mostly pretty good and will probably run 85 per cent.

O E. Bremner, Horticultural Commissioner, Sonoma County

Almonds, small acreage here about 25 per cent prospect; apples, heavy bloom looks like 100 per cent crop; apricots, small acreage poor outlook 25 per cent; cherries, look best for years; present indications 85 per cent; peaches 100 per cent outlook; pears, 100 per cent outlook; prunes, estimate 90 per cent, old trees showing some drop, young trees full crop.

It seems to be a hard season to get land into best of condition, so that shallow rooting trees do not look up to standard. Insect and disease conditions rather severe.

J. F. Benton, Horticultural Commissioner, Humboldt County

Apples, fine bloom, prospects good for full crop; cherries, peaches, pears, good.

Winters Dried Fruit Company, Winters, Yolo County

The prospects for the coming season throughout this section are the best in many years. Our rainfall is past normal of 20 inches, the bulk of which fell since February 1, which assures sufficient moisture for the maturing of all crops. The blooming was very heavy, rains during the blooming period of almonds and apricots causing some dropping. This, however, was not serious except reducing the tonnage of almonds. The season is about one week late.

We give below estimates basing normal at 100 per cent: Apricots, 100 per cent, or about 8000 tons green, quality good and practically free from shothole fungus. Peaches, Muirs and Lovells 100 per cent, Elbertas, 65 per cent, shipping peaches 100 per cent. Prunes, about 75 per cent. Plums, early varieties estimated at 45 per cent, late varieties 70 to 80 per cent. Almonds, Hatch varieties 65 per cent, Drakes 85 per cent, Peerless 50 per cent, miscellaneous 60 per cent. Prospects look favorable for figs, grapes and pears.

A. Everett, Moorpark, Ventura County

The apricot is the only stone fruit raised for commercial purposes here.

(Continued on Page 664)



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Eleventh Annual Farm Picnic

By R. P. Royce

NO MATTER how well conceived one's ideas may be as to what a real picnic is, they are bound to be shattered by the annual picnic held at the University Farm by the students of that institution.

The youthful mind is active, no mistake, and when several hundred youthful minds are set to working on one proposition it is hard to predict just what will happen. In the case of the eleventh annual University Farm Picnic held at Davis April 26, such wholesale youthful mental activity resulted in staging just about the biggest affair ever held in the state.

Eleven years ago the few students attending the farm school invited a few of their relatives and friends to visit the institution and see what was being accomplished. Last year 18,000 visited the farm—each year has registered an increase—and it is probably true that considerably more than 20,000 visitors traveled to Davis last Saturday. No one knows just how many were there, but every one knew that several thousand automobiles were parked on the ground—and that most of the cars came loaded to the guards.

The event is more than a picnic. The word "picnic" does not seem to properly fit the occasion. The affair has really become an important agricultural institution in this state—a day set aside for thousands to visit the Farm, learn of the wide range of work carried on, the many practical experiments, to receive the inspiration of better agriculture, to meet their friends and to have a day of pleasant recreation.

During the forenoon the visitors were taken on a tour of the 100 acres, through the fields and orchards and vineyards, the experimental plots and gardens. One of the morning features that no one overlooked was the opportunity to visit the various barns and see and study the many breeds of live stock kept for instructional work. Each barn houses some of the finest live stock in the West and rather frequently some animal of national prominence.



Paying Homage to Live Stock Aristocracy

The parade of pure breds and of floats showing the activities of the University Farm and to an extent of California agriculture. This is a great feature of the annual University Farm Picnic. In this photograph the parade is passing the dormitories. The greater crowd is usually massed near the administration building. Thousands of California ranchers received an inspiration to raise better live stock from this parade.

Each department staged demonstrations of the work carried on. There were demonstrations of field crops, cereals, methods of dipping and grading seeds, orchard management, including latest methods of pruning and spraying, modern veterinary practice, up to date creamery practices, the latest irrigation facts, exhibits of all sorts of agricultural machinery.

Stock judging contests open only to boys having had no previous training, and athletic events occupied a portion of the morning hours.

The afternoon feature was a parade of live stock and floats that in point of interest and attractiveness would rival any circus parade.

Other interesting events of the afternoon included a ball game, flying demonstrations, speech making and a band concert.

Sorghum on Alkali Land

A subscriber having alkali spots on his place wishes to know as to growing roughage for his dairy on this land and asks as to which of the sorghums is the most resistant to alkali. The matter was referred to Professor John W. Gilmore of the University of California, and he gives us the following:

Both our experimental data and observation seem to indicate that there is very little difference between the saccharine and non-saccharine sorghums as to their actual resistance to alkali as found under field conditions. It does seem, however, that when moisture is a limiting factor the non-saccharine or grain sorghums will do better than the saccharine varieties. This is due probably to the fact that the grain sorghums are more drouth resistant than are the saccharine sorghums and under similar conditions of alkali, if moisture is deficient, the saccharine sorghums will suffer most. Under optimum conditions of moisture and where alkali is not too abundant to inhibit growth the saccharine sorghums are best for silage. They yield more heavily and on the whole, pound for pound, when seasonably cut carry as much as or more nutrients than the grain sorghums.

Among the grain sorghums it would seem that Milo is superior under alkali conditions to the other varieties, mainly, however, because it is of more certain germination when planted early, and this early planting enables it to germinate in a weaker concentration of the soil moisture and consequently to get its roots distributed in the soil before the concentration of the alkali becomes too severe. Among the saccharine sorghums there seems to be no difference between Early Amber and Orange.

We have no accurate data regarding the percentage of alkali in the soil which the sorghums will withstand because their tolerance of alkali depends upon so many conditions which are normally found in field soils, thus the kind of alkali, the percentage of moisture in the soil and its moisture retaining properties, especially in the early stages of growth, and the type and physical condition of the soil are all important yet available factors. It seems, however, that all things considered more than four-tenths of one per cent of total salts on a dry basis

would be risky. This would be especially true if either chloride or carbonate predominated. Where irrigation is practiced, by which the concentration of alkali can be kept weak, the crop will come through even a larger percentage than that indicated.

In the question of alkali tolerance of crops every field is a problem in itself and the question can be answered only by a trial on that field, but as indicated above four-tenths of one per cent of total salts may be taken as the point beyond which the farmer assumes considerable risk in getting a satisfactory crop.

A FIVE-MINUTE SPEECH

By the Hon. Henry van Dyke, Formerly Minister to the Netherlands, Chairman New Jersey Branch League to Enforce Peace

We are face to face today with a glorious opportunity and a great responsibility. In the first of these America may have a share if she will. In the second she must bear her part whether she will or not. The fact which has not yet been fully recognized by all our people, not even by all our senators, is that the United States is morally and socially responsible for the establishment of a league of free nations, pledged to uphold peace rather than war in the settlement of international difficulty.

The question which meets us now on the road of destiny is whether we Americans are willing to take a manly part in making the world safe for peace by common action with the nations who are nearest to us in spirit, in laws and in ideals.

Democracy's Responsibility

In these last four years of dreadful and decisive conflict God has given great power and consequently great responsibility to democracy. A thing without parallel in human history has happened. The strongest and best equipped autocracy of the world, the greatest military force for evil that mankind has ever seen, has been beaten down and broken to pieces by an alliance of free democratic states fighting for peace against war. The victory has been complete.

What can a league to enforce peace really accomplish, if the greatest democracy of the world, the United States, selfishly holds aloof from it, refuses to favor it, declines to bear her rightful share in its obligations and so forfeits her claim to a part in its rewards. The power which God has given to us is not of one talent, but of ten talents. All the more shame and disgrace to us if we hide it in the napkin of indifference and bury it in the deep hole of blind and selfish greed. For that sinful action, if we commit, God and our fellow man will hold us responsible.

Debt to Our Soldiers

We are responsible for our entry into a league of peace to our brave soldiers and sailors who helped to win this war against war. How gloriously they fought! How much we owe them!

Our boys in khaki and blue have faced danger and death beside the Allies to put an end to war. If we rob them of the prize for which they fought, we make their victory vain. We must keep faith with them. We must do what we can to insure what so many of them died to win, by taking our part in the League of Nations to Enforce Peace.

The United States is responsible for a hearty support of the League of Nations idea because it represents the principle to which we practically pledged ourselves when we entered the war beside our brave allies, Great Britain, France, Belgium and Italy. They counted upon us, they welcomed us as representatives of just this idea, namely, that the war of 1914, begun by Germany, was in itself a crime against the world involving consequent crimes of cruelty and barbarism and general atrocity by which at last America herself was invaded in her sovereign rights and attacked in the lives of her citizens.

It was to make the world in which such crimes should be, if not absolutely impossible, at least more difficult and more dangerous in the future, that we took up arms at the call of the President. For many years America has been on record as desiring, advocating and urging peaceful methods of conciliation and arbitration in international disputes. We want to make a world of peace because we know that in such a world democracy will be more safe and more flourishing.

SUMMER SESSIONS

The University of California is sending announcements and outlines of courses for the summer sessions in Berkeley and Los Angeles. Both these sessions begin on June 30 and end August 9.

The University held its first regular summer session in 1900, though summer courses in several departments had been given during the years 1891-99. In the summer of 1918 there were, in Berkeley, two terms of the summer session, of six weeks each. In the first term the total enrollment, not including the summer school of surveying, was 3479; 2708 came from California, 723 from other states, 41 from foreign countries; 1705 were teachers. In the second term the enrollment was 594. In the southern division of the summer session, held in Los Angeles, the enrollment was 630.

COST OF COTTON PRODUCTION IN ARIZONA

From a questionnaire sent out by the county agricultural agent of Maricopa County the following figures on the cost of cotton production have been obtained.

"One hundred and five replies were received. The average cost of plowing the land as reported by these 105 growers was $6.20 per acre; disking and leveling, $1.50; planting, $3.19; chopping, cultivating and hand hoeing, $16.28; water and irrigations, $6.82; seed, $1.25; picking 1200 pounds of seed cotton at three cents, $36; hauling to gin, $1.50; ginning at $15 per bale, $10; miscellaneous, $3.50. This makes a total of $82.54. Rent may be figured at $30 to $35 per acre, making a total of approximately $115. It is interesting to note in this connection that the average yield of the 7900 acres represented in the answers averaged as above was 1200 pounds of seed cotton. This would have given a net profit of just about $75 per acre at present prices for lint and seed."

IRRIGATING BLASTED CLAY

The difficulty in getting water properly distributed through heavy soil can be overcome to a large extent by subsoiling with powder. Heavy soils actually are always more productive than light soils when once they are made properly granular and mellow, but large areas are passed by in favor of less valuable sands and silts every year.

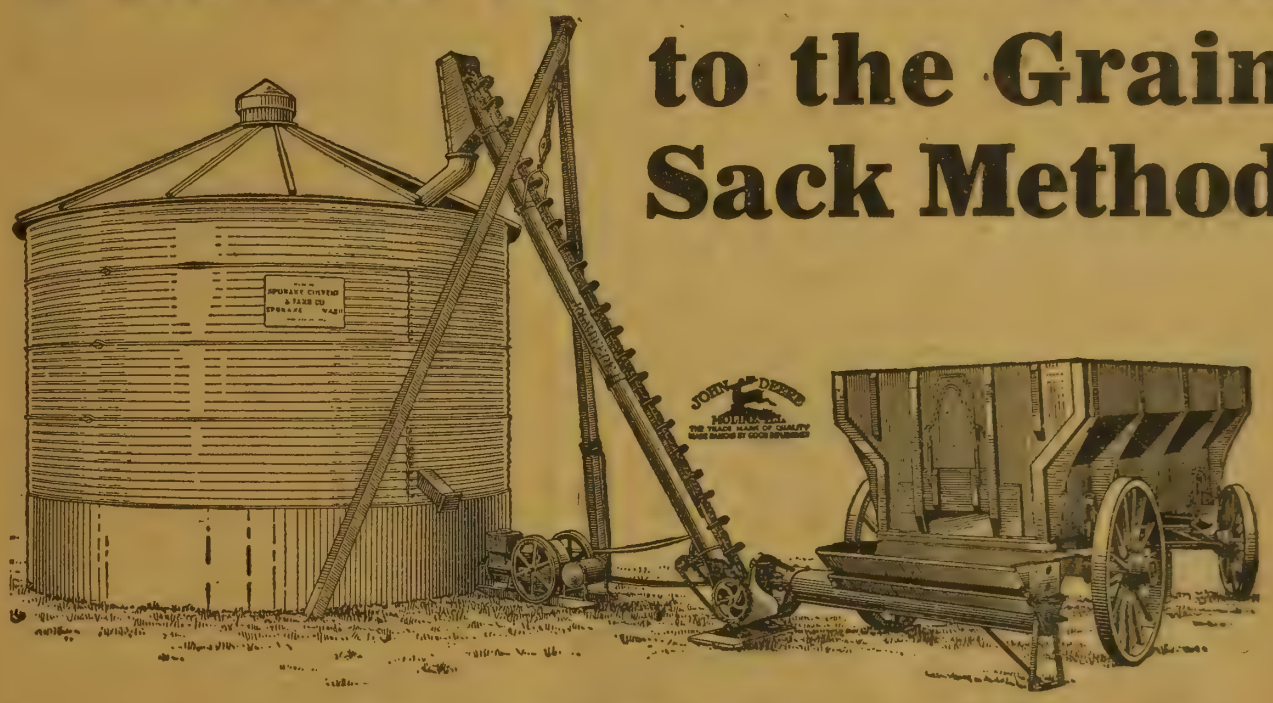
Proper blasting opens and fines any dry soil to almost a sandlike structure. To keep it so, and to bring about the desired granulation and organization, the introduction of organic matter is required without delay. This is easy to secure through heavy rooted crops which provide immense bulk of humus deep in their roots and further large amounts at furrow depth from tops plowed down. In short, a clay soil properly blasted and cover cropped will let in water evenly and swiftly in sufficient quantities to satisfy anyone.

The deep loosening accomplishes other equally important objects. For instance, it lets in the air, with the result that oxidation feeds the roots extensively from the virgin supply of mineral potash and phosphorus. It insures bacterial activity by providing for drainage and moisture storage, plus the organic matter and air, and this in turn makes further drafts on the virgin fertility. By beginning a high degree of tilth, reversion to insoluble forms of plant food already available and of that applied in commercial fertilizers is prevented.

Fruit growers should be cautious when blasting clay ground for trees and blast along the lines of rows without interruption, because if this is not done water will accumulate about the roots and will have no chance to escape. When the entire area of the orchard is broken, however, or even when the ground is broken from tree to tree along the rows, the water can filter through down the grade.

Clay soil should not be plowed or spaded in spring nor cultivated after a rain until it ceases to be sticky. It is ready for working when a handful of it, after being squeezed tightly, crumbles readily instead of remaining in a solid mass.

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Sheep and Alfalfa

How many sheep can be kept on the feed cut from three acres of alfalfa? Sheep to be kept penned up, so as to conserve the manure. Also if it would be better to feed the alfalfa green or as cured hay? What other feed would they need in addition to the alfalfa?—L. C. A., Orange.

The number of sheep that can be maintained on three acres of alfalfa will depend on the size of the sheep and the stand of alfalfa. It would be safe to figure that approximately one ton of cured alfalfa hay will be required per sheep per year.

It will perhaps require more labor to feed green feed than cured hay, but if the latter is fed some provision should be made to furnish a little succulent feed Except for the lambs that were being fattened, and their ewes, little grain need be fed. Care should be exercised to prevent bloat.

Hog Feeding Question

How much milo maize will it take to make a 200 pound market hog when it is fed in addition to all the fresh cut green alfalfa the pigs will clean up? How much fresh cut green alfalfa will a pig require to maturity at eight months? How many pigs to the acre of alfalfa pasture the year round can I figure on? I would appreciate answers to the above a very great deal.—Subscriber, Ontario.

Professor J. I. Thompson of the University of California states that it has required on the average, in two trials, 4.73 pounds of milo and 3.27 pounds of cut green alfalfa for each pound of gain on pigs from weaning time until they weigh 200 pounds. It required a slightly greater area to furnish the pasture for the same number of hogs than it required to furnish cut green alfalfa, but only 4.48 pounds of grain for each pound of gain. The pigs in the pasture gained about five per cent more rapidly than did the pigs kept in the dry lot and fed the cut green alfalfa. If the alfalfa mentioned is good, an acre will carry from 2000 to 2500 pounds of pork during the entire growing season.

Mulberry Not Bearing

I have a mulberry tree of the common black variety set out four years ago. The past two years it has bloomed abundantly but every blossom drops off. Why do they do that? Will they stay to fruit as the tree grows older?—Subscriber, Covina.

No doubt your mulberry tree will set fruit as it grows older. If it does not, graft it over to the Downing mulberry. That is a prolific bearer.—J. W. W.

Satsuma Plums Drop Off

I have 12 Satsuma plum trees six years old that never bore any fruit. They blossom heavily every year, but drop off when plums are about as large as a Blackeye bean. They are now in full blossom. Would it be all right to spray them now with lime-sulphur mixture?—Subscriber, Puente.

Graft one of your Satsuma trees over to Burbank and if there are many bees in the neighborhood you will get an abundance of Satsuma plums. A graft in each tree will also do the work.—J. W. M.

The Tractor Demonstration

WE are right on the ground. We are right in the midst of it. We are in the dust, the dirt, the sweat and the noise. We are here for the Cultivator readers, that is those who couldn't come, and we are going to give them the story of this demonstration in the next issue.

The show opened this (Tuesday) morning on schedule time. It has big prospects for the six days that it will be open. The crowd surpasses anything of the kind we have seen before and we have attended all the demonstrations and semi-demonstrations during the past ten years. The hotels are filled to overflowing and the Chamber of Commerce has provided rooms in private homes and these are filling rapidly.

The whole town presents the appearance of Sacramento at fair time. All roads lead to the demonstration grounds. Busses are in demand and autos crowd the streets. Everybody is going.

We have already taken some pictures of the tractors as they are going along, tearing up the ground, dragging harrows, plows, scrapers and other implements. These will be shown in next week's issue. By the looks of things Arden Acres is going to have the shake-up of its life. It may have been here for thousands of years, nay millions, but never before did it get such a wonderful brushing up as it is getting this week.

The tents are wonderfully filled with all that can be imagined, and some that we couldn't imagine, to go along with the tractor. They contain everything from spark plugs to gang plows. Our big Tractor Number is in great demand. It is the big advertising feature of the show. We brought several big bundles with us for those who are interested in tractors, but by the way they are going they will not last through the show.

The interest taken in the tractor is greater than ever before. Farmers have been studying their catalogues and diagrams and now they have a chance to see the things they have read about. And they are taking every advantage of the opportunity. Around every tractor is an enthusiastic group of admirers. They follow the tractors over the field or watch the wonderful work from a safe distance. They endure the dirt and dust for the sake of geting better acquainted with the iron horse they hope soon to possess.

The show will last over next Sunday and if you have time take a run over here. It will pay to do it. Wait for the next issue of the Cultivator for the real story of the show.

FRUIT CROP REPORT

(Continued from Page 661)

Nearly all other fruits do well but as there is no cannery in this county it does not pay to raise them. The apricot acreage is large and heavy plantings each winter increase it. Ventura County is more sure of a cot crop than anywhere else in California (I think). For two years past we have had good apricot crops and this year promises better than either of the past two years. The trees are blooming very irregularly, some being in full bloom now while other trees of the same variety and close by are loaded with fruit the size of large green peas to bird eggs. This late blooming may drop badly. My neighbor sold his coming crop dried at 18¼ cents pound net orchard run.

M. Sharpe, Vacaville, Solano County

Apricots, 75 per cent; cherries, 45; plums, 50; peaches, 100; pears, 100; prunes, 60.

N. E. Mathews, Santa Ana, Orange County

Mr. Mathews sends clipping from an Orange County paper from which we take: "While apricots are not as big a crop in this county as they used to be, since a good many trees have been

taken out and replaced with Valencia groves, they are still a substantial crop, and the income from them in the aggregate is no small sum of money. There is indication of a good yield.

"Last year the Satsuma crop was almost a failure here. A large proportion of the trees bore no fruit at all. That fact alone may be taken as a probability of a heavy production this year.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Lice on Colts

I have four colts, one year old, that have lice, mostly in the mane and tail, some on the body. The mane is full of nits or eggs. Please tell what causes them and how to get rid of them, what to apply and how often. —Subscriber, Encinitas.

Several remedies are used to free animals from lice and all are good if the remedy is used thoroughly. First clip the colts and then wet them all over with a solution of zenoleum or some other good sheep dip, using a teacup of the remedy to a bucket of warm water. Put a blanket on the colt until it is dry. That will make the treatment more effectual and prevent the colt catching cold. This should be repeated once a week until three or four applications have been made. Another good remedy is to rub mercurial ointment in the mane and tail. This does not act as quickly as the other method. When you have removed the lice from the colts the job is only half done. You must sweep the stables; sides, ceiling and floor; and whitewash with lime and water. Some zenoleum or crude carbolic acid added to the whitewash will improve it. Chickens often bring lice into a stable and if you have chickens their quarters should be cleaned up also and the lice driven from the chickens. As long as there are any lice about they will spread from one animal to another.

Blood Clots in Milk

I have a young cow that has one sore teat. When milking we get lumps of blood. Two or three times this has come and gone. She was all right for about seven months after she was fresh. What would you advise doing for her?—Subscriber, Yucaipa.

That is hard to cure. Clots show that the trouble is in one spot and that is hard to reach. It may be caused by a ruptured blood vessel or a small tumor that is of little account; still it may increase and become quite serious. Would try to reach it by giving medicine in the feed. Get eight ounces of the tincture of iron and give her one ounce of it in the feed or in a pint of water as a drench three or four times a week while it lasts. Iron in the blood gives it greater healing properties.

Ulcers on Cow

I have a heifer that after giving birth to her first calf broke out with sores about four inches above the hoof and on her back, just back of the hip bones. Also a spot on her belly about two by four inches is raw and has a discharge. She keeps it irritated by licking it. She was fresh about September 1 and has shown no signs of breeding since.—Subscriber, Valley Center.

Would not like to prescribe for this without seeing the cow. It may be quite serious and again it may be of little account. Would advise calling the nearest veterinarian.

Cleveland Tractor

More work, more days in the year

H. G. Saddoris of Fort Dodge, Iowa, reports that the use of his Cleveland Tractor made it possible for him to harvest his grain last Summer in half the time required when he used horses, and with less help. In fact, his 14-year-old boy operated the tractor, pulling one binder, and accomplished as much in the same time as could have been done by two horse-pulled binders, each pulled by a four-horse team.

This man, like thousands of other farmers, requires a tractor that will do a variety of farm work. A tractor—that is economical in operation

—that is built rugged enough to stand up under the strain of hard, gruelling work

—that is capable of doing the whole job from plowing to harvesting.

The Cleveland is built to supply practically all the power needed on the average farm. It is designed and built by practical men who know what a farm tractor must stand.

It is economical in its use of kerosene and oil—and is small enough to be used profitably on both *light* and *heavy* jobs.

And when it comes to the preparation of the seed bed—*plowing, harrowing, seeding* and *planting*, the Cleveland Tractor's track-laying construction enables it to go over soft, plowed ground that causes the ordinary machine to "wallow" and "labor". And, it does the work more efficiently than can be done with mules or horses. The power of the Cleveland is used to *pull the implement* not to "dig out" the tractor itself. Its broad traction surface and light weight per square inch enables the Cleveland to "step lightly," and so it *does not pack down the soil behind it.*

The Cleveland also will reap, bind, thresh, haul, drag dead weights, cut ensilage, fill silos, saw wood and do the scores of other jobs about the farm that require tractive and stationary power.

There's a great, expanding market for the Cleveland. Every day more and more farmers are discovering its real worth. Write for catalog.

The Cleveland Tractor Co.
19077 Euclid Ave. Cleveland, Ohio

Largest producer of tank-type tractors in the world



Mr. C. E. Everett of North Cambridge St., Orange, Calif., writes under date of March 17th, 1919:
"My Cleveland Tractor, bought in June, 1918, has given me every satisfaction. In my opinion it is the only tractor on the market suitable for orchard work, being easily handled, gets closer to the trees, without injury, than with horses. So far my upkeep expense is negligible, while the cost of operation is surprisingly low."

Send for "The Story of Cleveland Tractor Company," Illustrated. Free as long as our supply lasts.

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QUALITY HOLSTEINS



Stands for an Institution, organized and operated for the purpose of

— BREEDING —

BETTER DAIRY COWS

THE CARNATION STOCK FARMS TRADE MARK is not new to the Holstein fraternity. It has been before the public a sufficient length of time to give Holstein breeders generally, a pretty definite idea as to the policies of the institution for which it stands.

The CARNATION STOCK FARMS have always bought the best Holsteins of the breed with which to improve their herds as demonstrated by the purchase of JOHANNA McKINLEY SEGIS, the only 40 pound son of KING SEGIS; CARNATION KING SYLVIA, the $106,000 bull, and AVON PONTIAC ECHO, also out of the famous MAY ECHO SYLVIA; TIETJE QUEEN DE KOL, the only 42 pound cow in the world with two 42 pound daughters; and IDLEAZE PONTIAC LASS, the highest living record daughter of KING OF THE PONTIACS.

The CARNATION STOCK FARMS, by breeding this class of Holsteins on their two large farms, one near Seattle, Washington, and the other near Oconomowoc, Wisconsin, have concentrated the best blood lines of the Holstein breed so that breeders and dairymen in surrounding states might have a place to come to buy the most practical type of Holsteins with which to improve their herds. About six hundred head of registered Holsteins are now on these two farms which serve the breed as distributing points.

FEDERAL INSPECTED HERD

The CARNATION STOCK FARMS herd, by federal inspection and special care regarding sanitary precautions, has been kept clean. Their herd therefore has not only been built up with the idea of giving breeders and dairymen generally an opportunity to buy the best of the breed with which to improve their herds, but it has also been so guarded as to make it a safe place where men could make purchases without fear of contamination. Many beginners, especially, have therefore been protected and encouraged to improve the dairy cows in their community through the policies represented by the CARNATION STOCK FARMS TRADE MARK.

Write our Seattle Office

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Carnatian King Sylvia, the $106,000 Holstein



Above Photo Taken at Age of Eight Months

Carnation King Sylvia is the son of May Echo Sylvia, who holds all the world's milk records on production from one to one hundred days, considered the best cow of the breed. Carnation King Sylvia will be given a wonderful opportunity in the Carnation herd, the largest registered Holstein herd in North America.

SOME METHODS OF MARKETING

Continued from Page 655

the seller, to begin with, is placed at a great disadvantage. Then, there being no other bidder present, he is forced to either take what the buyer offers or run a slim chance of getting a better figure when another buyer happens along, which does not always prove to be a safe plan. Under the auspices of the University of California, working in connection with the United States department of agriculture, county farm agents in Kern, Tulare, Fresno and Kings Counties have been instrumental in the organization of a farm bureau marketing association, made up of over 90 per cent of the hog producers of these counties. Since this organization has been effected the methods followed by this association have put the dealing in hogs on a plane of competitive buying and selling. Whether a producer has two head or a carload, his hogs are assembled with others at a central point convenient to the shipper, and on established sale dates are sold at public auction by the manager of the association. Packers and butchers are notified in advance of these sales and are invited to send their buyers to be present. While only a few of the packers so far respond, it has proven to be an improvement over the former methods of selling hogs. Better prices are obtained and this has been instrumental in creating an inducement to the producer to breed and raise a better quality hog and to market it at the weights most desired by the buyer. At a recent auction held at Wasco in Tulare County, there were but two packer's representative buyers in attendance and the prices bid by them were not high enough to justify a fair return to the producers. The association itself bid the hogs 50 cents a hundredweight higher than the packers' highest bid, and of course bought the hogs in the name of the association. These five cars of hogs were shipped to Los Angeles and offered to all the packers in the city, with the result that a price was secured which netted the association over $100 per car more than the price they paid for them.

The members of this same association are the pioneers in working out a plan for the establishment of stock yards in Los Angeles city. With the aid of the local representative of the live stock division of the bureau of markets, United States department of agriculture, an offer of suitable yardage space on one of the transcontinental railroads, with facilities for switching cars to other railroads provided, has been secured. The approval of the packers to this plan has also been promised.

It is intended to start the stock yards with the sale of hogs only. Two cars daily for the first week, and if success crowns their efforts each subsequent day will record an increase in the receipts until the maximum required for local needs has been reached. There are many members of this association now feeding cattle as well as hogs, who intend to market their cattle when finished in the new stock yards. "Large oaks from little acorns grow" starting in this small way and growing as the demand warrants the growth, first, receiving hogs only, later expanding to take in cattle and eventually lambs and sheep, as well as feeders, and all classes will be included.

Prognositicators have pointed out how the "octopus", the packers who have two representative killing establishments located in Los Angeles, will, if they so desire, crush to atoms the best formed plans that are intended to help the producer if it is found to work an inconvenience to them. Those and other pitfalls have all been considered. It is well known throughout the entire country that the packers (better known as the "Big Five") have an organization second to none in size and efficiency and are powerful factors in the meat industry. It is also well known that only one method can be applied in dealing with their huge organization and that is to be thoroughly organized as producers, modeled after the plan of their own organization. When it is demonstrated to the packers that their supplies of live stock that are necessary to keep their plants supplied with material to carry on their business are to be obtained through one or more of the associations of producers only and that these associations are not formed with the intent to work as a detriment to the packer but to benefit all connected with the industry, they will undoubtedly accept the inevitable stoically.

Other associations of live stock men are being formed and other counties are seeking admission to membership in those already formed, and it is but a matter of a short time when the entire southern half of the state of California will be organized, that will include fully 90 per cent of the producers of live stock.

Investigation has brought out the fact that it costs the packers from a dollar to two dollars each for every head of live stock secured by their buyers in the country. It is needless to say that they would welcome an opportunity to eliminate this cost to secure their stock. Their buyer is compelled in most cases to buy certain classes and grades of stock that do not meet the requirements of their regular trade, in order to secure their ordinary needs, especially when the producer whose stock consists of various classes refuses to sell less than his entire holdings. This disadvantage is also corrected in established stock yards, where each class of stock is graded before it is offered for sale, thus allowing each purchaser to choose and bid on just the variety suited to his needs.

Another, and a very important feature in the formation of stock yards, the financial support, has not been overlooked. Among the membership of the California Farm Bureau Marketing Association are men of high financial standing whose holdings of both land and live stock entitle them to extensive credit, who have declared their intention to support the cause on to success. Present plans are to form a stock company composed of the members of the association who ship their stock to the yards. A canvass among the membership has brought out the fact that the success of the undertaking will not be retarded by lack of financial backing.

Stock now arriving in carload shipments from the country points are weighed in at the packers' yards, without a fill, which is a distinct disadvantage to the producer. With stock yards established it is intended that all stock shall be fed just as it is done in the larger yards of the central states. It is said that during the early part of 1913 a few unscrupuolus, money mad real estate land sharks exploited a scheme that terminated in a stock yard proposition. A stock company was formed of men that knew nothing about live stock but whose sole intention was to "get rich quick" at the expense of those legitimately connected with the live stock industry. Their commercial career was short lived, but unpleasant thoughts and suspicion remained in the minds of both the slaughterers and the producers on the subject of stock yards even up to the present time. That the producers would weigh carefully all the points involved in the new project before progressing with their plans, goes without saying.

When the tentative plans of the association were laid before the local packers they too frowned upon them The packers did not hesitate to enumerate many supposed disadvantages of such a scheme.

It is common knowledge that some of the largest stock yards in the central states are either owned outright or are controlled by the "big five" packers. From the producer's standpoint this is not considered good policy, but the question is asked, will the local packers enter into the scheme wholeheartedly and give their entire support to the establishment of stock yards that they do not dominate. This question will not be fully answered until all of the plans of the association are carried out and it is demonstrated to the packer that the entire meat producing industry is to be benefited from the breeder to the distributor.

Pure Feed Bill Up to Governor

Senate bill No. 93 entitled "An act to define commercial feeding stuffs and to establish a standard therefor, providing for the branding and labeling of same . . . and providing penalties for the violation of same" will become a law and operative November 1, 1919, if Governor Stephens signs the bill passed by the senate and the assembly. The live stock interests of California will then have the protection they have sought for a number of years and will no longer be at the mercy of unscrupulous manufacturers and dealers of feeds.

The bill which was introduced, in the senate by Rigdon and in the assembly by Cummings, at the instance of the California Swine Breeders' Association and indorsed by each live stock organization, had a rather stormy and uncertain trip through the legislative mill at Sacramento. On one occasion it was passed by the senate after it had been so amended that it meant nothing to the purchaser of mixed feed. It was later amended in the assembly to provide real protection and in this form was subjected to several attacks before it received the final O. K. of the senate.

The principal provisions of the bill are as follows:

Section 1. The tern "commercial feeding stuffs" shall be held to include all feeding stuffs used for feeding live stock and poultry except the following:

(a) Whole seeds or grains.

(b) The unmixed meals made directly from and consisting of the entire grains of corn, wheat, rye, barley, oats, buckwheat, flaxseed, Kafir, milo, and light rice; provided that light rice shall be labeled "light rice" when ground.

(c) Whole hays, straws, cottonseed hulls and corn stover when unmixed with other material.

(d) All other materials containing 60 per centum or more of water.

Sec. 3. Every lot or parcel of commercial feeding stuffs sold, offered or exposed for sale or distributed within this state shall have affixed thereto a tag or label, in a conspicuous place on the outside thereof, containing a legible and plainly printed statement in the English language, clearly and truly certifying:

(a) The net weight of the contents of the package, lot or parcel;

(b) The name, brand or trade mark;

(c) The name and principal address of the manufacturer or person responsible for placing the commodity on the market;

(d) The minimum per centum of crude protein;

(e) The minimum per centum of crude fat;

(f) The minimum per centum of crude fiber;

(g) The minimum per centum of ash;

(h) The specific name of each ingredient used in its manufacture;

(i) The per centum of such ingredients as corn cobs, corn bran, oat hulls, barley hulls, rice hulls, ground light rice, alfalfa meal or similar materials, when such constitute a portion of the package, lot or parcel;

(j) In the case of poultry feeds, the per centum of grit or mineral matters they contain.

Sec. 5. Commercial feeding stuffs shall be deemed adulterated if they do not conform to analysis declared on the label or tag.

Sec. 6. Commercial feeding stuffs shall be deemed mislabeled if they are not labeled or tagged in accordance with the provision of Section 3 of this act.

Live Stock News Notes

Tulare Poland-China Breeders Active

Poland-China hog breeders in Tulare County will form an association devoted to their interests. Regular meetings will be held after the organization is completed, to take up matters relating to the improvement of hog breeds in the county. The organizers of the new association will also hold a series of consignment sales of pedigreed Poland-Chinas and seek to induce more ranchers to improve their stock. Hog raising has been developing rapidly in the section, as the skim milk from the extensive dairy ranches has offered an excellent food supply and dairymen are now figuring that their skim milk is worth from 40 to 50 cents per 100 pounds on the ranch, for hog feed. Among the prominent breeders interested in the organization are King C. Gillette, of Lindsay; E. P. Fay, J. T. Boyd, John Hummel and J. K. Macomber of Tipton; Robert Smith of Pixley and J H. Hauschildt, H. S. Shinn and R. F. Guerin of Tulare.

Stock Pavilion at Tulare

Contracts have been let by the Tulare Live Stock Association for a sales pavilion and stock sheds to be erected during the next two months on property owned by the association



FOUR JERSEYS, FULL SISTERS—ALL PRODUCERS

The accompanying photograph shows a breeding example that is worth the attention of all cattle breeders and dairymen because it points out the value of a good sire through the evidence-producing Babcock test. St. Mawes was a great sire because he was capable of getting high producing daughters which fell into the hands of men who believed in the official yearly test.

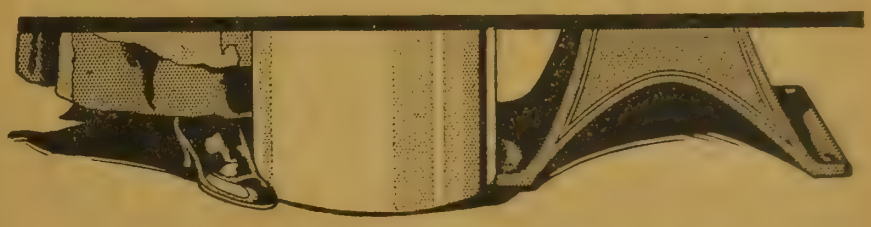
St. Mawes has 20 daughters in the Register of Merit, with a yearly average of over 500 pounds of fat. One of his daughters, St. Mawes' Poppy, made three official yearly records, the highest of which was 952 pounds. Four of his daughters, shown here, are all by him out of the same dam, Susy of Forestdale, and the average production for six R. of M. records is slightly over 600 pounds of fat.

St. Mawes went the way of many good bulls—the beefsteak route, before he had a chance to prove his worth, but his record may encourage other breeders to test cows in order to discover not only the best females but the proper sire. Discovering a good sire is like finding a buried treasure on the farm.



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can't afford to use a second or third grade CREAM SEPARATOR



Get a DE LAVAL

Many users make the mistake of "saving" $10 or $15 in the first cost of a cream separator. More of them continue the use of an inferior or half-worn-out machine simply because it still separates.

These users fail to consider what it means if the separation is not complete; if the capacity of their separator is so small that it needs to be run longer; if it is out of order a good part of the time, or if the quality of the product is not the very best it could be.

They fail to realize what a very little difference means in the use of a cream separator twice a day every day in the year, and what a difference it makes in first cost whether a machine lasts three or fifteen years.

All these differences led to the great majority of experienced users buying De Laval machines when butter was worth 20 cents a pound, and they mean just three times as much when it is worth 60 cents a pound and when every minute of time saved is worth so much more than it was a few years ago.

De Laval superiority over other cream separators is no uncertain quantity that cannot be seen or measured. On the contrary, it is capable of demonstration to every separator user, and every De Laval agent is anxious for the opportunity to demonstrate it.

If you don't know the local De Laval agent, write to the nearest De Laval office as below and we shall be glad to put him into prompt communication with you.

Over 2,325,000 De Lavals in Daily Use

De Laval Dairy Supply Co.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

ALPHA GASOLINE ENGINES
IDEAL GREEN FEED SILOS
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EVERYTHING FOR THE DAIRY

Catalog of any of these lines mailed upon request

61 Beale Street San Francisco

The Great Dispersal Sale

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Famous Herd

Two Hundred Registered Holsteins

On Their Farm, Five Miles South of Chino

Wednesday and Thursday

May 21 and 22---9 a.m.

It makes no difference what they bring, every animal will be sold

They go into the ring our cattle and come out yours. Nothing held in reserve. That they will sell for less than their value is a mortal cinch. This is the greatest bargain sale ever held in Holstein Cattle, and your opportunity to buy them at your own price. The Catalog is now ready. Send for it TODAY.

Ninety Great Heavy-Producing Cows

5 with records over 30 pounds butter in seven days
28 with records over 25 pounds butter in seven days

A Few of the Great Animals to be Sold

K. P. Idyl Segis	Butter	7 days	35.66
(State Records) four years old	Butter	30 days	132.05
K. P. Tola	Butter	7 days	34.03
Allenvail Pauline Walker	Butter	7 days	32.18
Four years	Butter	30 days	119.64
Lady Briens Aaggie 2d	Butter	7 days	31.42
Three years			
Wavelet Segis	Butter	7 days	30.28
Lillith Lyons Pauline Segis	Butter	7 days	29.30
Allenvail Mary Walker	Butter	7 days	28.73
Three years (first calf)			
Westview Aaggie Colantha	Butter	7 days	28.56
Three years			
Orndyke Duchess Korndyke	Butter	7 days	27.83
	Butter	30 days	112.85
Etta Changeling Wildwood	Butter	7 days	27.04
State record when made	Butter	30 days	109.23
Allenvail Clothilde Walker	Butter	7 days	26.89
Three years, State record when made			
Korndyke Segis Star Rena	Butter	7 days	26.66
	Butter	30 days	107.83

Seventeen others, over 25 pounds of butter in seven days. Mostly bred to "It," son of the first cow in the world to make over 37 pounds in seven days and over 1250 pounds the one year. What will their calves be worth? Ask yourself that question.

Daughters of King of the Pontiacs, King Segis DeKol Korndyke, "It," King Segis 11th, King Korndyke Sadie Vale 27th, King Korndyke Sadie Vale 22d and other famous sires; a daughter of Valdessa Scott 2d, 41.88, the first 40-pound cow of the breed!— the first time a daughter of a 40-pound cow has been offered at public sale in the West.

SIXTY SWEET HEIFERS, six out of 30-pound cows—daughters of King Korndyke Sadie Vale 22d and St. King Korndyke Sadie Vale 27th.

Bulls! Bulls! Bulls! Forty of Them!

The greatest, most stupendous and unparalleled opportunity ever offered breeders and dairymen in the West to buy herd sires at twenty-five cents on the dollar.

"IT" Will be Sold

King Paul Korndyke Vale, a 31-pound son of King Korndyke Sadie Vale will be sold.
King Winnie, a son of a 1200-pound yearly record cow, will be sold.
Prince Gelsche Korndyke Segis, a son of Prince Gelsche Walker and from the same dam as the $3100 heifer, will be sold.
Two Sons of "It," from Star Rena Wayne Pietertje 2d, a 34-pound three-year-old daughter of a 29.93-pound cow, will be sold.
Two other bulls from 31-pound dams, not to mention some thirty-five others.

Don't Forget the Days, May 21-22

Headquarters, Angelus Hotel, Los Angeles

Free automobiles will leave Angelus Hotel at 7:00 o'clock on the morning of the sale and at 1:00 on the afternoon before the sale, for the ranch

CHARLES L. HUGHES, Sacramento, Sales Manager
COL. B. A. RHOADES and HAROLD B. RHOADES, Los Angeles, Auctioneers

Not Tuberculin Tested. Guaranteed to Be Breeders

McAlister & Sons

Chino California

on the state highway at the outskirts of Tulare. Accommodations will be provided for 120 head of cattle and 150 head of hogs in two separate buildings. With the completion of the buildings the association will open a series of consignment sales of dairy and beef cattle and of pedigreed hogs of various types. In the fall the association will present its first county agricultural and live stock fair, with a week of displays of agricultural products and pedigreed live stock and the buildings planned are to be the first units of an extensive fair grounds to be arranged during the next year. Dairy cattle will be a feature of the sales and displays as the section is rapidly developing as a butter producing center, the butter fat payroll at Tulare last month reaching to $196,-910.62.

State Record for Milk and Butter

A new state record for combined milk and butter production was made at Tulare last week by the Holstein-Friesian Dora Walker, when the senior two-year-old produced 664.4 pounds of milk and 24.144 pounds of butter in an official seven day test, conducted under the supervision of the University of California. On her best day the heifer produced 99.7 pounds of milk and 4.24 pounds of butter. The seven day record is said to be the second highest in the world. The test was conducted at the Higdon Holstein Farm and the animal was under the direct care of H. L. Higdon's expert herdsman. The Holstein is the property of Mrs. Annie Donders of Fresno who sent the animal to the Higdon Ranch for the test. A remarkable feature of the record is that the heifer had given birth to two calves during the previous ten months and made the test after a rest of only six weeks.

Farm Bureau Hog Auctions

Farm bureau hog auctions, as developed in Tulare County during the past year have proven an unqualified success, according to C. M. Conner, country farm adviser, and the presidents of the local farm centers, which had direct charge of the sales. During the year farmers in the county sold through this method $580,000 worth of hogs, or nearly half of the total shipments made. Sales are held twice each month on regular days at the various farm center headquarters, and while at the earlier sales only two to three cars of stock were disposed of, the shipments from each center during recent months have run from seven to ten cars. As high as $18.40 has been paid at the sales and the prices during the entire time since the method of selling was adopted have run high. The county farm bureau is a member of the California Farm Bureau Marketing Association and the sales are conducted under the direct charge of J. H. Bittner of Bakersfield, general manager for the state organization. Except for a six weeks' period, the commission charged to the producer for selling his stock has been one per cent, two per cent being charged for the short period. Buyers are largely representatives of packing houses in San Francisco and Los Angeles, and the number of buyers has shown a steady increase with each succeeding sale, so that bidding has been more brisk and the prices paid range higher with each later sale. An attempt was made to auction beef cattle in the same way, but difficulties in grading the stock so that it could be sold in car lots made the sales less successful and they have been abandoned.

Guilford Buying Shropshires

W. S. Guilford of the Butte City Ranch is in Oregon for the purpose of selecting a choice lot of Shropshire lambs. Guilford is accompanied by George Phillips, shepherd at the University Farm. Guilford states that there is a very keen demand for Shropshires throughout the Sacramento Valley and that many farmers operating small tracts are finding sheep highly profitable adjuncts to their ranches.

Lendorris Polands

Lendorris Ranch, Hanford, reports the sale of a young boar by Kings Big Bone Leader and out of Grangeville Maid to the Ehmann Olive Company, Oroville.

In a letter to W. L. Haag & Son, owners of Lendorris Ranch, they state that the bred sows and gilts secured from them early in the year have proven so satisfactory that they had decided to purchase this boar to place at the head of their herd.

Witherow Selling Durocs

Greenwood Farm, H. C. Witherow, owner, Live Oak, reports the following sales: Boar pig to R. G. Sexton, Live Oak; sow pig to Harvard R. Gaines, Anderson; boar and sow pigs to C. E. Reische, Meridian, and boar pig to W. T. Bandy, Biggs.

These pigs were sired by Johnson's Defender Jr., by Johnson's Defender, junior champion at the 1917 state fair and out of the grand champion sow at the same show.

More Eastern Durocs to California

Clayton Slocum, Jr., member of H. P. Slocum & Son, Duroc-Jersey breeders of Willows, reports the purchase of the following animals on his recent trip East:

From McKee Bros., Versailles, Kentucky, he secured the aged boar, Experimental Defender, a son of Defender and out of a Proud Advance sow. Mr. Slocum states this boar has been siring some of the best animals found on the McKee farm. Another is Uneeda McKee's Defender, farrowed in May, 1918, and sired by Highland King Defender. Fourteen sows also were secured from McKee Bros., all by sons of Defender.

From Ira Jackson, Tippecanoe City, Ohio, he secured four sows by Prince Orion, Jr., by Orion Cherry King Jr., grand champion boar at the 1916 National Swine show.

From Ray Emley, Wiser, Nebraska, he purchased two Grand Model sows and the boar Sensation Wonder 1st by Top Sensation and out of a Col. Gano sow. He also purchased three sows from Mayfield Farm, Lexington, Kentucky.

There are now on the farm about 150 pigs of spring farrow with ten sows to farrow in the next few days.

Recent sales include seven head for shipment to the Philippine Islands.

Tulare Swine Breeders Organize

On Wednesday evening, April 30, Poland-China swine breeders of Tulare County met at a banquet at the Hotel St. Maxon, arranged by the Tulare Board of Trade, and organized a county association of 25 members, electing officers and deciding to hold a full consignment sale at the pavilion of the Tulare Live Stock Association. The date for holding the sale was left to the board of directors, who will also appoint an inspection committee to pass on all stock offered for the sale. During the progress of the meeting various breeders offered 25 head of their choicest stock for the opening sale. The breeders in attendance manifested the greatest enthusiasm for the future of the breed in Tulare County and discussed extensive plans for advertising their stock and the county as a production center.

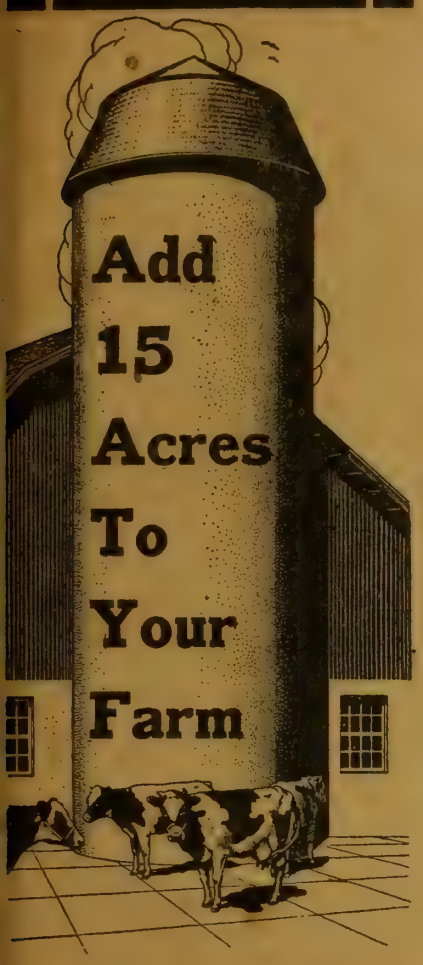
The officers elected are R. F. Guerin of Visalia, president; H. C. Shinn of Tulare, secretary; directors, F. E. Fay, Tipton, A. J. Elliott, Tulare, J. K. Macomber, Tipton, J. H. Hauschildt, Tulare, W. E. Martin, Visalia. The directors will meet shortly to draw up by-laws, appoint committees and set a date for the fall sale.

Tulare's Stock Shipments Increasing

During the past year live stock shipments in Tulare have developed from $200,000 per month to $300,000, largely due to increased production of hogs in this section. At the present time there is intense but friendly rivalry between the red and black hog men as to the respective merits of their breeds, and both groups will hold sales during the next few months, the Duroc and Poland-China association members each claiming that they will make the most notable showing in quality and price for the stock disposed of at auction. The large supply of skim milk from dairy herds and the supply of home grown feeds, aided by the better quality of stock bred is said by ranchers to be the cause of the increased shipments.

Pure Breds Sold

T. J. Gist & Sons of the Holberk Stock Farm of Tulare report the sale of ten head of young registered Holstein bulls to the following: M. Curti,



A 100-Ton Concrete Silo will do it

In no other way can you so greatly increase the stock-raising and feeding capacity of your farm at so little cost.

Many silos have paid for themselves in one season. After that they pay 100 per cent profit yearly.

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California Poland Futurity Fills

The necessary entries for the Poland-China Futurity Show to be held at the California State Fair under the auspices of the American Poland-China Record Association have been secured. According to the secretary 23 herds have been nominated and it is expected that all will compete.

The interest in these futurity shows is increasing each year and breeders look upon the futurity as one of the best means of stimulating the proper development of pigs.

Will Sell Shorthorns This Fall

Dr. H. M. Elberg of Woodland, proprietor of the Roselawn herd of Shorthorns, announces that he is planning to hold a public sale this fall. The Roselawn herd is one of the pioneer collections of Shorthorns in California, having been established a good many years ago by the late T. B. Gibson. The herd has always been maintained on a high level and has been the source of many cattle that have been factors in the cattle industry of the state. The proposed sale will be looked forward to with a great deal of interest.

True to Judge Island Fair

Professor Gordon H. True, head of the animal husbandry department of the University of California, has accepted an invitation to officiate as judge at the forthcoming Territorial Fair to be held at Honolulu. Professor True judged the same fair last year and his work was of such a high order that the management insisted that he return this year. He will leave the latter part of this month.

Pacific Coast Jersey Records

Among the five leading Jersey cows in each of the eight classes that were accepted by the American Jersey Cattle Club for the month of March, 20—exactly half—were Pacific Coast owned cows, and if one in Montana and one in New Mexico are counted the West makes a most unusual showing. Furthermore of the eight classes, five are headed by Pacific Coast cows.

Record Angus Sale

One of the most notable Angus auctions ever held in this country occurred April 15 and 16 when F. J. Roberts of Atlantic, Iowa, sold 87 head of bulls and females for an average of $1401. Epitos, a former International champion, sold for $15,200, and the cow Blackcap 72d sold for $6050.

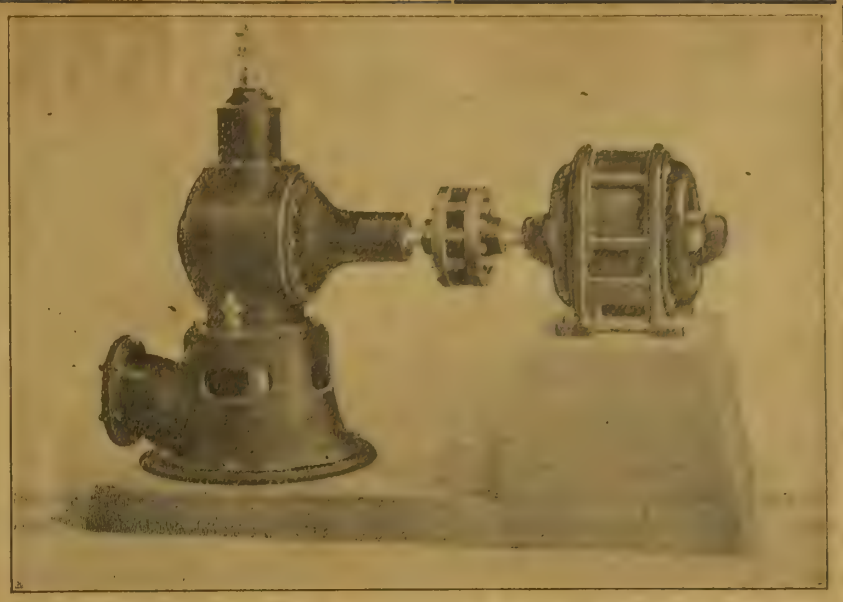
NEED FOR GUARDING AGAINST FOOT AND MOUTH DISEASE

A recent outbreak of foot and mouth disease in England, now believed to be confined to the immediate neighborhood, is cited by officials of the bureau of animal industry, United States department of agriculture, as an illustration of the virulence of the malady and how the most aggressive steps toward its control are necessary. The experience in England is a reminder of similar outbreaks in the United States. This country is now free from the disease, but all persons are urged to be eternally on guard and ready to report any suspicious cases to government officials.

As soon as the disease was confirmed on January 9 by the board of agriculture of Great Britain, an area of 30 miles surrounding the infected district was quarantined, and no animals or straw, fodder, hay, manure or similar products were allowed to move in or out of the quarantined territory.

Diversified farming should become more general, to the end that each farm shall produce the necessary food for its family and the necessary feed for its live stock.

Put quarters which might be spent foolishly into War-Saving Stamps; back up yourself with cash and back up your Government in cleaning up the war.



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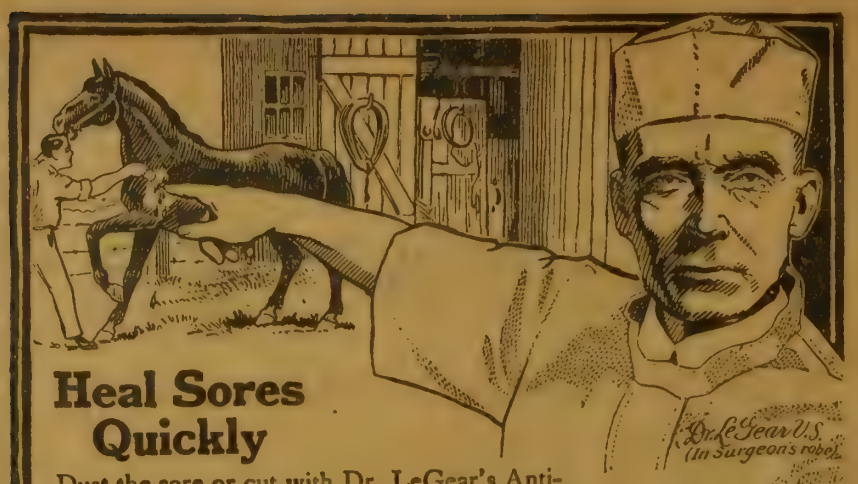
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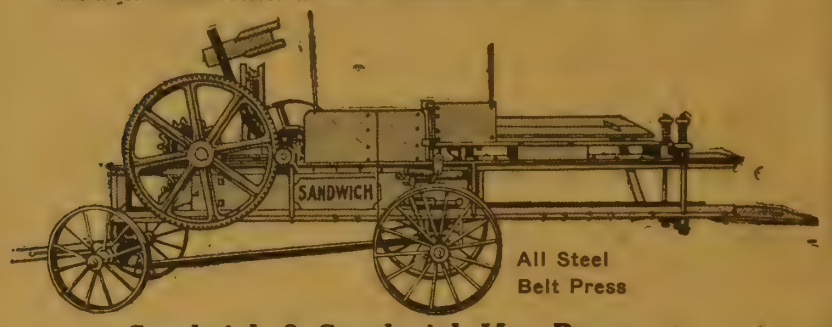


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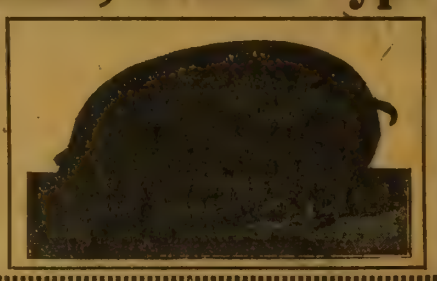
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Do Cow Testing Associations Pay?

By J. A. Robson

THE opening of the year 1919 sees the dairymen of the North California coast section lined up in favor of the cow testing associations, two such organizations having been formed in Humboldt County during the month of February. The Ferndale Cow Testing Association, organized by the dairymen of the Eel River Valley in 1909, and the first association of its kind in California, has rendered a remarkable service during the past ten years, and the carrying off of many of the prizes by Humboldt dairymen in the state contests of recent years is attributed directly to the Ferndale organization. The two new organizations designed to carry on this good work are the Arcata Cow Testing Association and the Requa Cow Testing Association, serving the interests of the dairymen of the Arcata bottoms and the Klamath River sections respectively.

The two most highly developed dairying sections of Humboldt County are the Eel River section, said to have more cows to the square mile than any spot in the world, and the Arcata district, comprising the rich bottom lands lying between Eureka and Arcata and along the stream beds of the Mad and Little Rivers. The dairymen of this latter section have hitherto been served by the Ferndale Cow Testing Association, a certified tester being sent once each month to test out certain of the herds. This necessitated a drive of 35 miles from headquarters, and the result was found unsatisfactory to the Arcata owners because of the fact that the credit for their prize winning herds went to the Eel River section by virtue of the fact that the cows were entered by the Ferndale Association. It was accordingly deemed advisable to form a separate organization which would be able to serve not a few but all of the dairy farms in the Arcata district.

Frank Falor, who has recently been doing cow testing work near Sacramento, was engaged to do the testing by the following board of directors at a meeting held in Arcata February 19: Daniel Turner, chairman; Iver Iverson, Vinol Hunt, James Kirkpatrick and Joe Ramos. There are already 1500 cows signed up for testing and active work began on the first of March.

The following are the officers of the cow testing association formed in Requa in February: P. C. McBeth, president; J. R. McMillan, vice president; E. C. Lockwood, secretary; A. W. Green, treasurer; directors, M. Delponti, Paul Bravo, Mrs. Peirri, Mrs. Von Albensleven and Mrs. McMillan. This organization already has 800 cows signed up for testing. Work is expected to begin the early part of March, word having been received from the agricultural college at Davis that a tester had been secured.

The dairymen of the Humboldt section are ardent advocates of scientific testing for butter fat as it has already been proven that the success of dairying from a financial standpoint depends entirely upon this point. The effect of the Ferndale Association has been to weed out the "boarders" from the herds with a subsequent improvement of the blood of the herds. Following the findings of the testing association, the Humboldt County Dairymen's Association has urged the using of pure bred sires in bringing up the standard of the herds until today some of the finest herds of Jersey, Guernsey and Holstein-Friesian blood are to be found in this section. No less an authority than Hugh Van Pelt of the Waterloo Jersey Farms of Iowa spoke of the Humboldt district as the coming Isle of Jersey. That this prophecy may be realized in the not distant future is indicated in the fact that the value of the dairy products of Humboldt County for the year ending September 30 approximated $6,000,000, with second place accorded by the state dairy bureau for butter production with a record of 5,717,406 pounds.

While this region is a natural dairying country, with green pastures practically 365 days in the year, the success which is piling up fortunes for Humboldt dairymen is due in no small measure to the fine spirit of cooperation existing between men of widely differing nationality and the scientific basis on which their business is conducted. The large creamery plants of the district take care of the market end of the business, the problem confronting the dairyman being how best to market his crops through the medium of his cows. The construction of modern silos, proper feeding and housing condition and the breeding of pure blood stock are some of the things that make cows in Humboldt pay.

FOR AN ANNUAL LIVE STOCK WEEK

Representatives of the California Cattlemen's Association, the California Swine Breeders' Association, the California Wool Growers 'Association, the California Jersey Cattle Club, the California Poland-China Association, the Western Berkshire Congress and the Pacific Coast Hereford Breeders' Association met at the University Farm April 26 and discussed the advisability of holding an annual live stock week at the University Farm.

It was the unanimous opinion that such a week would prove of great benefit to the live stock interests and it was decided to urge the University authorities to inaugurate such a plan. It is expected that such a week would provide a rare opportunity for each of the various associations to hold their meetings and sales and to discuss and solve their mutual problems.

Professor Gordon H. True stated that he felt sure the University would welcome such a plan and be more than willing to invite men of national prominence to meet with the local interests.

The time for holding these meetings was left open until all concerned could reach a decision that would be satisfactory to all.

HAMPSHIRE SECRETARY TOURING CALIFORNIA

E. C. Stone of Peoria, Illinois, secretary of the American Hampshire Swine Record Association, is visiting the breeders of the state and making a careful study of the live stock possibilities of California.

Stone is enthusiastic over the outlook for Hampshires and predicts that the fall shows will bring out the greatest line-up ever seen on the Coast.

Stone is of the same opinion voiced by many Eastern live stock experts that when once this state really hits its stride other live stock sections of the United States will need to look to their laurels.

"California has tremendous advantages over any section I am familiar with," Stone said. "Out here you can grow in abundance the kinds of feed needed, and your live stock can grow every day in the year. And for those reasons you can get more size for age than Eastern breeders."

DEPOSIT YOUR SORGHUM CASH IN SILO BANK

G. S. Ray of the Colorado agricultural college says a sorghum crop when put in a silo will yield interest like money in a bank. Here are his reasons:

"Silage is the most economical form in which to utilize sorghums.

"Sorghums are more productive than corn in many of the plains counties.

"Sorghum silage ranks next to corn silage in feeding value.

"Sorghums have a great resistance for dry weather and drouthy conditions.

"Sudan grass, amber sorghum, kafir, milo, and feterita may all be siloed.

"Soil for sorghums should be prepared the same as for corn.

"Sorghums are a hot weather crop and require a warm soil before planting.

"Seed sorghums in rows so as to permit cultivation.

"Sow six to ten pounds of seed per acre.

"Silo sorghums when the seed is mature."

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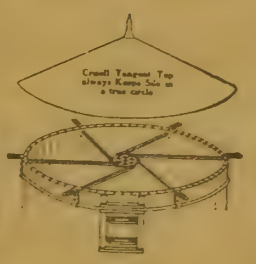
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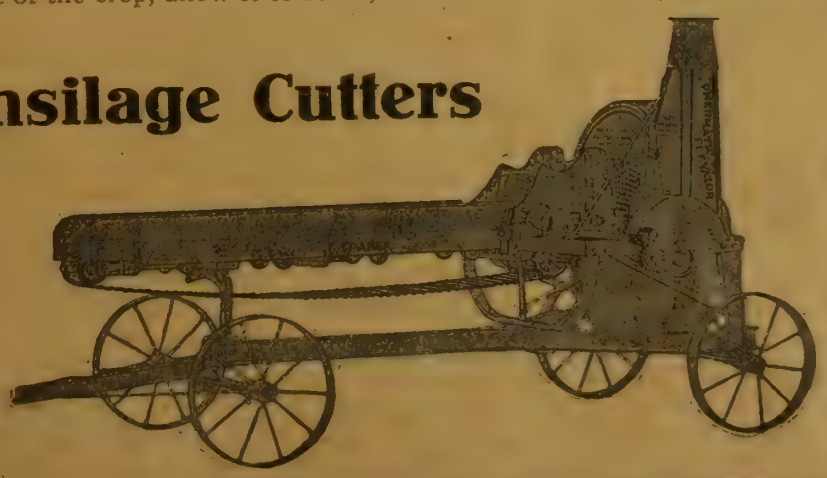
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We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

Poland China and Berkshire Boars

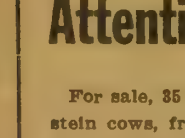
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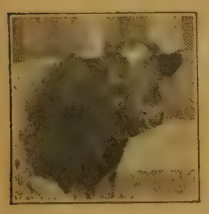
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What is a Shorthorn Bull Worth?



If a registered Shorthorn bull during his life sires 100 calves worth $50 more per head than calves from the same dams by a scrub bull he is worth $500. If they sell for $10 more he is worth $1,000. If $20 more, he is worth $2,000.

But suppose they sell for $50 more—what is he worth? He is actually worth $5,000 in gold.

It will pay you to use a high class Shorthorn bull. He will cost much less than his value.

You get paid for quality and pounds both at the beef markets. Many a 1,600 pound Shorthorn cow yields from 7,000 to 10,000 pounds of milk per year.

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For sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.

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Some of the finest

GUERNSEYS

in the West are at

Hollow-Hill Farm

Colton, Cal.

Only Bull Calves For Sale

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The Monroeville Berkshire Sale

The sale of Berkshire pigs at the Monroeville orchard of the Superior California Lands Company on Thursday, May 1, 1919, was a successful event. While the prices were low, considering the quality of the offering, the sellers were satisfied and the buyers bought the animals at bargain prices. An opportunity to buy Berkshires of the best breeding at little better than pork prices was overlooked by many farmers, but those who were fortunate enough to be there were the gainers. Although the crowd was small, all of the hogs offered were sold.

Sixty-seven head brought $1449, an average of $21.62. The benefit of this sale to the industry in this district will be very great, because the animals sold went to a lot of good herds. The sale was conducted by Chas. L. Hughes of Sacramento and Col. Rhoades of Los Angeles. The buyers were C. L. Leonard, Chas. Glenn, Frank Glenn of Glenn, G. A. Murphy of Sacramento, Anchorage Farm, Orland; A. Plato, Willows; Elder Creek Ranch, Tehama; E. H. Cameron and H. A. Marchand, Willows.

Two Great Records Made at Higdon's

Harry L. Redd, herdsman for W. J. Higdon, Tulare, California, is setting a fast pace with the good registered Holstein cows under his care and has developed two more splendid record makers. The first of these is Betsy Lamb Prilly, owned by H. E. Vogel, Fresno, and sent over to Higdon's place to be put on test and then bred to the $6500 bull King Korndyke Pontiac 20th. It will be remembered that this great young cow made over 32 pounds butter in seven days last year as a four year old. This time she came back with an official record of 35.03 pounds butter from 743.3 pounds milk in seven days.

The second big record was made by the great heifer Coloma Beauty Butter Maid, who made 34.77 pounds butter from 576.3 pounds milk in seven days as a junior four year old, second highest record in state in class. It will be remembered that Mr. Higdon purchased this heifer in the 1917 Guaranty Sale at Sacramento from his neighbor Alex Whaley of Tulare, who bred the heifer and made a record of over 19 pounds butter with her as a senior yearling. Her dam is Coloma Johanna Hartog, a 28.63 pound daughter of King Pietertje Hartog, who was purchased in the same sale by McAlister & Son, Chino.

Another nice record just made in the Higdon herd is that of Lady Pontiac Holingen Jewel, a junior two year old daughter of King of the Pontiacs 14th. She made 21.90 pounds butter from 463.4 pounds milk in seven days.

More Good Shorthorns to California

In a recent letter from W. M. Carruthers, who is now in the East visiting the leading breeders of Shorthorns, he states that he has selected a number of choice young bulls that he will bring West. One, a white senior yearling by the C. F. Curtis bull, Knight Avon, and out of a Ury dam, is said to be an exceptional herd bull prospect. His sire stood second in the aged class at the last International. The calf is a grandson of Count Avon, sire of Carruthers' former herd bull, Count Glory. Two sons of the well known Tomson bull, Maxwalton Rosedale, were also selected. One, a red, is a full brother to Rosenthal's and Howell Rees' herd bulls. He is from a Victoria dam that is rated as one of the greatest living herd bull producers. The other is a roan from the same dam as the two year old heifer shown successfully last year by the Ormondale Company of Redwood City.

A fourth calf, and an exceptionally well bred one, is by a son of Fair Acres Sultan and out of a Jilt cow that produced the grand champion cow shown by Carpenter & Ross at the 1916 American Royal.

Carruthers also selected a son of Beaver Creek Sultan, and out of an imported Bruce Clara dam. Beaver Creek Sultan is counted one of the good bulls of the Middle West.

The Shorthorn interests of this state will be greatly strengthened by the acquisition of such popularly bred bulls. It is probable that some of the bulls will be offered as attractions in the sale Carruthers will hold July 10.

Grade Holstein Brings $400

The James McGillivray sale of Holsteins held at Sacramento was more than a sale—it was a demonstration of what can be accomplished when sound dairy practices are applied in a persistent and common sense way. If every dairyman in California who is using a grade bull or an inferior pure bred could have been at the ring side he would have been given one of the most convincing lessons possible and so plain could the lesson have been made that what they learned would have been worth much to the dairy interests of this state. The whole sale was proof positive of the value of good sires.

For over 15 years McGillivray has been using high class pure bred bulls in his herd. During the same time he has been developing a herd of pure breds. With both pure breds and grades he followed the practice of carefully testing and culling, keeping only his best heifers.

From year to year the herds grew and finally the point was reached when all grades could be replaced by pure breds—hence the sale.

But the interesting point in connection with the sale was the selling of a grade cow for $400; 10 grade cows for an average of $330; 25 for an average of $262 and 100 head for an average of $177.50; 154 for an average of $161 and 230 head, including many heifers and calves, for an average of $142. Six grade daughters of the famous bull King Mead of Riverside averaged $331. Fourteen registered Holstein bull calves were bargains at $240 each.

When 100 grade cows can be sold for an average of $177.50 there must be a reason. Of course there is a very active demand for most any sort of cows, but the difference between $125 cows and $177.50, $262, $330 and $400 cows can be traced to the use of good bulls. Need more be said?

The sale, which was one of the most successful ever held in this state, was under the management of C. L. Hughes of the California Breeders' Sales and Pedigree Company of Sacramento, and Col. Ben A. Rhoades of Los Angeles sold the offering—part of the offering—for his son, Harold Rhoades, took the block in the afternoon and displayed most unusual auctioneering ability.

The principal buyers were: Smith & Blanchard and Walter Hauck of Chowchilla; Frank Guernsey, Stockton; J. Francis O'Connor, Santa Rosa; R. D. Jones, Woodland; William Watt, Napa; H. C. Muddux, Sacramento; Frank B. Anderson, Sacramento; H. L. Plyman, G. M. Plyman, Mrs. J. W. Herrington and T. A. Edinger of Hood; E. Coker and F. H. Harvey of Galt.

England is planning to award the order of merit for horses which have seen service in the war and are returned to civilian occupations. The Blue Cross fund will issue this recognition—a special badge, a design for which is now under consideration. It is hoped that it not only will distinguish those horses which have done their bit but also will serve as a reminder to their owners and drivers to accord them generous treatment.

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On the above date I will sell the most select offering of

Shorthorn Cattle

ever offered in the West. Practically the entire lot will represent the choicest of Scotch breeding. Watch for future announcements.

W. M. Carruthers

Live Oaks Cal.

Grand Champion Berkshire Blood

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SPLENDID COOPERATION AT DURHAM

One of the finest examples of true cooperative spirit ever brought to our attention was recently related by George C. Kreutzer, superintendent of the State Land Colony at Durham.

It is part of the plan of the settlers to give live stock a large place in their operations and at the outset it was mutually decided to adhere to one breed of dairy cattle and one breed of hogs. By following such a plan of community breeding it is expected that the colony will eventually develop as a recognized live stock center. The settlers formed a live stock breeders' association and elected to handle only Holstein cattle and Duroc-Jersey hogs.

So anxious were the members to get started, and finding it difficult at the time to secure the required number of cows, many began picking up a few head as they could be located. For the most part the start was made with one cow, although a few put in more.

Unfortunately, few if any of the cows purchased had been tested for tuberculosis. At one of the meetings held by the association the subject of tuberculosis came up for discussion and after thoroughly considering every angle of the problem it was unanimously decided that the colony would declare for clean cows, and that so far as possible no tubercular animal would find a place in any colony herd.

Having taken this stand, the members decided to find out whether any of the cattle then on the project were infected. Veterinarians from the university were called on to conduct the investigation and when the testing was through it was found that a surprisingly large percentage of the cows reacted.

Here was a rather unfortunate situation. The members of the colony had declared war on tuberculosis, little thinking that their cows were reactors. Many of the owners could ill afford to sacrifice their purchases, even though they owned but one cow. What was to be done?

A meeting was called of the live stock association. The facts were presented and it was explained that any action taken to clean up would necessitate a sacrifice. In view of the fact that most of the settlers were operating on small capital could they afford to take a loss?

They could and they would! To a man, every cow owner came out squarely for a clean up. First the one cow men and then the few who owned more.

A fine thing? Yes. But the type of settlers in the colony was capable of something finer. One member took the floor and declared that inasmuch as the colony believed in cooperative effort, and that it was known to all that few of them could stand to lose, and that a complete clean up was going to hit some of the members owning more than one reactor pretty hard, he would propose that the clean up be made a community effort and the losses occurring to the men owning more than one cow be prorated among all! And that is just how the situation was handled. A complete clean up was made, the various members stood the losses, and a new start was made.

That is the story back of the purchase of 21 tuberculin tested high grade Holstein cows and heifers at the auction held by the Napa State Hospital Saturday, May 3.

The Cultivator does not recall a finer example of cooperation than the above incident and we venture to predict that a body of men who are willing to work together with such community effort are capable of accomplishing great things and unless we greatly miss our guess that spirit will make eventually the Durham colony one of the most famous live stock centers in the West.

MEAT PRODUCTION IN 1918

Some interesting facts regarding meat production and consumption have been disclosed in a recent report of the bureau of animal industry. According to the report American dressed meat production, including lard, for 1918 amounted to 20,129,800,000 pounds as compared to the 1917 production of 16,137,300,000 pounds.

In 1918 more than 3,000,000,000 pounds of meat and lard were exported. In 1917 the United States consumed 14,500,000,000 pounds of meat and lard and in 1918 the home consumption amounted to 17,250,000,000 pounds.

The total number of cattle slaughtered last year is estimated at 15,750,400 as compared to 13,723,900 in 1917. In 1918, 69,854,700 hogs were marketed as against 57,483,000 in 1917. The average weight per head in 1918 was 9½ pounds more than the preceding year.

TO PROMOTE POLANDS

Wednesday evening, April 9, at the Travelers Hotel, Sacramento, the Poland-China breeders met to discuss and devise plans for the promotion of the breed the coming year.

Various plans were proposed, including public sales and the securing of funds for breed advertising.

The state was divided into several districts and President Bernstein appointed a breeder in each to solicit funds for this work. This committee will consist of Nate Hauk of Humboldt County, R. J. Yates, Glenn County, Mr. Beckman, San Joaquin, Hale I. Marsh, Stanislaus County, Fred Gatewood, Fresno County, Fred Hartsook, Los Angeles County, and Mr. Bernstein for Kings.

That sufficient interest in this fund might be secured, Hartsook headed the list with a subscription of $500. It was believed that a fund of at least $1500 could be raised and used to advertise Poland-Chinas as a breed.



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The efficient hog plant where C. B. Cunningham of Mills produces superior Chester White hogs. Note the splendid drainage and ample shade provisions. Each lot has a concrete feeding floor, water troughs and wallow. Good blood, efficient management and sanitary quarters are essential to successful hog raising.

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Prior to American occupation in California (1846) a ranchman near Cayucos erected a Redwood Tank on a tower of other wood. Since that time he and his son, who succeeded him, have put four towers under this same tank, replacing towers that had decayed.

Four years ago the owner built a redwood tower under this famous old veteran tank and both are now good for many years to come.

He also installed a Remco Redwood Silo.

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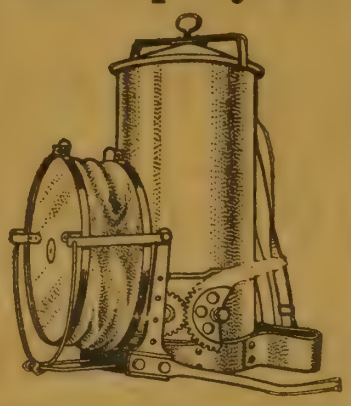
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What Kills My Hens?

By Jean A. Koethen

TWO letters which have come to me recently, and which are typical of a great many more, seem to demand a more detailed answer than is to be given in the query column. They relate to the mysterious deaths which so often occur in the poultry yard. A hen is seen to be ailing, droops a little, won't eat, probably has some diarrhoea, next day she is gone. What has taken her off so suddenly?

These cases may be grouped in three classes: The first contains those in which death is caused by cholera or some equally virulent contagious disease. These are very rare. I have never seen a case of cholera myself nor heard of one out of the books. Cholera has been known in California, but it is rare in all sections of America and may be dismissed as an explanation of death until every other hypothesis has been exhausted. Just one point as to symptoms of cholera. There is diarrhoea, as in practically all cases of indigestion, but the characteristic of the disease seems to be a yellow coloration of the excrement. Salmon says: "The earliest indication of the disease is a yellow coloration of the urates, or that part of the excrement which is secreted by the kidneys. This in health is a pure white, though it is frequently tinged with yellow as a result of other disorders than cholera. While therefore this yellowish coloration is not an absolutely certain proof of cholera, it is a valuable indication." Fowl cholera cannot be recognized with certainty except by a bacteriological examination, but the occurrence of a number of sudden deaths in a flock indicates the presence of an infectious disease. If the deaths cannot be explained in any other way a letter to Prof. J. E. Dougherty, University Farm, Davis, the Poultry Experiment Station, describing the symptoms fully may lead to a bacteriological examination, for cholera is so infectious and so deadly that it cannot be fought privately. When it is proved to exist every diseased bird must be promptly killed for there is no cure.

In the second class we may group those cases in which the eating of something unusual, and presumably poisonous, has deranged the digestion. Hens on range often have access to food of which their owners know nothing—it may be a dead chicken thrown out of some farm yard, a gopher or squirrel that has dropped dead from the effects of poison. Occasionally hens are poisoned by the arsenical sprays used for killing insects or the nitrate of soda used as fertilizer. When chickens die very suddenly their range should be investigated to make sure nothing of this sort is responsible.

The third class is by far the largest of the three—in fact it includes probably 90 per cent of these cases of sudden death. These are the cases in which death is not really sudden at all. The disease has been creeping on, unnoticed for a long time, and is not noticed till too late, or, it may be a long course of improper feeding has finally taxed the digestive organs to their limit, and there is a sudden collapse, violent diarrheoa and death. A good many poultrymen, I find, have a feeling that the constant use of barley, as we have had to use it the past two years, has not been good for the hens, especially when the barley is fed with all the hull. This rough fibre in the shape of barley hull is hard on the digestive organs at all times. If its use is continued too long, or barley is fed to the exclusion of other grain, a complete collapse of the digestion is not surprising.

The two letters I am going to quote relate to cases of this class. The first is from a Poway subscriber:

"I have a nice bunch of laying hens but they have been dying. I have lost four of my best hens and the fifth is sick. Their combs turn purple, and their bowels run, some greenish and some white. They die in two days."

In this letter we are told nothing about the ration the hens have had, except that they are on range, and so can only guess that they have had an unbalanced ration, very likely without any animal food except the little they pick up and most likely a good deal of barley.

The second letter is more explicit: "I am writing you hoping to get some relief from poultry troubles. Last year I lost 75 young chickens from roasters down to quail size, and 24 hens, after using all the remedies friends and neighbors suggested. All the young chickens died and all but one of the hens. We moved the chicken yard to other quarters and all seemed well for the nine new hens we bought. Now one hen is ill and I fear one chicken. They get droopy and have somewhat of a diarrhoea—droppings green with white mixture, do not eat but do not live long enough to get thin. I feed ground barley, wheat and wild millet(?), a sort of bird seed; they have access to barn and the best of green feed."

It is just possible, from the circumstance that the disease has appeared two years in succession, that it is infectious, but I would much sooner lay it to the barley, which, being ground, doubtless contains every bit of the hull, than to infection. It is also possible that lice or mites had something to do with the death of the 75 young chickens last year. Droopiness is the first indication that chicks are suffering from attacks of mites at night, and while mites do not cause diarrhoea they easily aggravate a case of mild diarrhoea into a fatal malady. I should give my coops this year immediate and persistent attention. Hose them out once a week with the garden hose and paint with crude carbolic acid diluted with kerosene or distillate in the proportion of one to four. Dust the chicks all over with Devil's Dust or some other good louse powder, and make sure that, whatever does ail them, they are not hampered by these terrible pests.

That wild millet in the ration is something new to me. How does it differ, I wonder, from the cultivated millet? According to Professor Jaffa, millet seeds contain 30.2 per cent crude protein, 19.63 per cent of it digestible. This is nearly as rich as linseed meal, and far too rich to use indiscriminately. All the vegetable protein feeds, linseed, flaxseed, soy bean and the various nut meals cause diarrheoa if used too freely. It is quite possible that this unbalanced vegetable protein is making havoc in your flock.

What the hens in both these flocks need, if they are to produce eggs and at the same time maintain their health, is a balanced ration, that is, a ration which provides all the materials necessary for both eggs and bodily maintenance. Such a ration must contain bran. It should contain corn meal and one other mill feed, and, unless the hens have milk, animal protein in the shape of beef scrap or fish meal. A simple mash consisting of equal parts by weight of bran, corn meal, ground barley and beef scrap, with green feed at noon and wheat at night should keep the hens laying and in good condition. If a more complicated mash is desired, try this, which was recently given me by one of our leading breeders. The proportions are arranged for a ton of the mixture: Bran, 600 pounds; corn meal, alfalfa meal and soy bean meal, 100 pounds each; ground oats, 350 pounds; ground barley, 350 pounds; meatine, 100 pounds; ground bone, 100 pounds; charcoal, 50 pounds; salt, 10 pounds.

It would be a good plan to give the hens a dose of Epsom salts all around, one-half teaspoon to each bird, mixed in a small quantity of the mash moistened with water or milk. And cut out the millet for the present at least until you are sure it has not been responsible for the illness in the flock.

The California State Fair which will be held at Sacramento August 30 to September 9 is sending out its first special premium list for exhibits. This first list is for poultry, pigeons and pet stock.

Provison for keeping young chicks warm is always required. It may not be needed on the hottest days or during the heat of any bright day, but the chicks should always have heat available if they want it.



THE easiest and quickest way to repair leaks in radiators, pumps, water jackets, gaskets, hose connections, etc., is with Johnson's Radiator Cement. It will seal leaks immediately without laying up the car. No mechanical experience required—all you have to do is remove the cap and pour the Cement into the Radiator.

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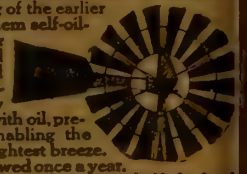
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Preventative and curative of colds, roup, canker, swelled head, sore head, chicken pox, limber neck, sour crop, cholera, bowel trouble, etc. Mrs. T. A. Morley of Galion, Mich. says: "Have used Germozone 17 yrs. for chickens and could not get along without it." Geo. F. Vickermap, Rockdale N. Y., says: "Have used Germozone 12 years; the best for bowel troubles I ever found." Frank Sloka, Chicago, Ill. writes: "I have lost but 1 pigeon and no chickens in the 3 yrs I have been using Germozone." C. O. Petrain, Moline, Ill. "I never had a sick chick all last season." Bernard Horning, Kirksville, Mo., says: "Cured my puniest chicks this spring." Ralph Wurst, Erie, Pa., says: "Not a case of white diarrhoea in 3 yrs. I raise over a thousand a year." Good also for rabbits, birds, pet stock.

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Poultry Queries

Eggs Infertile

We bought the third prize exhibit of White Wyandotte chickens at a recent air, four hens and a rooster. We have et repeatedly settings of the eggs and ound that not an egg has been fertile. Took the male bird away for two veeks but have had no better luck. ts we bought them to breed we do not eel very encouraged with the result. Ve have never had that happen to us efore; have about 100 chicks from ur own hens doing fine. I would ap- reciate some advice as to what to do nd how.—Subscriber, Los Angeles.

The strain attendant upon exhibi- ion often results in lowered fertility, pecially in the early winter, but if his were the only reason for the un- sual infertility of your pen it would ot last until April. Your male may e too old, and your hens may be oo fat, and it may be both causes re operating. A male three years ld is of doubtful value as a breeder, nd fat hens rarely lay many fertile ggs. If the fault is in the hens, you an reduce them by cutting down the arbonaceous part of their ration corn, milo and barley) and feeding ess hard grain, with wheat instead f the more fattening grains, and nore green feed and oats, especially prouted oats and rolled oats. If the ault is in the male, it would be wise o take the matter up with the man who sold him to you.—J. A. K.

Foreign Matter in Eggs

Some of the eggs we get from our hickens are full of blood, even the hite part, and sometimes we find ieces of grain in the eggs.—Subscri- Acton.

I doubt if anyone knows how it is hat foreign substances like bits of rain, and sometimes even live worms, nd their way into the egg, but such ecurrences are comparatively rare nd therefore unimportant. The blood pots are much more important, for hey are due to a slight hemorrhage n the oviduct caused by the breaking f a blood vessel, and this in its turn s caused by too great activity of the eproductive organs. Probably your gg ration is a trifle too forcing. If ou will make the mash half plain ran and give your hens all the green hey will eat, thereby increasing the ulk of the ration, I think you will nd the blood spots disappearing. his condition is generally noticed in he spring in pullets that are laying eavily. If it continues after the ation has been modified it would be ell to find out just what hens are aying the blood spotted eggs and and them so that they will not be sed as breeders.—J. A. K.

R. I. Red Questions

In March I bought a dozen chicks, R. I. Reds, from trap-nested, heavy aying stock, also bought eggs and atched 15 chicks. The chickens I aised last year have certainly laid ell and are a fine color, purchased he eggs from the same place as this ear. I want to save a good cock- rel, and some of the finest pullets for reeding purposes. Shall I select the nale or the pullets from the chicks I ought? Is it the male that trans- nits the heavy laying qualities? The hicks I purchased seem to be off olor, but those I hatched are a good lark color. Would you advise capon- ing the males I expect to keep for able use and how much does it cost o have such work done? What is he cause of chickens eating feathers? Have had trouble in that respect for wo years. Subscriber, Long Beach.

Mate the male from the chicks you ought this year to the best of last ear's pullets. It is the male that ransmits high productivity, and your ullets next year should be better layers than their mothers if your cock- erel's pedigree is right. Always make sure that your breeding male is the son of a high producer if you wish to build up a heavy laying strain. Opin- ions differ about caponizing. If you wish to keep your cockerels ten or twelve months it might be worth while to caponize them. If you use them as soft roasters you will not gain much by caponizing. The operation, I believe, costs around ten cents per bird. A teaspoon of aloes mixed in a cup of lard is recommended as an ointment to use on the feathers of birds that are victims of the feather pulling vice. This vice is sometimes attributed to idleness and sometimes to a lack of something—animal food, perhaps—in the ration. See that your birds have a well balanced mash, and that they are kept busy scratching for their grain.—J. A. K.

FINE PRODUCERS

We have a fine flock of Plymouth Rock chickens, one of which stole her nest away and during the week be- tween Christmas and New Years came walking out with 19 fine chicks (with two more fertile eggs in the nest). As she is rather a small hen she could not cover so many and two chilled and died the first night and another was stepped on by a clumsy gardener. However, with the aid of a good natur- ed sister Biddy 16 were successfully raised, seven cockerels and nine pul- lets. They are a beautiful little flock, being well developed and very uniform as to size and color.

Now for what seems to us the re- markable part: Four of the pullets began laying May 1. Isn't it rather unusual for pullets to begin laying at four months?

We have another hen that lays huge double yolk eggs. The one laid yes- terday measured 6¾ by 8 inches in circumference.—E. P. Judd, Monte- cito.

Unless the premises where chicks are kept and all appliances used are known to be absolutely free from lice and mites, and it is certain that chicks have never been exposed to them, it is a wise precaution to paint or spray the brooder with a mixture of four parts crude petroleum and one part kerosene, allowing it to dry thorough- ly before using. Puffs of insect powder on the chicks when in the brooder, about once a week, will destroy any lice than may be on them.

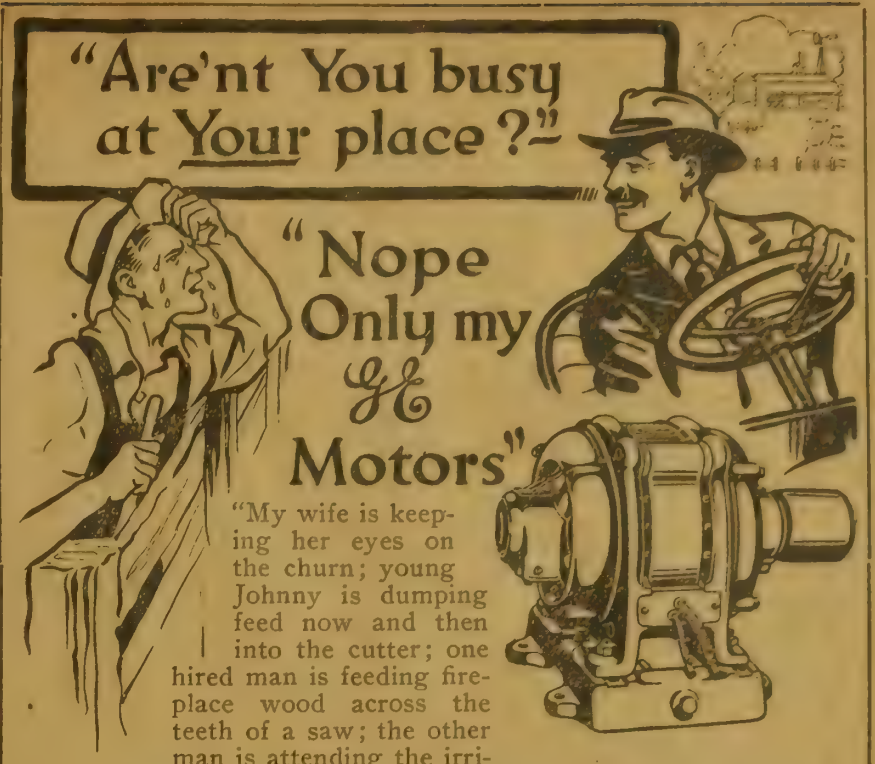
Skim milk, either sweet or sour, and buttermilk are especially valua- ble feeds in hot weather, making the diet lighter without reducing its nu- tritive value. The milk should be giv- en as a drink in vessels, from which chicks can take it without soiling one another with it. The use of milk does not do away with the use of water, which should be given as usual.

TIME TO GET UP

A new bunch of colored recruits ar- rived at camp late one night. They were startled from their sound slum- ber by the sonorous and insistent notes of the bugler blowing reveille. None of them paid any attention to it except one darky, who sat up and shouted: "You'all bettah get up! Dat an't yoh mothah callin' you up, boys; dat's yoh uncle talkin' to yoh now."

A NEED

I said in my heart, "I am sick of four
walls and a ceiling.
I have need of the sky.
I have business with the grass,
I will up and get me away,
Where the hawk is wheeling
Lone and high,
And the slow clouds go by."
—Richard Hovey.



"My wife is keeping her eyes on the churn; young Johnny is dumping feed now and then into the cutter; one hired man is feeding fireplace wood across the teeth of a saw; the other man is attending the irrigation canal in the west field — but the real work in each case is being done by my

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Poultry for Profit

Read what Portland Oregonian has to say about this book and its author.

There is a woman down in California who knows more about poultry than all the men in the state, and this, too, for that matter. Her name is Jean A. Koethen, and she has written a book which is published by the California Cultivator of Los Angeles, and called "Poultry for Profit." It costs a dollar, post-paid, and it ought to be in the hands of every one who is keeping hens. This paper has reprinted a lot of matter written by Mrs. Koethen and, because of its quality, her book is recommended. Climatic conditions in these states are so nearly alike that what is good or bad for fowls there is the same here. The price of three dozen eggs will get the volume and its purchase is a good investment.—Portland Oregonian.

Send in $1.00 for book or $1.75 for book and California Cultivator.

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For Sale—Budding Cloth 50c yard; also leading varieties citrus nursery stock. Selected and pedigreed buds. Order quick for early delivery. Cyrus W. Wilhite, Citrus Nurseries, Glendora, California. Box 154.

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For Sale—1000 Late Valencias, one-year-old on three-year old roots. Enterprise Nursery, 1197 N. Fair Oaks Ave., Pasadena, California.

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60 H. P. Holt Caterpillar Tractor for sale, exchange, real estate. Smith-Form-A-Truck. W. M. Stansbury, 2025 East First Street, Los Angeles.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 South Los Angeles Street, Los Angeles.

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WINDMILLS — 8 ft., $29 to $35; 10 ft. $39 to $45; 12 ft., $58 to $68; 16 ft., $135.
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The snappiest—big type—fall boars—in Southern California—are now on exhibition and FOR SALE. Sired by Cherry Vol. 2. Strongly bred Orion Cherry Kings. Some of them will be herd leaders. Ranch at Owensmouth. City Office, 1219 Brockman Bldg., Los Angeles.

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Baby Chicks from my thoroughbred, heavy-laying strain of S. C. White Leghorns. Am booking orders now for May and June delivery at $11.00 per 100, $100.00 per 1000. Write for particulars. J. E. Heinrich Poultry Yards, Arroyo Grande, California.

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Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Light Brahmas, large stock direct from the East. Eggs, $3.00 and $5.00 per 15; Rouen duck eggs, $3.00 per 13; big winners. Seabright Bantam eggs, $2.50 per 15. Emma V. Miller, Farmington, California.

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Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

White Leghorn Baby Chicks every week, good strong youngsters from fine layers. Also other varieties. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

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"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California.

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo. Schmitt, Box 263, Corcoran, California.

For Sale—Buckeye Incubators, 600-egg capacity in A-1 condition. Still in operation. A. O. & P. M. Forster, 2918 Otis Street, Berkeley, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

POULTRY

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns. CHICKS and EGGS. Duck, Geese, Turkey Eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

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Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

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Eighty acres on boulevard adjoins lemon grove and very fine alfalfa or truck land, nothing better in Southern California at $450 an acre; small cash payment; balance long time.

Twenty acres gravelly, sandy loam, excellent for truck farming, near stores, school, etc. Close to two boulevards, city water, nothing better at $350 an acre, with long time to pay.

Forty acres. Just the finest land out of doors, water on two sides, cash rent of $25 an acre goes with the land if bought soon; $350 per acre, reasonable cash payment, balance easy.

Thirteen acres in crop. Close to stores and fine schools, garden soil, city water. A snap at $250 per acre.

Seventy-five acres of excellent soil with city water, near fine school and town; just the thing for beans or potatoes, about $100 underpriced at $300 per acre.

Twenty acres of the choicest land in the valley, close to transportation and car line with city water. An excellent buy at $350 per acre.

Ten acres on boulevard, garden soil, city water, close to two good towns, schools, post office and the cream of the valley at $550 per acre, easy terms.

Twenty-five acres just off of boulevard near town, adjoining property well improved, fine soil, city water, only $300 per acre. Terms.

Twenty acres, heavy chocolate soil, close to two fine boulevards and near good town, city water. Priced for quick sale at $500 an acre; easy terms.

All of the above lands are from 10 to 25 miles from the center of the city of Los Angeles, and I would not offer it for sale if it was not good stuff and a bargain. I admit I sell for less.

H. L. ALLARD
310 Security Bldg., Phone Bdway 1696
Los Angeles, Cal.

For Sale—18-Acre Country Home. Situated five miles from SANTA CRUZ on beautiful Branciforte Drive, among the redwoods. Rural delivery, telephone, living stream, unlimited water supply. Seven acres practically level, ideal for strawberries, poultry or alfalfa. Acre and half family orchard. Balance of land in wooded pasture. New modern house of nine rooms. Has four sleeping porches, attic, concrete basement, furnace and showers. Finest of plumbing throughout. Has own electric light and power plant. Water system, separate cottages for help. Garage, barn and sheds. Beautiful views and scenery. Gardens. All within 20 minutes of Santa Cruz beach. Address "Owner," 131 Branciforte Drive, Santa Cruz, California.

For Sale—Mountain Ranch, 40 acres deeded, large canyon, range free, covered with oak and pine; wonderful opportunity for hogs; 20 acres under irrigation; hog-tight fence, family orchard, consisting of cherries, apples, pears, English walnuts; 5-room house, furnished. Price $3500. Dr. G. W. Harvey, care La Grande Hotel, Chico, California.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator, Box B A J.

Mountain Ranch—334 Acres, 90 acres under cultivation, 30 acres Bearing Orchard, balance in Timber, Oak and Pine. Free Water, deep, rich soil, eight-room house, 100 tons hay, barn and out buildings. Will subdivide. Price $7500. Terms. Address, Paradise Ranchita, P. O. Box 23, Paradise, Butte County, California.

For Sale—3100: clear; 160 acres, 30 miles northeast San Diego; 25 tillable rolling, 5 bottom, three plowed, balance grazing. Small new house, well, spring, timber. Abundance water to irrigate bottom. Fine bee, cow, pig proposition. E. T. Gray, Owner), Petrolia, California.

For Sale—320 Acres Alfalfa Land, including water, located in Kings Co. Price, $100 per acre. Will divide, terms. J. A. Elliott, owner, 130 E. 25th street, Los Angeles. Phone 63247.

For Sale—Unimproved mountain ranch in San Diego County; 160 acres, one-quarter cultivatable, balance good pasture, oak, timber, fine bee location. Price $2500. John Wilmot, Orange, California.

FARM LANDS FOR SALE

For Sale—151 A. Almond land in San Luis Obispo County. Address G. L. Lane, Hotel Athens, Oakland, California.

For Sale—120 Acres, one mile from Coachella, suitable for DATES, grapes, alfalfa. Partly improved. THIS IS A SNAP, INVESTIGATE. Bargain. Box 624, Coachella, California.

For Sale—10 Acres, deep well, pit cabin, chicken house, few trees, berry vines, two acres barley, $1050. At your terms. Geo. Moody, Acampo, California.

Profitable 387 Acre Grain Ranch. Fine farm home, Stockton, three miles; bargain for real farmer, $35,000. C. A. BODWELL, Lakeville, California. No agents.

CATTLE

AUCTION

250—HEAD OF DAIRY COWS AND HEIFERS—250

WORK HORSES YOUNG MULES

On the McNeil Dairy Ranch, 4 Miles West and 3 Miles South of

FRESNO

on North and Cornelia Avenues

FRIDAY, MAY 16 at 9 A. M.

Herd includes 200 choice dairy cows, Holsteins, Jerseys and Durhams, many with first and second calf, a large number fresh and some extra good springers.

50 HEAD OF CHOICE HEIFERS selected from the best cows in the herd and sired by pure bred, registered Holstein bulls. This will be an exceptional opportunity for dairymen to purchase some extra good dairy stock owing to the fact that this is a large herd, carefully culled and owner has instructed us to dispose of the entire herd.

POSITIVELY WITHOUT LIMIT OR RESERVE

TERMS: $100 and under cash, over $100, one-third cash, balance in 30, 60 and 90 days with bankable note.

A. McNeil, Owner

COL. BEN A. RHOADES,
HAROLD B. RHOADES,

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REGISTERED JERSEYS

State Fair Grounds

Sacramento, California
Tuesday, May 27, 1919

Complete dispersal to the highest bidder of the famous herd owned by Clifford F. Reid, Portland, Oregon; the greatest herd of proven producing and show winning Jerseys ever sold at public auction in the West.

THE WORLD'S RECORD COW, GOLDIE'S NEHALEM BEAUTY

is in this sale, and she is the highest record Jersey cow ever offered at public auction in the world. With her will be her dam, two sisters, one daughter, two sons, fourteen granddaughters, and six grandsons.

IMPORTED COWS—REGISTER OF MERIT COWS

There will also be a choice selection of Register of Merit Cows and Heifers in the sale, some of the cows imported, and remember that this herd has won more prizes in the show ring during recent years than any other herd on the Coast.

Write for catalog now. It is free.

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SHORTHORN CATTLE, SHROPSHIRE SHEEP, BERKSHIRE HOGS, SHETLAND PONIES. Stock for sale at all times. Second Farm Sale—all breeds—August 2, 1919. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale—35 Head high grade Holstein cows fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch. Hannon Bros., Third Street, Lankershim. Care of Chas. Irwin.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Elkhorn Farm Ayrshires—Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery Street, San Francisco, California.

For Sale—20 Registered Holstein Cows and Heifers. G. U. Clark, Hanford, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

CATTLE

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

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Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns—A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered)—A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

WANTED

Wanted—Place as foreman. Advertiser is thorough in all lines of farming, fruit growing and the care of live stock. Experienced in working all kinds of labor, both tenant and wage systems. Address, Box 22, Care of Cultivator.

Wanted—Settlers with means and energy to investigate land opportunities on line, Nevada-California-Oregon Railway. Full and reliable information furnished by addressing S. H. McCartney, General Manager, Alturas, California. Dept. "B."

Wanted to Hear from owner of good farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minnesota.

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

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Fertilizer and materials mixed to balance every soil. Bureau of testing and advice free on all horticultural and agricultural subjects. 1022 Washington Bldg., Los Angeles. Phone 62907; res., 16116.

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IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches.
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12-24 Nilson Tractor Practically New with P. & O. three bottom tractor plow; a real bargain. Jas. W. Parks, Colton, Washington.

HOME WATER SUPPLY

By James De Camp

When Friend Husband is talking about installing a pumping plant for stock or irrigation purposes why not prevail upon him to buy an outfit with capacity sufficient to furnish the house with an adequate water supply as well?

Tank and plumbing arrangements may be so combined as to supply running water to kitchen, lavatory and all other parts of the house. Perhaps if you insist upon it in a discreet manner, after a particularly satisfactory meal for instance, he will consent to making arrangements for that small front lawn and flower bed that you have been cherishing fond hopes of for so long, but have been unable to plant for lack of sprinkling facilities.

Here are some figures that will assist you in helping him to estimate just what additional pressure and supply will be needed for household purposes:

Each member of the family will require about 25 gallons per day for all purposes, such as bath, water closet, kitchen, laundry, etc.

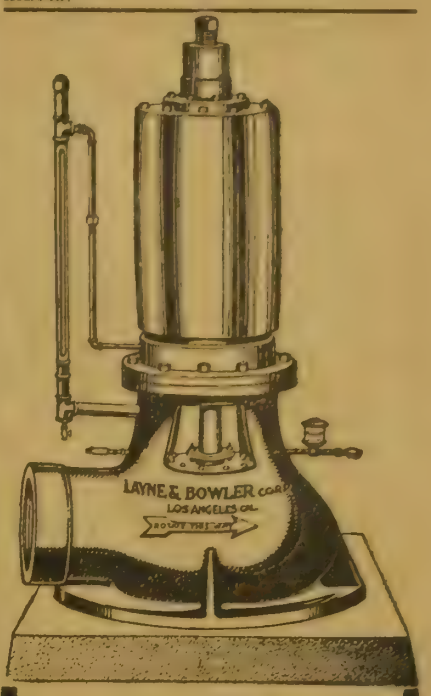
From seven to ten gallons are required to flush the ordinary lavatory.

Thirty gallons will fill the average bath tub.

With 40-50 pounds pressure an ordinary garden hose nozzle will use about six gallons per minute giving a steady stream or four gallons per minute when spraying.

Nearly eight gallons are required to sprinkle 100 square feet of lawn while 16 to 20 gallons will provide a thorough soaking for the same area.

Be sure to have Friend Husband write to one of the large pump and supply companies for further expert technical information and price estimates.



A NEW

Layne & Bowler
IRRIGATION PUMP

—Light Duty
Full Floating Belted Head

Designed for the application of up to 60 horse power. Can be used for delivering water direct into mains or into elevated tank.

All bearings in head are lubricated by positive circulating oiling system. This type of head equipped with ball bearings of latest design. Can be equipped with any size of runners to permit various capacities of water, depending upon the total lift.

Ask for Folder No. 30

Layne & Bowler Corp.
900 Santa Fe Ave Los Angeles, Cal

Top Dress with Nitrate of Soda

It does not Sour the Soil

Nitrate leaves no mineral acid residue to injure your soil—it keeps the land sweet.

Nitrate of Soda

Top dress 100 lbs. per acre for seeded crops; 200 lbs. cultivated in thoroughly for hoed crops. These light dressings should be evenly spread.

Chilean Nitrate Committee

P. O. Box 248 Berkeley, Cal.

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CITRUS TREES

Orange, Lemon, Pomelo and Lime, bud selected (pedigreed) trees, subject to immediate delivery. Correspondence invited and prices cheerfully quoted.

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R. M. Teague Citrus Nurseries
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The Ghirardelli label on the Ghirardelli can is *more* than a scrap of paper. It is a *dependable* assurance of Ghirardelli quality. It carries with it the *certainty* that you are getting the chocolate of highest purity and nutriment.

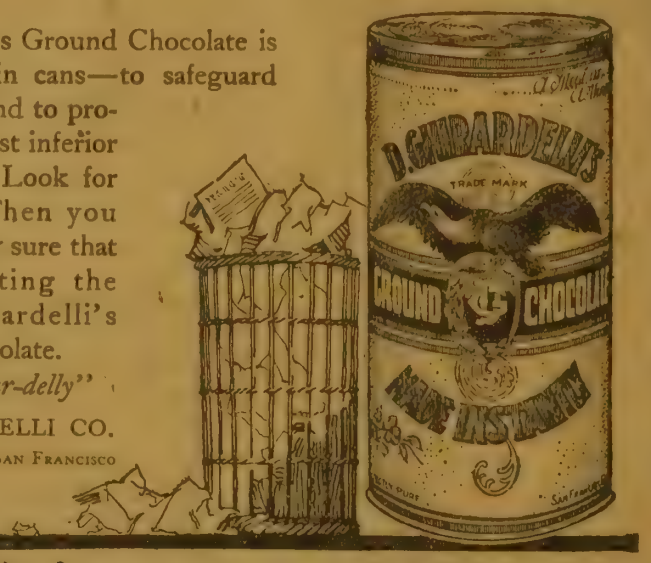
Always dependable —never disappoints!

At the store where you do your trading —in ½ lb., 1 lb. and 3 lb. cans.

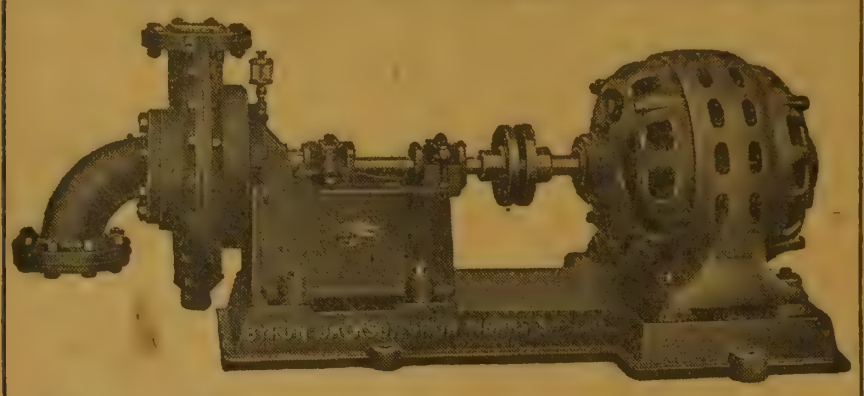
Ghirardelli's Ground Chocolate is put up *only* in cans—to safeguard your health and to protect you against inferior substitutes. Look for the label. Then you will be doubly sure that you are getting the *original* Ghirardelli's Ground Chocolate.

"Say Gear-ar-delly"

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The difference between a "live" and a "dead" Ranch is "Water" and "No Water."

"Byron Jackson" Pumps meet every water condition

Write us giving your water conditions and requirements.
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Krogh Pumps are Absolutely Water Balanced
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THE NO TROUBLE PUMP

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Krogh Direct Motor Driven Pump

Fitted with Ring Oiling Bearings

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We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

Household Department

DOUBT

Upon this earth we walk about,
There's altogether too much doubt.
Men doubt the books upon their shelves
And doubt their neighbors and themselves.
They doubt the strength that they possess,
And doubt their fellow man's success.
They doubt the motives of a friend;
Doubt that the present woe will end,
Yet joy returns and truth exists
And sunshine clears away the mists.

This life appears to be a bout
With the remorseless foe of doubt.
On every hand its troops are placed
And everywhere its guns are faced.
Who yearns to reach a mountain peak,
The beauty of the world to seek,
Must overcome the doubt that's spread
Like tangled weeds where he must tread.
Believing with a faith sublime
That he shall reach the top in time.

There is no sustenance in doubt;
No strength to heart or muscle stout;
No courage for the hour of test;
Its fruit is tasteless at the best.
Its record is unfinished deeds
And vanished hopes and broken creeds
And failures sad, and goals ungained,
And splendid victories unattained.
It has no future life of bliss,
And steals away the joy of this.

Believe in God, believe in man!
Put faith in everything you plan.
Believe you have the power to do
What tasks the day shall bring to you
And be so strong in faith that when
You meet the common griefs of men,
You still can bear with sorrow's pain,
Knowing that joy shall come again.
Live out your life with courage stout.
There is no manliness in doubt.

—Edgar A. Guest.

BRINGING AMERICAN PRISONERS OUT OF GERMANY

By Lee Shippey, France

TRAVELING in France has not been a joy forever since the war began. Long transcontinental trips such as are common in America have been rare here, and such sleeping car service as we have at home never has been necessary here. Since the beginning of the war travel has been so congested that though the railroads have striven hard to please it has been impossible. A railway journey has been and still is a thing almost to be dreaded.

But there have been—and still are—20 trains in France which are models of comfort, the 20 United States sanitary trains built to order for the American government for the transportation of sick and wounded from the front to the base hospitals.

I was a passenger when five of these trains completed one of the pleasantest and most appreciated tasks the American army has performed, the bringing out of Germany of the American prisoners of war.

As a Red Triangle worker, taking supplies for the comfort and pleasure of the prisoners, I was permitted to accompany two trains—54 and 55—on that very interesting mission and was so impressed by the service they are rendering and the high standard of their personnel that I am eager to write about the work of these splendid men and women.

You may imagine what a cheer went up from the Americans who had been herded out of Rastatt prison camp, herded across Switzerland and expected to be herded into box cars there for transport to France, when 54 and 55, with the beloved letters "U. S." painted large on their sides and ends, and with American flags fluttering from every window, swept into Geneva to meet them. From the windows, too, protruded American faces and shoulders clad in American uniforms, and, yes, by George! American girls!

"Say, guy, is this on the square? Are these trains really for us?" asked the first prisoner who climbed aboard.

"There's something in here you haven't seen for a long, long time, fellows," shouted another, poking his head out of a window to give the good news to those still on the platform. "It's pillows—p-i-l-l-o-w-s!"

"And what are those white things on the beds?" demanded another. "Seems like I have a vague recollection of seeing things like that years ago. Are those what they call sheets?"

They came trooping on like schoolboys, joking and frolicking and shaking hands fervently with the officers and nurses and enlisted men. And they broke into song which one of them, Harry L. Sheffield, of Company B, 307th Infantry, had composed and which they had sung in prison, in defiance of the frowns of their German guards. It was to the tune of "Are you from Dixie."

"Would the Huns stand for your singing?" I asked.

"They had to," said a happy "First Loot." "At first they didn't understand it, and it was an established thing before they did. And it was literally true. When we first got to camp the rations were so poor that we were starving and we were eager to work on kommando—work out, that is—where we would get a chance to steal something to eat. Those of us who got to work about supply depots were in great luck and many a hungry man took a chance on being cracked over the head with a lueger to get a taste of any knd of food."

"Yes, they didn't mistreat us as they did the other prisoners, particularly the Russians and English. Forty thousand Russians died at Rastatt and only nine Americans. Our Young Men's Christian Association Cabinet and American Help Committee kept us informed as to our rights, and when the guards tried to abuse us we stood up for ourselves."

"Yes," said J. B. Yatman, a private from Hartford, Kansas, "if it hadn't been for the Red Cross we would have starved, and if it hadn't been for the Red Triangle we would have wished we were dead, anyway."

"But you fellows all look healthy and happy," I said. "You don't look as if you had been mistreated."

"That's because of the Red Triangle and the Red Cross. After the Red Cross packages began reaching us we were much better fed than the Germans. We'd continue to take their rations every day—one loaf of bread for five men, one bowl of 'barbwire' soup and one cup of substitute coffee.

"Our soup was half grass and sometimes was made of beets cup up, worms and all! It had no meat or essence of meat in it, except when they had butchered dead war horses."

"And maybe you'd like to know our opinion of the greatest hero of the war," suggested Sergeant H. A. Bergman of New Haven, Connecticut. It was Conrad Hoffmann. Hoffmann was an American Triangle worker, but at the beginning of the war he was in Berlin and somewhow he managed to stick and organize a force of Y workers from neutral countries who kept things moving at all the camps. It was Hoffmann who got to us the instruments for our twenty-piece band, our eight-piece orchestra and our bugle corps. I organized the band and Clyde Grimsly of Salina, Kansas led it till he got sick, after which I led it. It was a good band and kept things lively in Rastatt. Every night it played taking turns in the different barracks. We got up a musical show of our own and rented the biggest theater in Rastatt. We played at football, and nine sad times—the times when our comrades died—played at their funerals, leading the procession, followed by the coffin, draped with an American flag. We had to make our American flag of our blue and red and white tobacco sacks, but it looked mighty good to us."

A POOR EXCUSE—BUT

In the good old days when everybody ate butter, the king of the happy country addressed his jester thus-wise:

"Thou fool, give me an illustration of that old adage, 'A bad excuse is worse than no excuse,' and haste thee!"

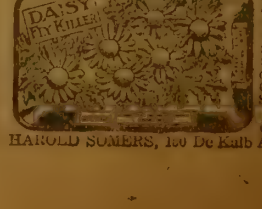
The jester at once affectionately embraced and kissed the mighty monarch.

The king did wax wroth.

"Thou varlet! How darest thou to take this liberty?"he spluttered.

"I beg your majesty's pardon," replied the merry one. "I thought it was the queen!"—Cincinnatti Enquirer.

DAISY FLY KILLER PLACED ANYWHERE ATTRACTS AND KILLS ALL FLIES. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 5 by EXPRESS, prepaid, $1.25.



HAROLD SOMERS, 150 De Kalb Ave., Brooklyn, N.Y.

The Cultivator Patterns



9016—Ladies' Shirtwaist. Cut in sizes—36, 38, 40, 42 and 44 inches bust measure. The collar is knotted at the front to form the tie and it is edged all around with a gathered frill.

9021—Girls' Long Waisted Dress. Cut in sizes—4, 6, 8, 10 and 12 years. The semi-belt is joined across the front by narrow ribbons which tie loosely.

9008—Ladies' One Piece Apron. Cut in sizes—36, 40 and 44 inches bust measure. The apron is cut all in one piece and the straps at the back close the apron by crossing and buttoning on each shoulder.

9038—Ladies' Kimona Waist. Cut in sizes—36, 38, 40, 42, and 44 inches bust measure. The overblouse is of contrasting material and is separate.

9044—Girl's One Piece Dress. Cut in sizes—4, 6, 8, 10 and 12 years. The plaits are stitched flat above the tabs and left open for extra fullness below.

9045—Ladies' Nightgown. Cut in sizes—36, 38, 40, 42, 44, and 46 inches bust measure. The neck is collarless and may be either round or V-shape.

9036—Ladies' and Misses' Two Piece Skirt. Cut in sizes—16, 18, years, and 26, 28, 30 and 32 inches waist measure. There is a deep tuck and also a deep hem at the lower edge of each panel.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
CALIFORNIA CULTIVATOR
Los Angeles

SEPARATE SKIRTS

By E. J. Canady

There are many things that we can do without, but the separate skirt is not one of them, for it is a necessity. The blouse and skirt are suitable for any hour of the day and are more economical than the whole dress, for only the blouse is washed frequently. The popular materials for skirts are serge, poplin, gaberdine and various kinds of silk. They may be made of plain straight widths plaited all around, or plain gores in the front and back, and plaited gores on the sides; in fact the styles are so varied that one should be able to find one suited to every need, and they were never more graceful nor attractive. Many are entirely untrimmed, depending upon the cut and finish, and the arrangement of pockets for their style.

Before deciding to buy material for a skirt, let us examine those we have on hand, to see if there are not several that can be used again. It will mean the saving of several dollars, for every kind of material is expensive. Skirts of last season are all right if carefully renovated. They will need a thorough brushing, and if they are hung on the line where the wind will whip them an hour or two, it will freshen them wonderfully. Spots may be removed with a good cleaning fluid, or the skirt may be washed in gasoline and pressed, which makes it look like new.

Skirts are narrower than they were a year or two ago, measuring from one and one-half to two yards (pleated) which makes it easy to cut an old one over. It should be taken apart and brushed to remove the loose threads, then if the material is faded, or you wish to make it a darker color or black, you can accomplish it very easily by the use of dye of the chosen color. When the pieces are carefully pressed, lay your pattern on them to decide how to cut to the best advantage. Use good patterns. They are cheap, and there is no use in wasting time, patience and material in trying to do without them. Match the notches and pin the seams every few inches before basting to be sure that one side is not held looser than the other.

Your skirt must be perfectly even around the bottom if it is neat and attractive looking, and it is a great help sometimes to be able to even it without assistance from anyone. Cut a notch in the end of a yard stick, and fasten a piece of chalk in it. When the skirt is done except the hem, put it on, and make a mark with the chalk all around the skirt, being careful to keep it just three feet from the floor. Take the skirt off, and if you wish to clear the floor six inches, measure down from the chalk mark 30 inches, and mark the lower edge of the hem.

Careful pressing will give your work the tailored look that is so much admired. Every seam should be pressed as soon as it is made, and the whole skirt pressed when it is finished. Attention to details insures success in dressmaking.

COACOANUT AND MARMALADE JELLY

Two and a half tablespoons gelatin.
One-half cup cold water.
One cup hot milk.
One-half cup cold milk.
One-fourth cup peach, plum, orange of other marmalade.
One cup canned cocoanut.
Corn syrup.

Soak the gelatin in the cold water for five minutes; then dissolve it in the hot milk. If the milk curdles, beat it smooth with an egg beater. Add the marmalade. Add sufficient corn syrup to the milk drained from the cocoanut to make one cup. Add this to the hot milk. Stir the mixture well and when it is cold add the cocoanut and the cold milk. Pour it into a mold, and chill. The marmalade may be used to garnish the pudding instead of being molded into it.

TO THE BUILDER

Builder, while ye toil and slave,
Stint no whit thy daily task—
Fair performance day by day,
This is all thy masters ask,
When thou buildest, build thou well.
Build thou broad and deep and high—
More especially we'd impress
If you're building apple pie.
—Buffalo News.

We Have a Piano for Every Home

In "straight" Pianos we carry a make to suit every home—***to fit every purse.*** Bear in mind, however, that a good, dependable Piano cannot be made to sell new under $300, though we have good used pianos from $200 upward.

In the least expensive grade we offer the **Aldrich,** a good, dependable piano, at a very moderate price—it will give excellent service.

The next group includes the **Kurtzmann, Emerson** and **Estey** Pianos—three very substantial "makes," which are giving a lifetime service in thousands of homes and schools throughout the United States.

In the next grade we have the **Krakauer, A. B. Chase,** and **Weber**—these are high grade instruments—old and famous makes.

Then comes the **Steinway,** the ***Standard*** by which all pianos are judged — to have a Steinway is to have the **Best.**

We will arrange convenient terms of payment on any Piano—even the Steinway.

It is really ***an easy matter to own a Piano*** —come in and talk it over with us—we will serve to the best of our ability.

Sherman, Clay & Co.

Kearny and Sutter Streets, San Francisco
Fourteenth and Clay Streets, Oakland
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325 E. Main Street, Stockton
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Stores also at Portland, Seattle, Tacoma, Spokane.

Grow Wheat in Western Canada

One Crop Often Pays for the Land



Western Canada offers the greatest advantages to home seekers. Large profits are assured. You can buy on easy payment terms,

Fertile Land at $15 to $30 per Acre—

land similar to that which through many years has **averaged from 20 to 45 bushels of wheat to the acre.** Hundreds of cases are on record where in Western Canada **a single crop has paid the cost of land and production.** The Governments of the Dominion and Provinces of Manitoba, Saskatchewan and Alberta want **the farmer to prosper, and extend every possible encouragement and help to**

Grain Growing and Stock Raising.

Though Western Canada offers land at such low figures, **the high prices of grain, cattle, sheep and hogs will remain.**

Loans for the purchase of stock may be had at low interest; there are good shipping facilities; best of markets; free schools; churches; splendid climate; low taxation (none on improvements).

For particulars as to location of lands for sale, maps, illustrated literature, reduced railway rates, etc., apply to Supt. of Immigration, Ottawa, Can., or

GILBERT ROCHE,
8-6 First St., Sheldon Block, San Francisco, California.
Canadian Government Agent.

WESTERN CANADA Farm Lands Low Prices The Wheat Belt of America

For the Garden or Ranch

Whether for Market or Home

Plant the Right Seed in the Right Season

See Our Catalog

Aggeler & Musser Seed Co.

620 So. Spring St. Los Angeles

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Los Angeles Market

Los Angeles, May 7, 1919.

BUTTER

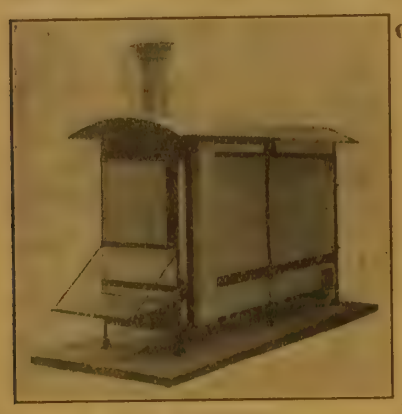
Butter, creamery extras, Produce Exchange price 54 lb.; prices to retail merchants in 1-lb. squares, 57@58.

Dairy exchange prices last week on extras:

Apr. '19	30	May 1	2	3	5	6
.... ..	..	54	54	..	54	54

CHEESE

Brokers' prices:



Mr. Farmer

If you grow Raisins, Prunes, Peaches, Pears, Apples, Apricots, Grapes, you need a

SAHARA DRIER:

Every year your losses run into thousands of dollars because of adverse weather conditions—over-ripe fruits, etc. The Sahara Drier guarantees you against such losses. It is the cheapest and best possible insurance for your crops. You cannot afford to take a chance on early rains such as came last Fall.

WINE GRAPES—Many of the California growers are making ready to dry their 1919 crop. We guarantee our machine to do satisfactory work. Our patented process makes this possible. Prices are $650 and $850 for our one-ton-per-day Drier. See our representatives for particulars:

Cameron & McDonald, Chico.
Clark & Croswaite, San Jose.
C. F. Moon & Co., Fresno.
A. L. Bowman, Lodi.
Chas. F. Wyer, Napa.

California Dried Products Co.,
Home Office 149 California St.,
San Francisco - California.

Sulphur



It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards SIX times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100 per cent pure, in double sacks, for Dry Dusting and making Paste—(Atomic Sulphur).

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food, drill into the soil 100 to 400 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR, 100 per cent pure. This has increased various crops up to 500 per cent.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dry Bordeaux, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 DEGREES BE., Sulphur Paste, Nicotine, Blackleaf 40, etc. Fungicides and Insecticides.

Carried in stock and mixed to order.

San Francisco Sulphur Co.

624 California St. San Francisco, Calif.

We are equipped to make immediate shipments. Send for "ILLUSTRATED BOOKLET"; also booklet "NEW USES FOR SULPHUR", Price-list, and Samples.

Please state for what purpose you use the sulphur, quantity needed, and date of shipment preferred. Telephone Kearny 871.

California fresh, lb., 30; price to retail merchants, 32@33.

EGGS

Fresh extras, Produce Exchange closing price; 48 doz.; price to retail merchants, 51@53 doz.; case count, Produce Exchange closing price, 47 doz.; price to retail merchants, 49-52 doz.; pullets, Produce Exchange closing price, 46 doz., price to retail merchants, 47-49.

Dairy exchange prices last week on extras:

Apr. '19	30	May 1	2	3	5	6
.... ..	..	47	47	..	48	48

POULTRY

Prices to producers: Hens, 34; broilers, 32@38; fryers, 40; roasters, 40; old roosters, 14; capons, 42; ducks, 35; ducklings, 36@37; geese, 32; turkeys, 35@40; squabs, 60.

Belgian hares 14.

LIVE STOCK

A weakened tendency of the market for beef cattle existing in all the large Eastern markets is reflected in the lower prices paid locally. Today's Kansas City market quotations indicate top of $18.75 for prime steers but the highest price paid this date was $17.50. There were no prime steers offered. The extreme price paid locally for good steers in killers yards is $12.50 and the market is weak at this figure. Some extensive producers of beef have stated that they do not expect the market to reach the high level of the market six weeks ago.

The supply of hogs is still very light. Quite a number of carloads of good hogs are bringing $19.50 f. o. b. this city. Today's prices in Chicago for top hogs range from $21.10 to $21.35 with one load of extra nice porkers at $21.55, a new record.

The local lamb market is strengthening. The supply is not so liberal as for the past two weeks.

The following prices for California lambs were paid on the Omaha market May 6th: 524 lambs, 62 pound average, $19.60, with 50 weighing 56 pounds at $16.50; 592 lambs, 63 pounds average, $19.75, with 51, 59 pounds at $16.50.

In sympathy with the lamb market, wethers and ewes follow the trend of the market up and down and since the lamb market is showing a better tone so also is the sheep market.

Good steers	12.00@12.50
Medium steers	11.00@11.50
Common steers	9.00@10.00
Good cows	10.00@11.00
No. 1 hogs, 175-225 lbs.	18.50@19.50
Medium cows	8.00@9.00
Common cows	6.00@7.00
No. 2 hogs, 250-400 lbs.	17.00@17.50
Feeder hogs	13.00@14.00
Spring lambs	7.00@8.00
Lambs, cwt.	15.00@16.00
Lambs, No. 2, cwt.	14.00@15.00
Wethers No. 1, cwt.	11.00@12.00
Ewes No. 1, cwt.	7.50@9.50

POTATOES AND ONIONS

These are the actual prices obtained May 6 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms cash on walk.

Demand and movement slow. Market dull. Stockton, Burbanks, quality generally good, sacked per 100 pounds, extra fy., 3.50@3.75, Idaho Russets quality and condition fair, 2.25@2.40; rurals, 2.10@2.25. Oregon, Burbanks, fy., 2.60@2.75. New stock, home grown, Red Rose and White Rose, 2.40@2.70 per lug box.

Sweet potatoes: Lug box best, 1.45@1.50; sacked 4.50@4.75.

Onions: Demand and movement moderate. Wide range in prices. Old crop, Stockton, sacked per 100 lbs., Browns, best from cold storage, 4.25@5.00. New crop, homegrown green onions, 15 per doz. bunches. Imperial Valley and Coachella Valley, Wax, standard cr., 3.75@4.00; poorer, 3.00@3.25; Yellow Bermudas, best 3.50, poorer 2.50 up.

VEGETABLES

These are the actual prices obtained May 6 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz.	25@60

Asparagus: Northern, green, extra fancy 7@8; fancy, 5@6.

Beans: Local Wax 15@17 lb.; Kentucky Wonder, 20@22 lb.

Beets, doz. bunches 20@25.

Cabbage: Sales to retailers, best, cr. 3.50@3.60; poorer, 3.00.

Carloads f. o. b. usual terms, demand and movement moderate, market firm, little change in prices. Quality and condition generally good. Early Winningstadt, Calif. crates, best 50.00@60.00, few sales 65.00.

Carrots, doz.	40@45
Cucumbers, bx of 3 dz.	3.50@3.75

Lettuce: Sales to retailers, best lettuce in cabbage crates, 50@60.

tuce in cabbage crates, 50@60; poorer, 35.

Carloads f. o. b. usual terms, practically no demand, movement slow, market dull, no change in prices. Quality and condition generally good. Iceberg, Calif. crates 1.00@1.15.

Imperial Valley stock was slow and dull at a general range of 2.75@3.75 per crate in leading jobbing markets, but held above 4.00 in Pittsburgh and Buffalo.

Parsley, doz.	20

Peas: Local (San Pedro) best, 10@11.

Radishes	15@20

Rhubarb: Local Winter Crimson, 1.10@1.25 per packed bx. Strawberry, fy., 1.25@1.50 per apple bx. Northern Strawberry, extra ch., 1.75@2.00.

Spinach, doz.	15@20

Tomatoes: Quality and condition generally good. Mexico, best 3.25@4.00 per lug box. Poorer and small, 75@1.00 per lug box.

Turnips, doz.	35@40

FRUITS

These are the actual prices obtained May 6 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtowns, fy. medium size, 3.50; loose 7@8 lb. Oak Glen. Rome Beauties and Pearmains, 3.75@4.00; White stock strengthened to 4.50@5.00.

Pineapple, lb., 18@20.

Strawberries: 3.00@3.75 per 30 basket crate.

Lemons: Fy. packed, 4.25@4.50; local pack, 3.00@3.50; loose, some tree ripe, 1.75@2.00.

Oranges: Navels, medium and large size, fy., 5.00@5.75; local packed, 2.00@4.00; Tangerines, 7@7½.

Grapefruit: Local fy., 2.50@3.00 bx.; poorer, 2.00@2.25.

HONEY

Demand slow, prices lower, market weak. Carloads f. o. b. usual terms; very few sales. Extracted light Amber Alfalfa 14, light Amber Sage 16@17 per lb. Beeswax, no sales reported.

BEANS

Demand moderate, little change in prices. Market steady. Carloads f. o. b. usual terms. Pool prices, choice recleaned, sacked per 100 lbs., Limas 7.50, Henderson Bush 7.00. Warehouse cash to growers, choice recleaned, sacked per 100 pounds, small Whites, best 6.00, sacked per 100 pounds Large Whites undamaged 5.75@6.00; Blackeyes, sacked per 100 pounds best 3.10@3.25; Tepary, sacked per 100 pounds 2.00@2.50.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat	19.00@24.00
Barley	16.00@19.00
Alfalfa	16.00@19.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy	26.00
Standard dairy	24.00
Standard alfalfa	22.00
Stock alfalfa	20.00

GRAIN

Prices on local Grain Exchange:

Egyptian corn	3.10
Eastern Kafir	3.25
Wheat, mixed feed	45.00@48.50
Milo Maize	2.85@2.90
Barley	2.70½
Corn, sacked, No. 2 yellow	3.45
No. 3 yellow	3.40
No. 3 white	3.35

San Francisco Markets

San Francisco, May 6, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extras	55½
Prime Firsts	Nominal

Prices extras past week and year ago:

Apr.	29	30	May 1	2	3	5
'19 ...	55½	56½	57	57	55½	55½
'18 ...	41	41	41	41	41	..

Rcts. wk. ending May 5, 577,100 lbs.

CHEESE

Dairy Exchange quotations:

Cal. Flats	30@31
Cal. Y. A. fy.	33½
Ore. Triplets	38½
Jack, full cream	25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	51½
Firsts	49½
Extra Pullets	49

Prices extras past week and year ago:

Apr.	29	30	May 1	2	3	5
'19 ...	48½	49½	49½	50½	51	51½
'18 ...	42	41½	39½	39½	40	..

Rcts. wk. ending May 5, 17,056 cases.

POULTRY

Hens, 36@38; roosters young, 45@50; old roosters, 25@27; broilers, 34@40; fryers, 45@50; ducks, 35@40; geese, 36@40; squabs, 60@65.

Belgian hares, live, 16@18; Jackrabbits, doz., 3.00@3.50.

LIVE STOCK

Cattle—Grass fed, on foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. alive, 12@12½; 1200 to 1400 lbs., 12@12½; second quality, 11@11½; thin steers, 9@10.

Cows and Heifers—No. 1, 9½@10; second quality, 8½@9; common to thin, 4@7.

Calves — Light weight, per lb., 11½@12½; medium, 10½@11½; heavy, 8@10.

Sheep—Lb., gross weight: Wethers, unshorn, 11@11½; ewes, unshorn, 8½@9½; lambs, yearlings, 12@12½; milk, 13@15.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 18½; 150 to 250 lbs., 19; 250 to 300 lbs., 18½; 300 to 400 lbs., 18.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers: Choice, 1050 to 1200 lbs., 12½@13; medium to good, 950 to 1050 lbs., 11@12; good grass steers, 1000 to 1200 lbs., 12@12½; other steers, 950 and over 11@12. Cows, 1000 lbs. and up, 10@10½; medium to good cows, 9@10; canners, 5@6.

Hogs — Hard, grain fed, well finished, 175 to 250 lbs., 19¼; 150 to 175 lbs., 18¼; under 150 lbs., 17¾; 250 to 300 lbs., 18½; 300 lbs. and up, 18.

POTATOES

Per ctl. on wharf: Deltas, 1.75@2.00; fy., 2.25@2.50; Oregon Burbanks, 2.00@2.35; Gems, 2.00@2.35; Red Shimas, 3.00@3.25; sweet, per 100 pounds, 4.50@5.00; new potatoes, 3½@5 lb.; Garnets, 5@5½.

ONIONS

Storage, cwt.	4.00@4.50
Garlic, lb.	6@6½

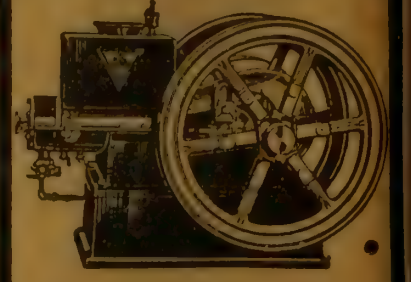
VEGETABLES

Wholesale selling price:

Artichokes, doz.	50@90
Asparagus, lb.	4@8
Beans, string, L. A., lb.	17½@20
Wax	15@20
Beets	1.00@1.50
Cabbage, Early Flat Dutch, cwt.	2.00@2.75
Carrots, sk.	2.50@3.25
Celery, cr.	1.50@5.00
Cauliflower, doz.	50@1.00
Cucumbers, hothouse, bx. of 30	3.75@4.00
Eggplant, southern	30@40

Lettuce: Per crate, southern, iced, 75@

ALPHA



PUMPING ENGINES

1¾ to 28 H.P.

Get an engine for pumping, chopping feed and other farm work that will be as good in five years as the day you bought it. The Alpha is that kind of an engine.

Send for Catalog.

De Laval Dairy Supply Co.
San Francisco

The Flying Courier's



Norwalk Tires

—built for speed and endurance.

Authorized distributors in all parts of California and Arizona.

Factory Distributors:

Lichtenberger-Ferguson Co.

Pico & Hope Sts., Los Angeles
1211 Van Ness Ave., San Francisco
1925 Merced St., Fresno

.50; Watsonville and vicinity, 75@1.00.
Peppers, Bell, lb. 10@20; Chili.....10@15
Peas .....4@7½

Investigate Our
Complete Line of
Organic

Commercial Fertilizers

of our own manufacture, under the following brands:

"Banner" Brand

(Guaranteed Analysis)

Nitrogen, 4.00 per cent; Phosphoric Acid, 7.00 per cent; Potash, 1.00 per cent.

"Reliable" Brand

(Guaranteed Analysis)

Nitrogen, 3.00 per cent; Phosphoric Acid, 3.00 per cent; Potash, 1.00 per cent.

We respectfully solicit inquiries and will be pleased to mail booklet upon request.

Southern California Fertilizer Co., Inc.

602-610 Kerckhoff Building, Los Angeles
Broadway 1381 Telephone, Home 60329

ARCADIAN
Sulphate of Ammonia

Farm for profit. Nitrogen increases the yields, hence the profits. ARCADIAN Sulphate of Ammonia supplies nitrogen at a low cost.

For sale by: CALIFORNIA: San Francisco; Hawaiian Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Pacific Guano & Fertilizer Co., Western Meat Co., California Fertilizer Works, Los Angeles; Pacific Guano & Fertilizer Co., Pacific Bone Coal & Fertilizing Co., Agricultural Chemical Works, Hauser Packing Co. OREGON: North Portland; Union Meat Co.

For information as to application, write

The Barrett Company

Agricultural Department
510 First National Bank Bldg.
BERKELEY, CAL.

W. J. Bush
Citrus Products Co., Inc.
National City, Cal.

Manufacturers of

ESSENTIAL OILS AND CHEMICALS

Citrus By-Products a Specialty

We are always in the Market for Lemon Culls

Rhubarb, Strawberry, bx. .....1.50@2.00
Spinach .....75@1.25
Squash—Summer .....1.00@1.50
Italian, bx. .....1.75@2.00
Tomatoes, Mex., cr. .....2.50@4.50
Turnips, yellow .....1.50@1.75

FRESH FRUITS

Wholesale selling price:
Apples: Newtowns, 3.50@3.75; Winesaps, ex. ice, 3.50@4.00.
Avocados, doz. 7.00
Cherries, Purple Guigne, bx. 3.00
Bananas .....7½@8½
Loquats, lb. .....6@8
Pears—Winter Nellis .....3.00@4.00
Strawberries, Imperial Valley, cr. 1.35@1.85; chests, 12.00@15.00.

CITRUS

Per box: Lemons, 2.50@4.00; lemonettes, 2.00@2.50; grapefruit, 2.50@3.50; mandarins, half orange box, 3.50@4.00; tangerines, half orange box, 3.50@4.00; navel oranges, 4.00@5.75; Valencias, 4.50@5.25; Mexican limes, 7.00@8.00.

GRAIN AND FEEDS

Barley: Feed, 2.55@2.57 per cental; shipping, 2.60@2.65 f. o. b. country.

Oats: Red feed, 2.15@2.30 per cental.

Corn: California yellow, 3.00@3.25 per cental. Egyptian, 2.90@3.00 for dry and 2.50@2.75 for rain damaged; Milo maize, 2.30@2.35 for dry and 2.40@2.60 for rain damaged.

Rye: 3.65@3.85.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.66 1-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58 1-3
No .3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 1-3

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran 43.00@44.00; mill run, 40.00@43.00; shorts, 42.00@45.00; middlings, 50.00@52.00. Rolled barley, 52.00@54.00, alfalfa, 30.00@32.00; scratch feed, 3.50 per cental. Linseed oil cake meal, nominal; cocoanut cake or meal, 20 tons, 41.00 per ton; 10 tons, 41; 5 tons, $41.50; less quantity, $42; smaller lots, higher proportionately.

HAY

Under date of May 3, Scott, Magner & Miller says:

Receipts past week 2288 tons. New volunteer hay is being harvested in many sections and can soon be looked for on the market. Within a week some will be baled in all probability. New alfalfa, first cutting, is being baled in some sections, and the first car of new alfalfa hay arrived during the week and was handled by the consignee. Hence, no market price can be quoted at present. Reports from country districts are that a few sales of volunteer hay have been made from $10.00 to $11.00 per ton and some fancy clean first cutting alfalfa has sold as high as $12.00 to $13.00. Alfalfa with foxtail, however, is everywhere being offered in quantities but has not met with any encouragement.

Weather conditions around the Bay sections have been most favorable for hay crops, some sections however are badly in need of rain and unless received shortly the yield will be materially lessened.

We quote today wholesale prices in car load lots as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.

Fancy Wheat Hay (light 5 wire bale) .....21.00@23.00
No. 1 Wheat or Wheat and Oat Hay .....17.00@19.00
No. 2 Wheat or Wheat and Oat Hay .....13.00@16.00
Choice Tame Oat Hay .....17.00@19.00
Other Tame Oat .....13.00@16.00
Wild Oat Hay .....12.00@15.00
Barley Hay .....12.00@15.00
Alfalfa Hay .....16.00@20.00
Stock Hay .....12.00@14.00
No. 1 Barley Straw, bale.....50@80

Citrus Fruit Market

Los Angeles, May 7, 1919.

Lots of decay showing up, and this is making some disastrously low sales, especially of Navels. There are now left in the state but little more than 300 cars of Navels, and perhaps half that number of miscellaneous varieties. Valencias will be the principal factor in the market from now on.

The lemon market is very satisfactory, and while the nearer Atlantic Coast auctions show some unfortunate sales, inland markets are commanding between $3.00 and $4.00 with good demand.

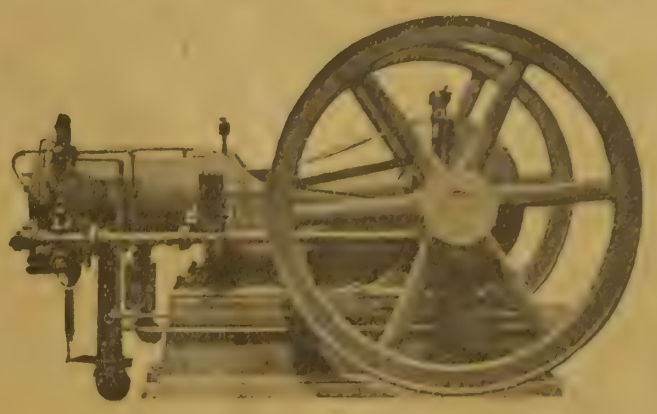
Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California: Oranges 18,906 cars, lemons 4509, total 23,415. To same date last season: Oranges 8624, lemons 2349, total 10,973. Central California this season: Oranges 3301, lemons 354, total 3653. Last season to same date: Oranges 2441, lemons 115, total 2556. Northern California: Oranges 244, lemons, 2; last year same date 202.

WEATHER CONDITIONS
San Francisco, California, May 3, 1919.

Stations—	Rainfall Wk.	Rainfall Season.	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.00	38.12	42.75	56	42
Red Bluff	.00	26.07	28.43	80	46
Sacramento	.00	17.17	19.33	88	46
San Francisco	.00	25.64	21.41	64	48
San Jose	.00	18.82	16.12	78	44
Fresno	.06	6.80	9.01	92	48
San Luis Obispo	.07	17.89	19.71	70	46
Los Angeles	.18	8.40	15.18	68	48
San Diego	.19	8.20	9.61	61	56

FOR SALE
4 Used West Coast Engines

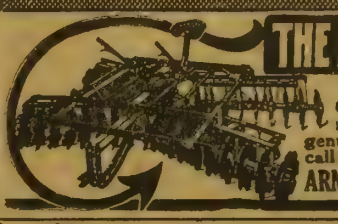


2-50 H.P.
2-60 H.P.

Burn Tops--Fuel Oil or Natural Gas. Just the Engine for your Pumping Plant

Bargains for Cash

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THE ARNOTT ENGINE HARROW

This is the strongest engine harrow of its type sold on the Coast. Heavy axles, heavy discs. Built for service. Do not accept any imitation said to be the same. Only one genuine "ARNOTT" eight, nine and ten feet wide. Write or call for full information.

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Phoenix, Ariz. Los Angeles, Cal.



Make Money With Alfalfa

No better opportunity for profit is presented to the Western rancher than is possible from the cultivation of that money crop — Alfalfa. To raise alfalfa profitably, however, an efficient irrigation system is absolutely essential. For this purpose nothing can possibly compare with the

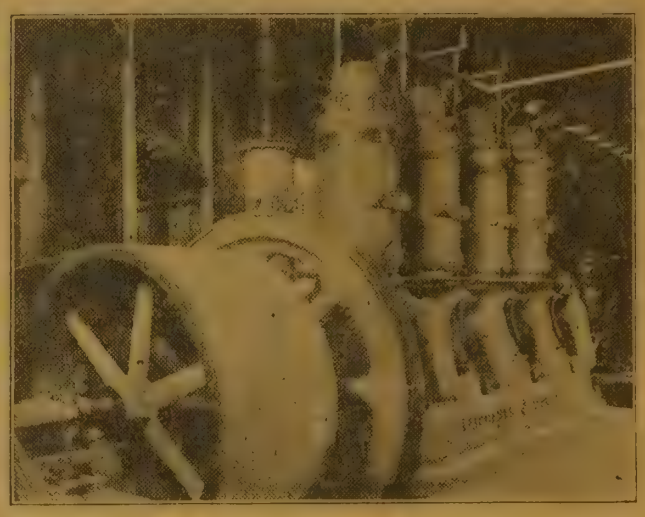
K-T System of Irrigation

—which is today in general use by successful ranchers all over the country.

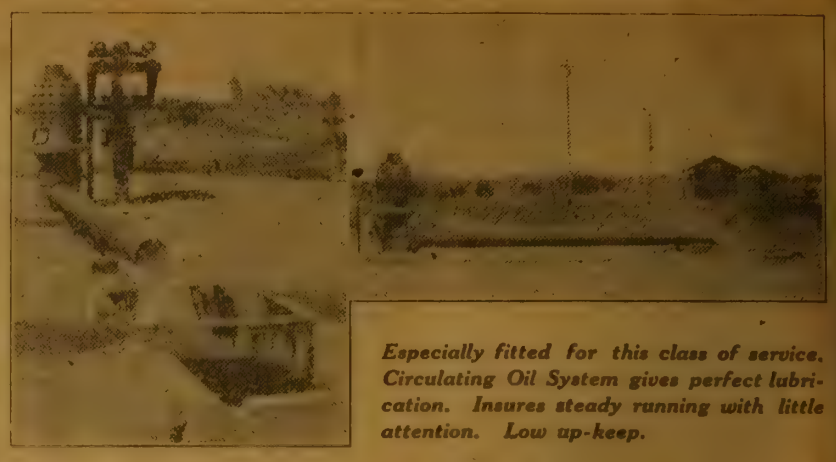
Write for any information you require on the subject of irrigation—the advice of our experts is free. Interesting literature on request.

KELLAR-THOMASON CO.
1245 East 28th St. Los Angeles
"Originators of the Valve System of Irrigating."

This 200—H.P.
Type "Y" Oil Engine



Economically Furnishes Power for delivering Electricty to these four Outying Deep-well Pumps, Driven by four Vertical Type "UH"



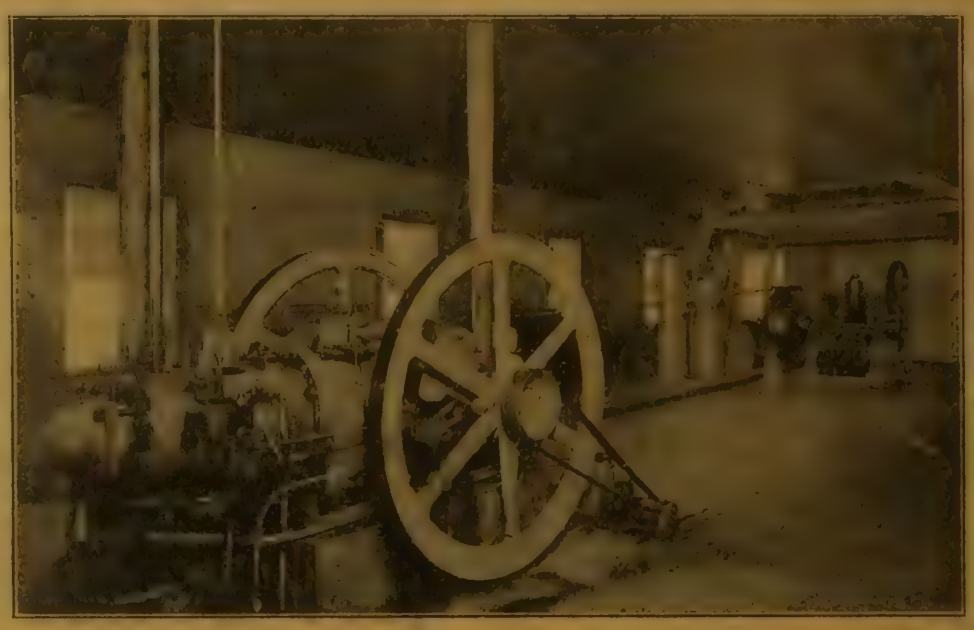
Especially fitted for this class of service. Circulating Oil System gives perfect lubrication. Insures steady running with little attention. Low up-keep.

Fairbanks-Morse Ball Bearing Motors

On the Property of The Arizona Irrigated Land Co. Avondale, Arizona

Let Us Solve Your Pumping Problems

Write for Catalogs



25--H.P.
Type "Y" Oil Engine
Furnishing Water Supply for **Irrigating** 120 Acres in addition to Domestic Supply for Pomona College



Water For 15,500 Acres

is pumped in the Lindsay-Strathmore irrigation district, Tulare County, Calif. The 37 wells are all powered with

Fairbanks-Morse Ball Bearing Motors

37 Machines—1480 H.P.

Engines *For All Kinds of Power*

Pumps *For All Purposes*

Motors *For All Uses*

Scales
Feed Grinders
Ensilage Cutters
Washing Machines
Spray Rigs
Belting
Trucks
Valves and Fittings

POMONA COLLEGE
CLAREMONT, CALIFORNIA

March seventeenth 1919.

Fairbanks, Morse & Co.,
Los Angeles, Cal.

Gentlemen:

In answer to your inquiry as to results obtained from the use of your Type Y, Semi-Deisel 25-H.P. Engine at our plant north of Claremont, would state, the installation was made in May of 1916 to operate a plunger pump with a head of 32", the water level in well being 160 ft. from the surface, with an additional boost of 28 ft. to a reservoir.

There have been no repairs to date, except one new firing pin at a cost of less than $1.00. This seems quite remarkable as the plant has irrigated about 120 acres during the season and has furnished the domestic supply for Pomona College, Claremont Inn, and a large swimming pool during the entire year. The College has over six hundred in its student body and a campus of 120 acres, so you can know the plant has not been idle. As to the operating expense, the engine consumes on an average about 2 gals. per hour of smudge oil, which tests 24° to 27°, which so far has cost us only 3½ per gal. delivered at plant. The lubrication cost us at first about 3¢ per hour, but with the advance of prices it is somewhat more now.

I will state that all you claimed for the Type Y has proved true, and the perfect performance of this engine and the efficient and courteous service of your employees has been a great source of satisfaction.

Yours most truly,

Fairbanks, Morse & Co.

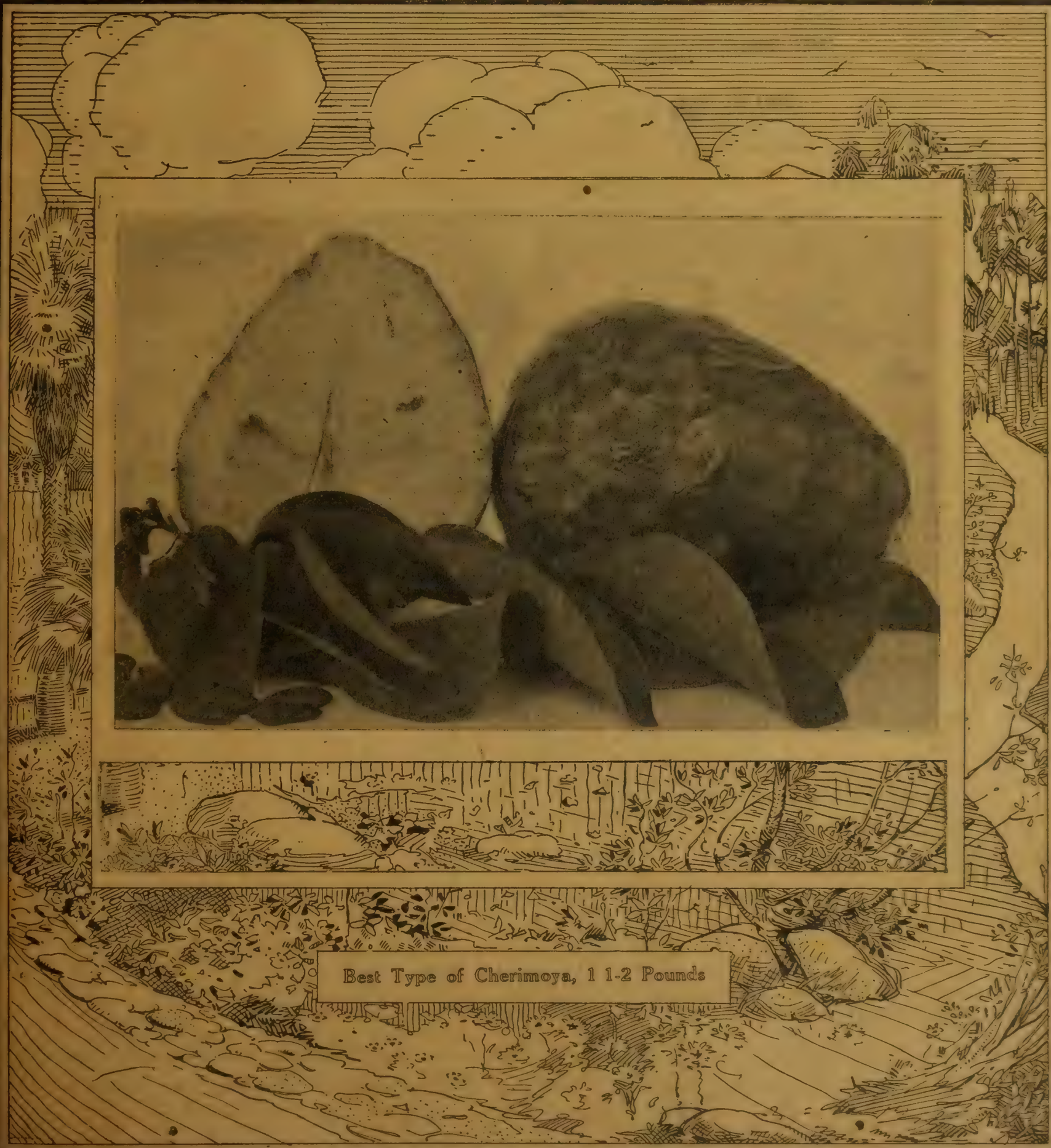
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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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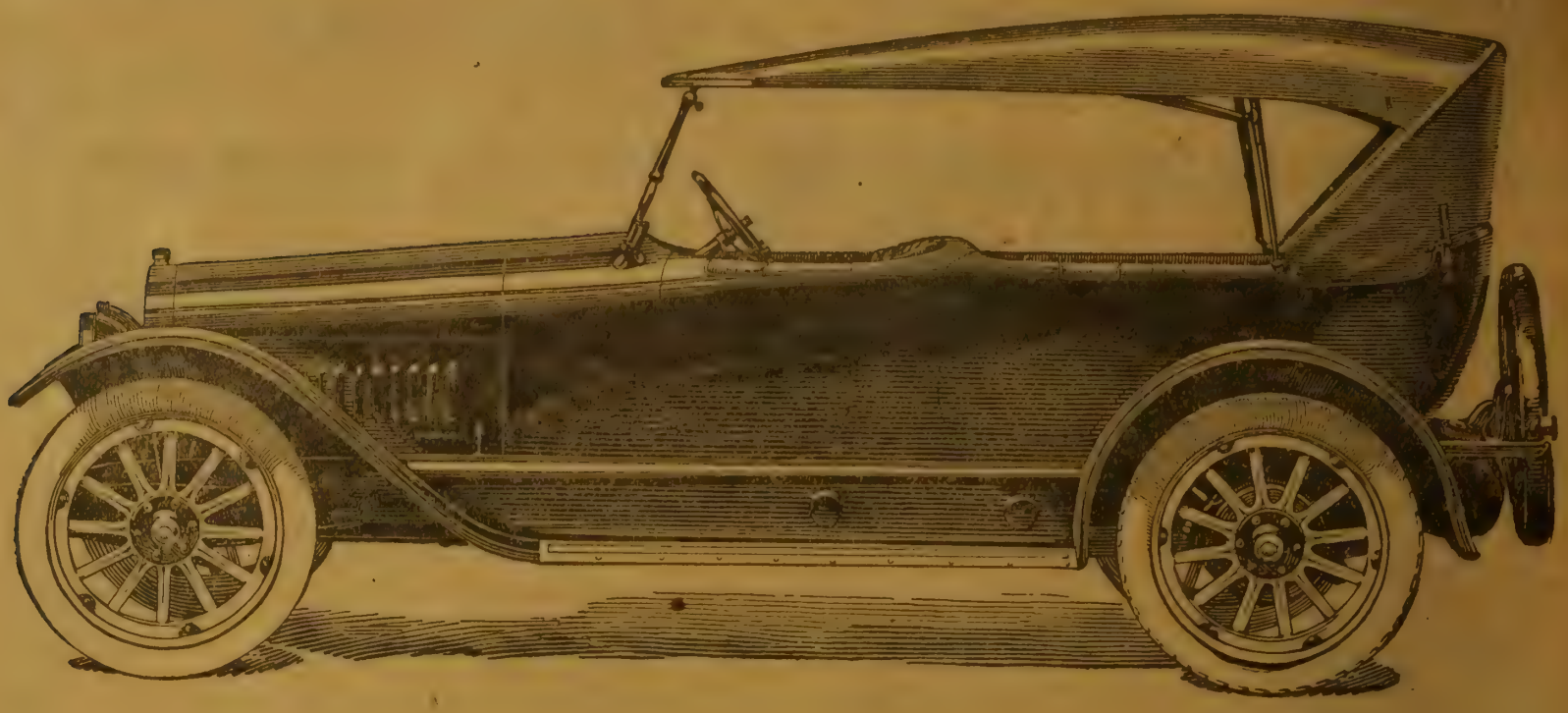


Best Type of Cherimoya, 1 1-2 Pounds

New Mitchell Sixes

New Victory Model

Over 100 Improvements
50% More Strength



To Meet the Call

For a More Enduring Six

Some years ago, when most cars were too heavy, there came a demand for Light Sixes.

There came a rivalry on lightness, and makers went too far. There came also a price rivalry, and the fierce competition led makers to skimp. The average Six was built too small, and quality standards were not high enough.

Years of experience have shown the mistake. Extreme lightness is not economical. A cramped car is not comfortable. Makers have found and users have found that such cars lacked endurance. Men want better cars in these days when cars are bought to keep.

The mistakes were natural, but ideas have changed. The great call now is for a sturdy car that lasts.

Here Is the New Idea

This new Mitchell shows the new idea. It is more than a new model — it marks a new epoch. Inside and outside it is based on new standards.

The changes are radical. Not in years has any new model of any type shown so many great advances.

There are more than 100 improvements. The average strength increase is 50 per cent. Endurance is increased 75 per cent.

Despite added weight, the operating cost is reduced 25 per cent. Comfort and beauty are increased 20 per cent.

All Done in Two Years

This car was started two years ago. We employed many new specialists to help us create it. Soon after that the war came, and the great Mitchell factory went into truck building.

That gave these experts their great opportunity. During all those months they developed this car part by part. They studied every requirement and met it. They reviewed the records of tens of thousands of cars to learn the changes needed.

They spent $250,000 for new machinery and equipment, for finer workmanship and more accurate tests. And they trained a staff of 135 inspectors to watch every detail, to analyze and test.

Cannot Be Too Good

This new Mitchell is built on the theory that cars cannot be too good. We have made it roomy — 120-inch wheelbase.

There are new gears, a new frame, a new rear axle, a new crank shaft, to add 50 per cent to the strength. There is a new disc clutch. Brake efficiency is increased 75 per cent. There is a ball-bearing steering gear. There are 123 drop forgings. There are rear springs which have never been broken.

There is a thermostat in the water system. The gasoline is completely vaporized. These with motor changes, save 25 per cent on fuel.

There is a new body design, a new, enduring top. There are four coats of varnish, instead of the usual two.

Write us for complete description, or let your Mitchell dealer show all the changes to you.

A Price Surprise

When you compare this car with others you'll expect a costly car. You will see a hundred betterments, and many are expensive. But the price is lower than any car of like size, power and class.

The Mitchell plant has long been famous for its wonderful efficiency. All these new standards are paid for by that saving. We build the complete car — motor, chassis and body — under scientific methods.

Write us for all the facts.

$1475 f. o. b. Racine

Five-Passenger. 120-Inch Wheelbase.
Motor a 40-Horsepower Six.
Three-Passenger Roadster, same price.
New-Type Touring Sedan, $2175

Seven Passenger Touring Car.
127 inch wheelbase, 48 horsepower motor
$1675 F. O. B. Racine.

MITCHELL MOTORS COMPANY, Inc., Racine, Wisconsin



One of the Best
The big C. L. Best handled the heaviest loads with perfect ease.



A Trackpull
The Bean drawing three Knapp 24 inch disk plows six inches deep.

The Tractor Demonstration

By M. C. Holman

ABOUT six miles north of Sacramento on the main highway is Arden Acres, an almost level stretch containing more than a section of land. On this piece of ground the California Tractor and Implement Association staged its second annual demonstration last week.

The demonstration was a success from many standpoints. It was successful in point of attendance and that means that it was a general success, for attendance is what is wanted and most desired. It was successful in point of general arrangement, which was the best that could be had when we consider that each exhibitor demands a good space for the proper working of his tractors. It was successful from a field standpoint as the ground was of such a nature as to make it apparent to every visitor that the tractors and plows were having a severe test to cope with the hard, dry clay. And the demonstration was successful in point of actual buyers for some very creditable sales were made. The sales were made without any hammer and tongs salesmanship. The buyer had an opportunity of estimating relative values of the machines for his particular class of work. He saw and was won to the merits of his purchase.

This demonstration has successfully eliminated the side-show features which have obtained in former demonstrations. There were no dare devil stunts, no circular motions, no hill climbing, no effort to show that the tractor could do what it would never be expected to do. It was an educational demonstration from every viewpoint, educating the farmer to the practical benefits to be derived by using tractors.

The grounds resembled very much a tented city. Canvas was spread at many points and sheltered various exhibits.

But it was not difficult for one to cover the ground and see all the tractors at work during the period from 10 to 12, when the collective demonstration took place. The general field of demonstration covered an entire side of the tract and one could see the various types working side by side and make comparison of the mechanical features and the adaptability to one's needs.

The manufacturers of tractors are desirous of educating the people into the fitness of the tractor for general farm use.

We do not believe that a more severe test was ever placed upon tractors and plows at a similar demonstration. Conditions were abnormal. The regular plowing season is over and the scarcity of rain in the Sacramento Valley made the ground particularly hard and dry. To turn it over required great pulling power coupled with the sturdy plows. The tractors held up wonderfully well and only in one or two instances did the plows need any special attention. If they can do so well under severe conditions it is pretty convincing proof that they will meet all normal demands and that the user will get the very greatest satisfaction out of his machine, provided, of course, that he takes good care of it and does not overload it.

Naturally there were large and small tractors, wheel tractors and tracklayers. They vied in friendly competition. California conditions are so varied that there is a place for every size and style. For heavy work over large areas one has a choice of the Holt and Best 75, the Yuba 40-70, or the large Avery. These machines successfully pulled combinations of mold boards and disk plows and sets of heavy disks to a depth of 10 and 12 inches.

Not so heavy, yet fully capable of reasonably heavy work, are the second size Holt, Best and Yuba, the Sandusky, J. I. Case, Lauson, Monarch, Russell and Cleveland.

Of medium strength and suitable on hundreds of California ranches are the Samson, Fageol, Bates, Fordson, Wallis Bear Cat, La Crosse, Waterloo Boy, Emerson, I. H. C., Knight-Lee, Huber, Twin City, Moline Universal, Velie, and Little Giant.

(Continued on Page 689)

Glimpses of Arden Acres

All photos of the great tractor demonstration were taken by Mr. Holman of the San Francisco office of the California Cultivator. There was a bit of dust in the air now and then which prevented photographing exactly as desired, but the tractor at work as shown in the illustrations in this issue will, we trust, prove educational to tractor buyers.



Upper engraving Mrs. D. M. Finch driving the Holt 75 with 8-14 combination disk and mould board plow. The plowman was putting the plows in 11½ inches deep when this photo was taken.

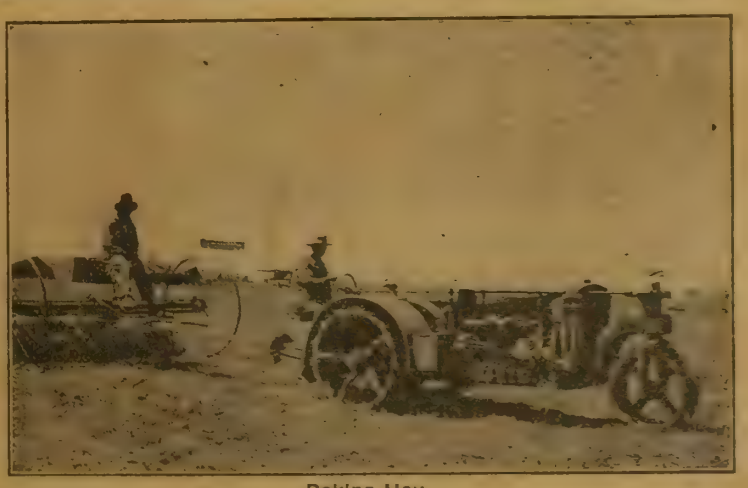
Big 40-70 Avery pulling 12 12-inch mould board plows.

Yuba 15-20 pulling four 10-inch mould board plows.

Wallis pulling four 24-inch disk plows.



Pulls Its Load Easily
The big J. I. Case walking away with the disks.



Raking Hay
The Samson is as strong as its name, but at this instant it is doing some light pulling at four and one-half miles per hour on high gear.

Agricultural News Notes of the Pacific Coast

Northern California

Ukiah reports contracts for prunes at 11¼ cents.

Colusa County citizens are agitating for a good roads campaign.

Material is being delivered in Colusa for the big new rice mill.

Humboldt County reports the building of several highway bridges in the county.

Poultrymen of Eldorado County are considering the formation of a county association.

Many Butte County crows are meeting death through dining on the poisoned barley furnished for the squirrels.

Investigations as to cause and control of citrus blast are to be made in Butte County by the county farm adviser and federal experts.

The first plantings of spinach made in Eden Township, Alameda County, have been very successful. Growers averaged three tons to the acre.

Mildew is threatening some of the wheat fields of Yolo County; it is hoped that warm days will soon put an end to the danger of its spread.

A mosquito abatement district has been formed at Anderson, Shasta County. The district is to include a mile wide section around Anderson.

The first monthly auction sale of the Eldorado County farm bureau was a complete success. The next sale will be held on the last Saturday in May.

Farm Adviser Sweet of Butte County will resign from his office July 1 to return to his work in the department of pomology of the state university.

Fruit growers of Mt. Vernon, Edgewood, Long Valley and other nearby districts will conduct a community packing house this season in Auburn, Placer County.

The entire pack of the Oroville plant of the Pacific Coast Mercantile Company was Greek, Italian and Calamarta olives. The entire pack was shipped East.

A clip of 85,000 pounds of wool was shipped from Maxwell, Colusa County, last week to Boston. The clip was the property of F. R. Mendosa and was sold at 50 cents per pound.

The California Prune and Apricot Growers is holding a series of meetings in some 40 different sections of the state to discuss business of the association and to conduct a membership campaign.

The Fourteen Counties Protective Association held a mass meeting in Sacramento last Tuesday to devise means of combatting the present tendency to allow Japanese and Hindus to settle on the most fertile lands of the state.

Shipments of lettuce from Oroville to Idaho have been started by J. H. Leggett, who says that most of this trade has heretofore been supplied from Los Angeles and that he sees no reason why Oroville with its shorter haul should not take advantage of this opportunity.

Negotiations to compromise the two suits brought by Colusa County against rice growers are now under way; the defendants to the actions are E. V. Jacobs, J. S. Hankins and the Willows Rice Company in one case, and Maria Hagan, Frank B. Hagan, John Lausten et al, in the other.

Central California

Offers of as high as 18 cents for dried apricots are reported.

There are considerable plantings to roselle in the Turlock district.

An immense crop of olives is reported in the orchards of San Luis Obispo County.

Stanislaus County farm bureau holds a fat hog auction at Tegner Friday of this week.

The creamery at Oakdale, Stanislaus County, is turning out 6000 pounds of butter daily.

San Luis Obispo County horticultural commissioner is making a strenuous squirrel campaign.

The packing house handling fish of Monterey section reports large demand for salmon and other fish.

N. E. Luce, federal poultry expert, is now in San Joaquin County giving advice and help to poultry raisers.

Kings County farmers are reporting prices as high as 18 cents for dried apricots and 15 cents for dried peaches, next fall's delivery.

Live stock men of San Luis Obispo County recently met in the state polytechnic school and organized the S. L. O. County Stockmens Association.

The Uneeda Creamery at Lodi has changed hands, being sold to N. Jensen and C. Bladh. Mr. Bladh has been manager of the Cooperative Creamery at Bakersfield.

The California Farm Bureau Market Association has issued an open letter to all swine breeders that it is not in the market for any but good hard grain fed animals.

The prune growers expect their crop to be double that of last year and to safeguard the market are urging all their brother growers to join the California Prune and Apricot Growers' Association.

Railway people have served notice on stockmen of Monterey and Santa Cruz Counties that chemical weed killers have been used on weeds along tracks and that the weeds will be poisonous to live stock.

Horticultural Commissioner Rutherford of Stanislaus County has just completed a tour of inspection of the county and says crops of all kinds give promise of large yield. The fruit in the eastern part of the county is fully two weeks ahead of other sections.

The Alfalfa Growers of California met in Delano May 1. One hundred growers were present and were representatives from Weed Patch, Bakersfield, Panama, Rio Bravo, Rosedale, Shafter, Wasco, McFarland, Strathmore, Tulare, Pixley, Tipton, Quail, Earlimart and Delano.

At a mass meeting of bean growers of Merced and Stanislaus Counties at Turlock, May 3, resolutions were passed petitioning congress to place a high tariff on foreign grown beans and to take steps for immediate sale of American beans grown at the request of the food administration.

It is estimated that 10,000 acres are planted to cantaloupes in the San Joaquin Valley. This acreage is located principally in Stanislaus, San Joaquin, Merced, Tulare and Kern Counties, the Turlock district having the largest plantings. Growers report considerable difficulty in securing a stand, but are endeavoring to bring it up to normal by replanting.

Southern California

A new cotton gin will soon be erected at Brawley, Imperial County.

Sale has been made of 80 tons of apricots in the vicinity of Elsinore for $55 per ton.

Fifty-five dollars for Cling peaches is being offered in Hemet Valley, Riverside County.

A new sorghum syrup factory is announced for the near future in the Pomona-Chino district.

Members of the Hemet Apricot Growers Association are organizing to secure labor for the coming fruit season.

Imperial is sending out express shipments of early tomatoes. Most of the acreage in tomatoes is handled by Japanese.

Imperial water users have sent Phil D. Swing to present the needs of their irrigation district to the called session of congress.

The rains and moist weather of last week proved most acceptable to grain and will save some crops from the making of hay.

Local meetings of the Imperial County farm bureau at Alamo-Verde, May 20; Mesquite Lake, 21; Acacia, 23; Central-Highline, 27.

A poultry institute will be held at the Mission Play theater, San Gabriel, May 26-29. It will be conducted by J. E. Dougherty of the state university.

The Blackeye bean growers of Orange County have formed a pool of their beans and will hold on to their crop until midsummer when they expect to get better prices.

The Yucaipa Apple Association is faced by a serious need for housing accommodations for the workers who will be needed at the coming harvest, and is taking steps now to meet the problem.

It is being urged that the permanent highway between Blythe and Mecca in Riverside County be made through the Chuckawalla Valley instead of following the course of the old road.

During the year the shipment of milk from the San Jacinto district of Riverside County has increased from 20 to 120 cans daily, and there is a steadily growing interest in the dairy business.

Dr. J. Eliot Coit, who has been farm adviser of the Los Angeles County farm bureau since its formation, will resign on June 1 to take up again his work in the college of citriculture of the University of California.

It is too early for any predictions but the heavy bloom of orange trees is most promising for good citrus year. Navel orange shipping season is nearing its end and Valencias will soon be in full possession of the market.

Melville Dozier of the state reclamation board and George W. Peltier of Sacramento have been making a tour of Southern California; investigating conditions in this part of the state and asking help for a plan to put control of flood waters under the state.

Meetings of the Los Angeles County farm bureau will be held at Lamanda Park and La Verne, May 19; San Dimas, 20; Artesia, 21; Owensmouth and Newhall, 22; Pomona and Inglewood, 23; Burbank, 25; Little Rock and Monrovia, 27; Del Sur and Roosevelt, 28.

The Coast and General

Stock ranges in the Southwest generally are in good condition, except in northern Idaho where stock is reported rather thin.

Veterinarians of the state of Arizona are planning a big state convention to be held in Phoenix some time in the near future.

The highest quotations for Long Staple Egyptian cotton were 56 to 59 cents at New Bedford. Yuma variety is quoted at 50 to 52 cents.

Oregon reports crops generally good but rain is needed, apples and prunes setting heavily, ranges turning dry, but stock in good condition.

An effort is to be made by the Arizona state game warden, Joe V. Prochaska, to introduce Eastern clams into some of the Arizona streams.

Farmers of the Salt River Valley, Arizona, are beginning to cut the first crop of alfalfa and it is estimated that 75 per cent of it will be first class.

Railroads are refusing to ship melons from Georgia without prepayment of freight unless melons have been treated with stem end paste to prevent rot.

There will be expended in the Tonto forest reserve, Arizona, the sum of $76,500 for building a bridge across the Salt River and for improvement of roads into the Pleasant Valley country.

Wholesalers are paying 47½ cents a dozen for fresh ranch eggs in the Phoenix district of Arizona. This is an advance over a week ago and said to be due to a shortage which cannot be supplied from outside sources.

The so called "Dry Landers", being the owners of lands within the boundaries of the Salt River project, have recently been granted water rights. This will increase somewhat the acreage of cultivated land in Maricopa County.

Major Andrew Drumm, who recently died at San Antonio, Texas, was in his earlier years, a well known cattleman of Arizona. He was at one time a part owner of the "Double Circle Cattle Ranch" in Gila County. In the early '50s he was a gold hunter in California.

Under an agreement reached between the United States Indian service and the land owners of the Florence-Casa Grande Valley, a dam will be constructed at Florence which will include 35,000 acres of Indian land and 27,000 acres belonging to the white settlers.

There has been some disappointment among Arizona autoists that the $30,000 appropriation made by the Arizona legislature for building a bridge across the Colorado at Parker was not met by similar appropriation from the California highway department. This means that there will be no bridge across the Colorado at Parker for some time to come.

A meat packing plant to cost $500,000 is to be built near Phoenix. This, it is hoped, will furnish a market for all hogs that may be produced in the Salt River Valley, and the promoters promise that the prices will be the Kansas City prices less the freight, which should mean not only better prices for home grown pork, but a considerable saving to the consumer as well.

51st Fruit Growers and Farmers Convention

MUCH of the history of California horticulture is found in the proceedings of its annual or semi-annual State Fruit Growers' Conventions. These conventions were started first under the jurisdiction of the old state board of horticulture. For many years the late Elwood Cooper was president, and when the board was abolished and the commission created Mr. Cooper became the first commissioner. Later commissioners were J. W. Jeffrey, the late Dr. A. J. Cook, and the present commissioner, George H. Hecke. The activities and the work of the commission have greatly increased during the past few years, insectary, quarantine and other divisions have been added, and the commission has become a great factor in California horticultural work.

At first the convention covered the field of transportation, tariff and other legislation, and the larger phases of state horticulture. Later conventions also included matters cultural, and now the scope has been again enlarged, and, as noted in the heading above, the State Fruit Growers' Convention has become the State Fruit Growers and Farmers' Convention. These conventions have been held annually, and sometimes semi-annually. It is now more than a year since the last convention was held, but this convention was scheduled for last fall at Riverside. It was deferred because of the "flu."

Still another enlargement of activities has been noted the past few years and other organizations have chosen the same place and time of meeting until it has become a great producers' week.

In addition to the Fruit Growers and Farmers' Convention there will be held a Interstate Plant Quarantine Conference, California County Horticultural Commissioners' Convention, Convention of the California Association of Nurserymen, Vegetable Growers' Conference, Pacific Slope Branch American Association of Economic Entomologists' Convention.

The Mission Inn will be headquarters, but for those who prefer camping the city has extended courtesy of camping privileges in beautiful Fairmount Park where firewood and cookers, shower baths, plunge and toilet, boating on the lake, ample shade for campers and autos, all are provided free of charge to those wearing the convention badge.

OUTLINE OF PROGRAM

May 26, 9:30

The first event on Monday morning will be roll call of county horticultural commissioners. Interstate plant quarantine conference, Commissioner Hecke presiding. It is expected that C. L. Marlatt, chairman federal horticultural board, will be at this conference, also at conferences of nurserymen, to discuss matters of national quarantine. Governor Cantu of Lower California will also be present. The California Association of Nurserymen will also convene at 9:30. Outline of program next week:

1:30 p. m. Interstate Plant Quarantine Conference. Quarantines, Their Purpose, etc., Frederick Maskew; What Constitutes Grounds for Rejection of Nursery Stock, Dr. A. W. Morrill, Arizona state entomologist. Also at 1:30 Vegetable Growers Conference, Deputy Commissioner Weldon presiding. Uniformity of Rules and Regulations of Potato Seed Certification, E. P. Taylor, Arizona; Potato Seed Certification, Mrs. Hilda B. Nielsen, Sebastopol.

8:00 p. m. County Horticultural Commissioners discussion of horticultural legislation of 1919.

May 27, 9:30

Interstate Plant Quarantine Conference. Interstate Quarantine on Alfalfa Weevil, W. W. Henderson, Utah crop pest commissioner, and R. R Hagan, Utah state crop pest inspector. Interstate Quarantine on Potatoes, M. L. Bean, chief division of horticulture, Olympia, Washington.

Vegetable Growers Conference, Eugene Grubb presiding. Effect of Good Seed, E. R. Bennett, Idaho; Vegetable Seed Improvement, S. S. Rogers, University of California.

May 27, 1:30

Interstate Plant Quarantine Conference, Commissioner Hecke presiding. Pink Bollworm, C. L. Marlatt, Washington, D. C. There will be time for discussion following practically every address. In this case delegates from Florida and Arizona will discuss the addresses.

3:00 p. m. County Horticultural Commissioners, Fred Seulsberger, presiding.

8:00 p. m. Interstate Plant Quarantine Conference. Discussion of reports on policies and organization, led by delegates from Nevada and New Mexico.

County horticultural commissioners will also hold separate meeting.

May 28, 9:30

First Session State Fruit Growers and Farmers Convention to be held in Pilgrim Hall. Called to order by State Commissioner Hecke. Music, invocation, welcome, response, report on horticultural legislation, cooperative and marketing associations.

Pacific Slope Branch of American Association of Economic Entomologists, trip to citrus experiment station.

1:30 p. m. Fruit Growers and Farmers, C. C. Teague presiding. Use and Value of Crop Estimates, E. E. Kauffman, bureau of crop estimates, U. S. D. A.; Cooperative Marketing Associations; Soils and Fertilizers, Prof. Kelly, citrus experiment station; Oranges for Thanksgiving, James Mills.

8:00 p. m. State Fruit Growers at Pilgrim Hall. Addresses by Governor Stephens, C. L. Marlatt, Thomas F. Hunt, G. Harold Powell.

May 29, 9:30

State Fruit Growers, E. A. Chase presiding. Cooperative and Marketing Associations; Citrus Canker, Wilmon Newell, state plant commissioner, Florida; Land Colonization, Dr. Elwood Mead.

1:30 p. m. State Fruit Growers, H. W. Wright presiding. Cooperative Marketing Associations; Relation of Experiment Station Work to Practical Fruit Growing, J. C. Whitten, U. C.; Effect of Heavy and Light Pruning on Deciduous Fruit Trees, W. P. Tufts, U. C.

7:00 p. m. Dinner, A. N. Wheelock presiding, toastmaster to be named. Speaker, Harry Williams, war correspondent. Address, Spots and Rots, J. A. Blaisdell.

May 30, Field Day

Auto trip to Corona by way of March Aviation Field, citrus experiment station and Peace Mountain Drive. At Corona there will be opportunity for inspection of the by-products factory where luncheon will be served. Returning to Riverside there will be a stop for inspection of the buildings and grounds of the Sherman Institute and a beautiful drive thence along Magnolia Avenue to the Mission Inn.

Demonstrations of the latest methods of fumigation as practiced in the citrus groves will be given sometime during the day. These will illustrate the latest methods of fumigation by the use of liquid hydrocyanic acid gas.

Riverside is an ideal convention town and it has had a live wire committee handling local affairs for the great week. This will be one of the most important events in California horticulture.

Giving the Soil a Drink

By James De Camp

WATER and life are inseparable. Where there is no moisture existence ceases. Where there is but a limited supply growth is arrested and development retarded. Perhaps the biggest problem confronting agriculture in California is that of applying the proper amount of good old H2O at the most judicious time.

Each year agriculture becomes more of a positive science. The progressive farmer no longer relies upon the whims of the weather or a variable source of water supply which is usually at lowest ebb when irrigation is most needed. Thorough fertilization, careful selection of seed and perfect cultivation become a dead loss unless there is an adequate water supply and efficient means of distribution.

The various methods and systems of irrigation are more numerous than the suitors of a millionaire's daughter. The entire collection of practices, however, resolves into three main groups, overhead irrigation, surface irrigation and underground irrigation.

Surface irrigation is the most popular, inexpensive and perhaps the most effective, although each method of applying the water is sponsored by its particular group of enthusiasts. Ditches, trenches, flooding, basins, standpipes and a large number of other devices are used in this work. The main objection is baking or caking of the surface soil in warm weather. It is also charged that there is excessive evaporation under certain climatic conditions and that portions of the grove or crop are slighted because of variation in the absorbent qualities of the soil. There has been a great deal of controversy regarding the merits of surface irrigation on sloping land, some maintaining that the water races over the higher portions and pools at the foot of the grade, neglecting part of the soil and over-saturating the remainder. To this the answer is made that the water does not proceed downgrade until the soil over which is must pass has helped itself to all the moisture it should contain.

Underground irrigation aims to distribute the water to the exact spot where it is most needed, namely in the immediate neighborhood of the roots. Porous piping or pipe punctured at intervals or provided with ports is installed for this purpose. Experience has shown that this plan is still in need of a number of improvements. The openings have a tendency to become clogged or stopped up entirely and the whole equipment is well nigh inaccessible for cleaning or repairs. The difficulties vary with soil conditions, ranchers in some districts stating that this type of irrigation is well adapted to their specific needs.

Water for irrigation is provided by gravity flow from a supply situated on some higher level or by pumping from a level lower than that of the land which is to be served. In the former case the water is usually imprisoned behind a dam and conveyed to the scene of the irrigating by flumes. In the latter instance a pumping plant supplemented by ditches, pipes or distributing flumes must be installed.

The choice and installation of a pumping plant brings forth an unabridged catechism of kinky problems. Unless one is equippedwith a dependable technical education it is highly unwise to settle these matters alone. The large pump and machinery houses and agencies employ experts whose sole business it is to advise the farmer and plan installations with sufficient capacity and pressure to cope with local conditions. Several pump catalogues are provided with a detachable blank in questionnaire form which may be filled out with information concerning your distribution needs and will be promptly answered by an irrigation expert. The houses who do not supply this convenient form stand equally ready to consult with you and give you the benefit of their experience.

The type of pump that should be used depends upon the following points: Source of water, quantity of water required per hour, height and distance the water must be pumped from the source of supply to the distributing system, and nature of the water, whether pure and clear or gritty and muddy.

Energy to operate the pump may be supplied by electric motors, gas, gasoline, oil and steam engines, turbines and waterwheels. The electric motor is the most convenient and consistent medium for driving the pump and requires a minimum amount of attention and care. Gasoline engines are also reliable and economical but fortunate indeed is the man situated near a stream or river of sufficient velocity to turn a waterwheel, since this equipment practically eliminates operating costs.

When installing a pumping plant for irrigation purposes many fail to ob-

Continued on Page 709

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, May 17, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

A fruit which is little known in California is shown on the cover of this issue—little grown but wonderfully enjoyed by those who live in frostless sections, for this is a purely tropical fruit and will never be a large commercial factor in this state. It is the cherimoya or, more often called, the custard apple. It is not a good keeper or shipper, which will also affect its commercial value. This fruit was introduced into the state in 1871, and is found growing in protected nooks from Santa Barbara to San Diego, usually near the coast. Most of the cherimoyas in this state ripen in the spring, though there are varieties which ripen in the fall. If one has a mind to experiment with rare fruits it might be possible to hybridize and grow other varieties which would grow fruit much of the year.

VICTORY LOAN

Victory with a big V was celebrated in the going over the top with subscriptions for the first Victory or the Fifth Liberty Loan. Returns are not complete and duplications are being eliminated so that it is not yet known how far over the top the loan has gone, but it is safely over.

OVERSEAS

It is very probable that before these words are read the wires may flash the news of the landing of the American airplanes on European soil. These planes are now preening their wings on the extreme eastern shores of Newfoundland and ready for the start.

$50,000,000 FOR ROADS

Pennsylvania is planning large for the expenditure of a $50,000,000 road bond fund. She proposes soon to be able to point with pride to the finest road system on earth. Meantime California has already made vast mileage of the best roads on earth and she proposes to increase the $33,000,000 already spent with at least another $40,000,000, and in the very near future.

FOR INDEPENDENCE

The Philippine Islands have a delegation now in Washington making preparations for appealing to the American congress to grant to the Philippines what the Americans have demanded of middle Europe, that is, independence, or power of self government. It is presumed that congress will demand of the Filipinos proof of their ability for self government. Cuba was trusted too readily and it was necessary to give a little disciplining before she learned the real lesson of self government.

SOUR LAND

Professor Cyril G. Hopkins of Illinois is now carrying the gospel of liming sour lands to the farmers of Greece. Professor Hopkins is making extensive soil experiments in all parts of Greece and has discovered large tracts abandoned because of "sour land." He also has discovered near these great stretches of ruined land large deposits of lime, and is now bringing the lime and land together and introducing the culture of melilotus to restore soils to fuller fertility. Professor Hopkins is not only giving information direct, but with assistants is giving instruction to Greek chemists and other scientists in the matter of soils and fertilizers.

SECURE THE BONUS

Many of the returning soldiers are not aware of some of the valuable services which our government is offering to render those who have spent the last year or two in training camps or overseas. For those who may be partially disabled or for any who wish to take vocational training which will give better opportunities in life, the government is providing training, including food, clothing and practically all living expenses, together with small recompense while the returned soldier is taking this course.

Other rights of soldiers as to insurance or recompense for dependents are probably well understood. There is another, however, that is not so well understood, and that is as to the bonus of $60 which has been awarded by the government. For this state there is a representative of the war department at 1660 Market Street, San Francisco who has to do with this matter of bonuses. Regarding the work of this office the department writes:

"Lieutenant Sullivan's duties will consist chiefly of certifying copies of the discharges of officers and enlisted men who are entitled to receive the $60 bonus awarded by the government. It is not necessary for the soldier to present his discharge in person; he may mail it, giving his address for the return of the original. It is advisable that the envelope be registered, and that ten cents be enclosed, that the return papers may also have the protection of registration. The same procedure may be followed by those entitled to reimbursement of mileage."

STATE FRUIT GROWERS

A half dozen associations which will meet at Riverside the week beginning May 26 have such extended programs that it is impossible to give all place in the Cultivator. An outline which gives one opportunity of choosing his favorite meeting is given on fifth page of this issue. Merely as a reminder we refer to it that fruit growers and farmers may take advantake of this great opportunity. One meeting especially which will be watched with interest is that of the entomologists who gather from California and other Western states to discuss quarantine and prevention of spreading of plant diseases. This is bringing together not only some of the biggest and brainiest of the Western members but is also bringing to the state representatives of the department of agriculture at Washington.

CULTIVATE

One still sees in an occasional orchard the winter green manure crop not fully turned under. True, there are some Washington Navel orchardists who are this year making experiments in covering soil with green growth in the hope that it may in a measure prevent the June drop. This is a comparatively new idea in citrus growing and will be given thorough test. Such growers, however, have sufficient moisture to keep both crops growing. But the orchardist who is short in any degree of water may this year find difficulty in maintaining suffient moisture to mature large crops —as a rule they will be large—and at the same time keep the trees in best condition for another year's crop.

The best conserver of the natural soil moisture is a mulch of dry dust secured by thorough and shallow cultivation or by mulch of straw or other material which keeps the sun's rays from taking too great a toll from the soil. It will be but a short time now until this toll will be heavier. Polish up the cultivator and harrow.

A JUST PEACE

Germany may well thank America for the full measure of mercy which is meted out to her in the provisions of the peace treaty, an outline of which has been given to the world during the last week. If America had not been a factor in the discussion about the peace table it is to be presumed that the peace terms would have been fully as harsh as were those for the Russians in the Brest-Litovsk treaty. Notwithstanding that at the first look at the peace terms there are many points which appear harsh toward the Germans, more careful reading with careful consideration of various acts committed during the past four years, convince every believer in justice that the German nation has not received more than it deserves. One traveler in eastern France and Belgium has referred to the conditions which he saw in traveling into Germany and said that in the two countries occupied by the Germans during the four years desolation prevailed everywhere and the faces of children were pinched and drawn from the sufferings of hunger, but the moment the Rhine was crossed even the dogs were fat.

It should not be punishment that the Allied nations are meting out so much as discouragement of future wars. It is rumored that the German delegates will refuse to sign the treaty; also that the armies of the Allies are on edge and ready for instant start for Berlin in case of refusal to sign.

CROP REPORTS CONTINUED

The issues of the Cultivator of May 3 and 10 both contained large number of expressions as to fruit crop conditions from nearly every county of the state. While there are some sections like the counties about San Francisco bay, where apricots are reported rather under normal, as a rule the indications are for fine quality.

The cool and moist weather has encouraged the ravages of fungus and some insect pests, but in the main crop conditions are fine. Oranges and lemons give promise, so far as can be given at this time of the year, of most satisfactory performance. Hay crops will run somewhat short though they will be large enough that the trade anticipates slightly reduced prices. Here are a few of the reports which had not been received at time of last issue.

Andrew Davis and Ernest Burris, West Highland, San Bernardino County

Peaches; clings, 60 per cent; frees, 45 per cent.

Pomona Contractors

Canners in Pomona sections have contracted for 7000 tons of peaches.

California Fruit Distrbutors

Here's the way it looks, but this may very materially change: Cherries, 60 to 70 per cent of a crop; peaches, full crop; apricots, 65 to 75 per cent; pears, full crop; plums, 60 to 75 per cent.

G. P. Weldon, Deputy State Horticultural Commissioner

Mr. Weldon sent earlier report, which, by an oversight was omitted last week. However, in a word: "In general, conditions throughout the state are reported very good. There has been some damage to the apricot crop in places from cold, rainy weather during the blooming season. This is also true in the case of almonds. The pear, apple, prune and peach crops, acording to present indications will be very large. Peach leaf curl has developed to a considerable extent in certain sections and, while it will not seriously decrease the yield, it will locally cause quite a bit of injury."

John A. Winkelman, Horticultural Commissioner, Eldorado County

Crop report for Eldorado County: Pears, 75 per cent of normal; apples 100; plums, 90; peaches, 100; cherries, 100.

Pears are setting rather light in the lower district but it is a bit too early yet to be able to state about the higher altitudes. Blight has made its appearance in the Coloma district and is causing enormous damage to the crop. Some varieties of plums are light, some are very heavy. Peaches look very good.

E. E. Kaufman, U. S. D. A. Bureau of Crop Estimates

Generally speaking all California fruits are in a most excellent condition. Fall and winter rains left the trees and soil in fine condition for a good set of fruit, and aside from a trifle late and below normal temperature at blossom time the outlook could hardly be improved.

Early cherries will be a light crop, but with a good late crop the production promises to be equal to or larger than in 1918.

Almonds show a full crop in some counties, but very light in others, all tending toward a larger production than last year, when any previous crop was exceeded by more than 1000 tons.

Apricots in the bay counties failed to set a good crop, owing to low temperatures and rain storms during the blossom period and will be a light crop, but in Southern California, the San Joaquin and Sacramento valleys conditions are practically normal and a production larger than in 1918 is promised, while the big crop of 1914 of more than 150,000 tons on a green basis may be surpassed.

Detailed reports on apples, peaches, pears and prunes are not made by the Bureau of Crop Estimates until June, but at the present time conditions for the above are normal or better for the state as a whole.

DR. COIT BACK TO THE UNIVERSITY

Dr. J. Eliot Coit, who has been at the head of the department of citriculture of the college of agriculture, was given leave of absence from department work and, as a war measure, a year and a half ago was made farm adviser of Los Angeles County. The classes are now returning to normal so there is demand for Dr. Coit's return to university work. He has announced that his work as farm adviser in Los Angeles County will terminate on June 1. His successor has not been named.

THE TRACTOR DEMONSTRATION

(Continued from Page 685)

Smaller tractors include the Bean, Avery and Whitney.

When one figures what these machines were doing one realizes that their field of usefulness is unlimited. In the field they pulled plows, scrapers, harrows, rakes, pulverizers, etc. In the tents they were driving grain separators, threshers, drilling machinery, cream separators, ensilage cutters and many other forms of farm machinery. And on the farm one can easily realize that they can be used in dozens of ways and that each day may show forth a new use.

The part that women are playing in tractor operation must be reckoned with as one of no mean proportions. They have shown their complete ability to handle the largest and strongest tractors. A few years ago no woman would have considered herself capable, suited or safe to drive a big Holt. This year one is being driven very skillfully and easily by Mrs. D. M. Finch of Woodland, whose husband is a Holt owner and operator. Her assistance enables him to do nearly twice the ordinary work on his hundreds of acres, and the machine gets double use, thereby giving double value.

The Yuba 40-70 was operated by Miss Lorraine Bahms, and the 12-20 by Miss Edith Brown of San Jose.

If the ladies find such complete ease in handling the larger machines how much more easily should they become masters of the smaller types! Quite likely this work will become more and more a part of their profitable sphere, for there is every reason to believe that women should profit by the healthy outdoor life that the operation of a tractor gives.

This was called a demonstration. Now what did it demonstrate? It demonstrated that plowing, harrowing disking, pulverizing, etc., are practical and economical with a tractor. It demonstrated by the attendance that the people of California are alive to the benefits of tractor farming. It demonstrated that mechanical science has taken a strong hold on the people and that the farmers of California know they can use a tractor where formerly only horses were thought available and suitable.

Not many years ago the tractor was a novelty and it had to forge a place for itself against existing prejudices. By demonstrations such as this the manufacturers have made the people know what can be done, for they have shown them the actual working of tractors under conditions that are far more severe than are likely to be found on the average farm. By catalogues, circulars, and instruction books, they have taught the science of mechanical farming, and by advertising to him through his farm paper they have shown a way to better working and living conditions.

It is estimated that between 30,000 and 40,000 people visited the demonstration last week.

Additional Tractor Displays

Farm implements that naturally go with the tractor in the field have an important part at every demonstration. This last demonstration brought out plows, large and small, disks and mould boards, light and heavy in great variety. There was an abundance of them from prominent manufacturers, chief of which were the Pacific Implement Company, the Baker, Hamilton and Pacific Company, the Oliver Chilled Plow Company and the H. C. Shaw Company. The Killefer Company of Los Angeles, exhibited the strongest plow ever made. It is used for deep plowing where the soil is particularly hard. A big 75 is required to pull it.



Hauling the Disks

All kinds of work were demonstrated. One of the newer ones. The Whitney 9-18 pulling double disks and pulverizer carrying seven foot tandem disk and seven foot pulverizer.

Aside from the plows there were rakes, harrows, graders, pulverizers in almost endless variety. The Avery Company and the Averill Company showed a full line of grain threshers.

Accessories included carburetors, magnetos, portable beds for autos, oils and greases, etc. The Hansen Machine shop in full operation was a particularly instructive section, where one could see actual cylinder grinding and boring, together with general repair work.

The Ideal Green Feed cutter, shown by the De Laval Company, of San Francisco, was operated by a belt from their Lauson tractor. This cutter makes available the use of all of the feed for cattle, thereby saving 15 per cent to 25 per cent that is ordinarily lost in feeding hay and other similar foods.

The Rotary Grain Cleaner, shown for the first time, seems to have wonderful possibilities. Aside from the excellent work it does, there are a

(Continued on Page 692)

ESSEX MOTORS DETROIT U.S.A.

How They Praise

They Compare the New Light Weight Car to High Powered, High Priced Automobiles

Essex Performance

Essex performance is now talked of so generally among motorists that you should know what they are saying.

Hundreds of thousands have seen the Essex.

They have admired its costly car appearance. They speak of its completeness in appointment and how it differs from other light weight, moderate priced cars.

But they grow enthusiastic over Essex performance. A car at its price and of its weight was never expected to possess such hill climbing and acceleration capacity. The standard it sets has been known only in the large high priced field.

And in speed and easy riding qualities it also matches the cars which sell at two or three times its price.

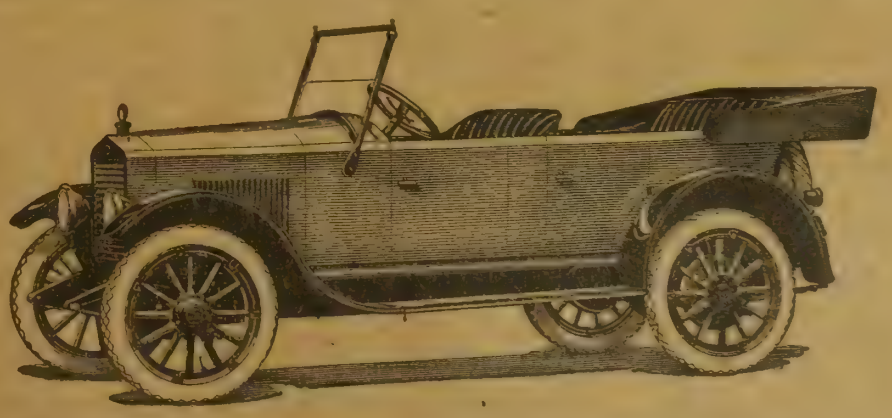
You hear on every side how steadily it holds the road at speeds difficult to maintain even with some larger cars. And as for ease of riding there seems no standard known to motor cars that the Essex does not surpass.

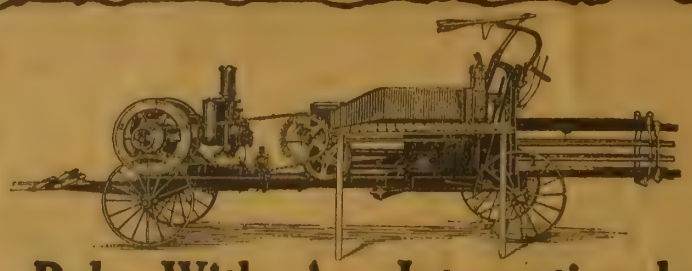
Remember these are not our claims. They are the frank and voluntary praise of tens of thousands. You can find Essex friends wherever you go.

We advertise merely to induce you to ask about Essex and to arrange to take an early ride in it. You will surely become one of its friends. Perhaps you will want to own an Essex, and if that is so the sooner you learn to know it the better.

Sales already are far in excess of production. If you delay you might have to wait a long time to get your car.

The price is $1395 for a five passenger model at Detroit.





Bale With An International

WELL-BALED hay always commands a ready market at good prices. It requires less storage space than loose hay and maintains its quality better. It pays to own an International hay press whether you bale as a profession, side line or for your own farm use.

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There's an International — horse, motor or power — to suit your exact needs. These presses all make smooth, neat, uniform bales — the kind that look well, sell well, handle well. They are durable, easy running, smooth running and powerful.

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Peg-Tooth Harrows
Orchard Harrows
Soil Pulverizers
Cultivators

Power Machines
Kerosene Engines
Gasoline Engines
Kerosene Tractors
Motor Trucks
Motor Cultivators

Haying Machines
Mowers Tedders
Side Delivery Rakes
Loaders (All Types)
Rakes Bunchers
Combination Side Rakes and Tedders
Sweep Rakes Stackers
Combination Sweep Rakes and Stackers
Baling Presses

Planting & Seeding Machines
Corn Planters
Corn Drills
Grain Drills
Broadcast Seeders
Alfalfa & Grass Seed Drills
Fertilizer & Lime Sowers

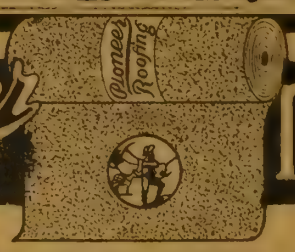
Corn Machines
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Shellers
Huskers & Shredders

Other Farm Equipment
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Stalk Cutters
Knife Grinders
Tractor Hitches
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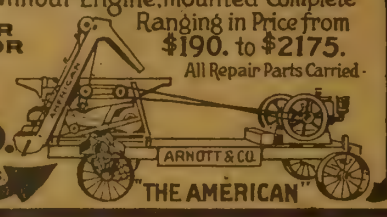
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Abnormal Shedding of Young Fruits

Dr. J. Eliot Coit and Robert W. Hodgson unite in authorship of account of investigations of the abnormal shedding of young fruits of the Washington Navel orange, published as Number 11 of Volume III of University of California Publications in Agricultural Science. This is a complete and scientific statement of much of the matter which has been given out by the authors through the public press during the past two or three years. The text is made plainer by 17 full page plates and a number of text figures. A number of pages of the discussion are summarized in the following:

Citrus trees as grown in the interior valleys of the arid Southwest are subject to an environment entirely abnormal to them in their natural habitat.

Moreover, the principal variety grown in these regions, the Washington Navel orange, is itself decidedly erratic and unstable.

Among other troubles incident to the abnormal climatic conditions is that heavy dropping of the young fruits, with consequent light crops, known popularly as the June drop.

A study of the shedding has established the fact that it constitutes true abscission, involving the separation of living cells along the plane of the middle lamellae.

Exhaustive investigations as to the stimulus or stimuli responsible for the abscission have narrowed them down to two: a fungus, Alternaria citri E. and P., and climatic conditions.

It is considered highly probable that a certain varying per cent of the drop, occurring relatively late in the season, is brought about by the stimulating of this fungus, which is also responsible for a black rot of those infected fruits which remain on the trees to maturity.

This fungus is of very wide distribution and infection of the young fruits is made possible through the peculiar structure of the navel orange.

The amount of infection is dependent upon weather conditions and the more or less fortuitous configuration of the navel end of the young fruits.

On account of the peculiar manner of infection and the relatively small amount of shedding due to the fungus, spraying will probably not pay for the labor and materials involved.

By far the greater part of the shedding, which occurs earlier in the season, is due to a stimulus to abscission arising from daily water deficits in the young developing fruits, resulting from the asperity of the climatic complex to which the trees are subject.

The principal factor in causing these abnormal water deficits lies in the fact that citrus trees are not adapted to withstanding the heavy water loss incident to the desert conditions under which they are grown.

The ampliture of stomatal movement is small and cuticular transpiration very high.

It is further believed that under the prevalent clean cultivation practice, the soil temperatures during a part of the day are so high as to result in the inhibition of absorption at the very time of day that water loss by transpiration is greatest.

It has been found possible to modify climatic conditions in an orchard so as to set crops in every way comparable with those produced in much more climatically favored citrus districts.

Under these modified climatic conditions the abnormal water relations referred to apparently do not occur.

Practical means of amelioration lie in heavier and more frequent irrigation, the planting of intercrops, mulching with straw and other materials, protection by means of windbreaks, and a reduction of leaf area by moderate winter pruning.

Measures of an anticipatory nature lie in the judicious selection of the site for the orchard with reference to its exposure, nearness to large irrigated bodies of land, and other features calculated to ameliorate climatic conditions.

Orchardists should be on the lookout for mutant strains which are dry heat desistant and satisfactory in other features.

CITRUS INSTITUTE ORGANIZED

Dr. H. J. Webber, director of the state citrus experiment station at Riverside, has been named president of the California Citrus Institute to be held annually in San Bernardino in connection with the National Orange Show. Permanent organization of the Institute was effected at a meeting of the committeemen held in San Bernardino, the committee having been named at the institute held last February.

Other officers named: Vice president; R. O. Price of Upland; secretary, F. M. Renfro of San Bernardino; treasurer, W. H. Fleet of Sespe. Membership committee: W. H. Fleet of Sespe, J. G. McBeth of Riverside, C. N. Norton of Pomona.

By-laws were adopted tentatively until the next institute in February, 1920.

CAPRI FIGS IN DEMAND

J. C. Forkner, a fig grower of Fresno, is making a canvass of the fig growing sections of the state, searching out any possible capri fig trees. The growing of Calimyrna, or the true Smyrna, figs has increased during the past few years and there is need for more of the capri trees which produce the fig which shelters the blastophaga and makes it ready for fertilization of the flowers of the Smyrna fig. Mr. Forkner writes of several of these trees which have been discovered, the value of which has not been known to the owners, the trees occupying neglected ground. It is probable that during the next two months there will be market for every one of these capri figs which have been occupied by the blastophaga.

FARMERS SHORT COURSES

The University of California announces Farmers' Short Courses under direction of the college of agriculture, to be held at University Farm, Davis, September-December. So far as announced the following are the dates:

September 16-25, gas tractors; September 29-November 7, general agriculture, including animal industry, poultry industry, dairy manufactures; November 10-22, butter making, bee keeping; December 1-13, cheese making; December 8-20, deciduous fruits.

SAVE THE PRUNES

Professor W. V. Cruess of the college of agriculture estimates that a great part of the $5,000,000 loss suffered by prune growers because of the rains of last fall could have been saved by a series of evaporators. The University of California has issued a bulletin entitled, "Salvaging Rain Damaged Prunes," in which Professor Cruess outlines methods.



No Belts—No Suspenders

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Lauson Stirring up the Dust
Lauson 15-25 plowing eight inches deep, light gear.

THE TRACTOR DEMONSTRATION

(Continued from Page 689)

number of strong features in its favor. Owing to its small size, it occupies a very little amount of space in any granary, barn or warehouse. It requires so little power that any little engine can be used to run it. There is no shaking of any kind to tear and wrack the machine to pieces, as all moving parts revolve around centers smoothly and quietly.

The Western Soil Bacteria Company of San Francisco and Los Angeles exhibited a series of living grains showing the effects of planting small amounts of grain and combining them with some of the legume plants inoculated with Westrobac. Barley plants with as high as 85 stalks from a single seed, wheat showing 50 to 60 heads, oats about the same, were on exhibition. This is the result of having sufficient food in the soil to meet the needs of growing plants.

The Standard Oil Company presented a wonderfully educational display showing oils in various processes of manufacture. Their lubrication expert delivered lectures every afternoon on the subject of proper tractor lubrication.



A Striking Exhibit
The Corrugated Culvert people had a striking demonstration of grain elevators, grain storage, and grain handling appliances.



An Exhibit in One of the Big Tents
The Westrobac people show the pulling power of Western made soil bacteria with proper soil and seed conditions.

Side Lights on the Demonstration

It was a noticeable fact that not a



The Standard Oil was There
The Standard made not only a fine exhibit in the interior of one of the tents, but its supply wagons were ever present with supplies of distillates and oils.



Pulling the Disks
The Fageol tractor pulling seven foot tandem disks and seven foot pulverizers.

single horse was seen about the grounds. Visitors all came in autos and the parking space was a congested mass of machines.

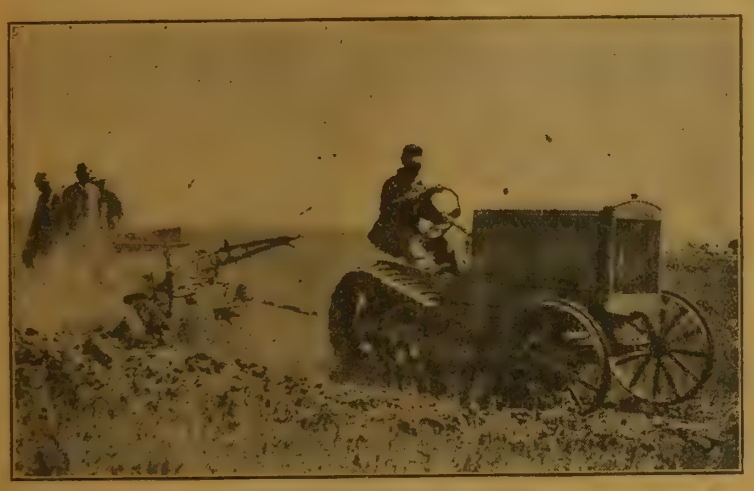
This demonstration was purely a business affair and no attempt was made to show off or perform such stunts as are never likely to be met on the farm.

pany, J. I. Case, C. L. Best, International Harvester, Baker, Hamilton and Pacific and others. From some points the demonstration grounds presented the appearance of a tented city.

Restaurant facilities proved quite attractive and each day the boys knocked off to enjoy the local spread.

The new C. L. Best 60 was demonstrated for the first time:

The Velie tractor is a new one on



Handles the Disks All Right
Bates Steel Mule drawing eight 24 inch disks.



The Sandusky
The Sandusky pulling mould board plows.

Many manufacturers provided tents and carried complete lines of tractors and implements. This was true with De Laval Dairy Supply Company, Holt Manufacturing Company, Yuba Manufacturing Company, Avery Com-

California. Its work was quite successful and it will fall into the medium size class.

The Cleveland is now equipped with an eight inch track in place of the six inch track, as formerly used.



A Monarch
The Monarch 12-20 tractor pulling four 10 inch mould board plows.

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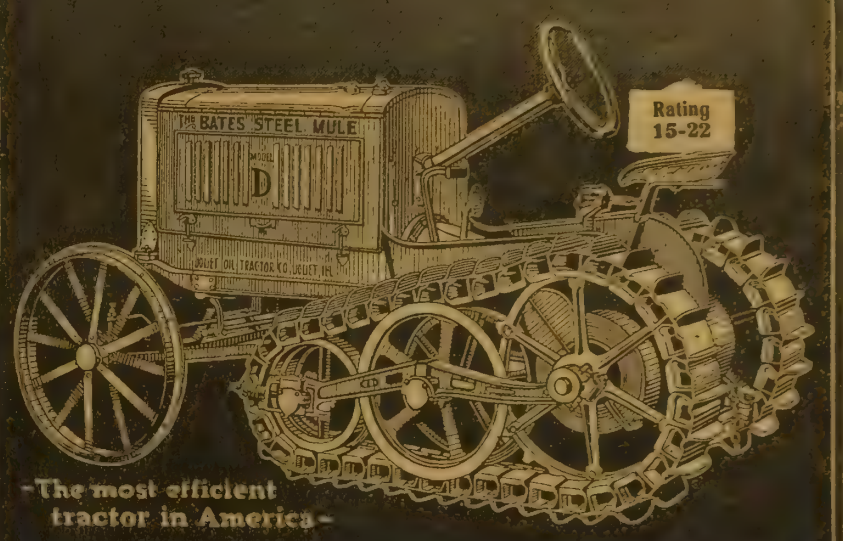
Correct mechanical principles combined with the proper alloy steels, specially heat treated for this hard service, make the BATES STEEL MULE Crawler Shoes of great durability. The knowledge of what these materials must be and how they must be heat-treated has become known to its builders only through the experience gained during the past six years with thousands of tractors in the field.

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"Yes, I'll spray again in a couple of weeks."

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—Trees sprayed with Tizit have proven immune to Red Spider.
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Asparagus Production in California

By R. G. Risser, Federal Truck Crop Specialist

ASPARAGUS production as conducted in California is in certain respects typical of farming as practiced in this state. It is a highly specialized business, is carried on by a system of agriculture which is both intensive and extensive, and is mostly concentrated in restricted districts. The localized nature of asparagus production is indeed recognized both in California and in the United States as a whole. When the last census was taken 75 per cent of the country's acreage was located in seven states, California had the most extensive area and in all probability it still holds the first place in asparagus acreage, as the area has been practically doubled since the census was made. About 90 per cent of the asparagus acreage of California is located in the rich sediment and peaty lands of the delta of the Sacramento and San Joaquin rivers. These reclaimed districts of Central California have proved to be well adapted to the cultivation of this crop. It is here in Sacramento, Contra Costa, Solano, San Joaquin and nearby counties, that the earliest large asparagus shipping business in the United States and the major portion of America's asparagus canning industry is located. The asparagus as grown in the delta is not only the most important perennial vegetable grown in the state, but in point of acreage is the most extensively grown truck crop produced in a limited district, except potatoes. At existing contract prices it should bring the growers and landowners of this section a gross return this season of close to $2,500,000. Aside from the river district of Central California, Imperial Valley of Southern California is the location of another important shipping district, and incidental plantings are distributed through several counties.

Asparagus production affords an excellent illustration of the extension of truck crop acreages. When the census was taken in 1899 there were 2368 acres of asparagus in California and 10,184 acres in the United States. When the next census was taken in 1909 there were 9399 acres of asparagus in California, or almost as much land devoted to this crop in this one state as there was in the entire United States ten years previous. Since then the rapid growth of the industry has continued, indicating that a proportionate extension of the area has occurred. During the past two years, however, the asparagus industry in California has passed through a critical period of its history. There has been serious difficulty in providing labor; the cost of production and handling has greatly advanced, material losses of the produce have been sustained, particularly during the rush periods, and the development of the crop has been too late to provide supplies adequate for successful shipping seasons. Yet in spite of these severe drawbacks the area of new plantings which were made the past year was almost twice as large as the area of old fields which were plowed up and more planting is being made this year. The largest increase in acreage is in Solano County.

As the past two seasons have not been normal ones, it is necessary to go back for the past four years to convey a fair idea of the usual production. From records obtained from many sources and checked as closely as possible, the following estimate of production has been computed:

	Canning, lbs.	Shipment and Local, lbs.	Total lbs.
1915	38,873,280	17,268,500	56,141,780
1916	47,555,520	20,068,500	67,624,020
1917	57,444,576	15,600,000	73,044,576
1918	41,998,650	14,147,500	56,146,150

The first column refers to the product which is consumed in the preserved state, and the second refers to the product which is consumed in the fresh state.

The production in Imperial Valley in 1917 was 688,125 pounds; 1918, 566,125 pounds. The crop produced in this district is not canned.

Preventing Bees From Swarming

IN reply to a request for information as to the cause of excessive swarming of bees and the way to remedy it the following suggestions were recently furnished by letter to the inquirer, by Dr. Charles T. Vorhies, entomologist, University of Arizona:

Unfortunately the problem of bees swarming is one which cannot be met by any one remedy in all cases. Bees swarm for a variety of reasons, and consequently a number of possible deterrent measures should be known to the bee keeper, one or more of which he must select according to the probable conditions which lead to the trouble in his case. I will attempt to post briefly for you the several means which are used.

Swarming often seems to result from crowding, and the remedy is to provide more space. A general change to larger hives in a whole apiary may sometimes be desirable, but a particular hive may be enlarged at the time a remedy is needed by the addition of supers, or even by the addition of a second hive body on top of the original, and this latter may even be allowed to become a second brood chamber. That extracted honey producers have almost no trouble from swarming is due to the additional space provided by the large supers of foundation or empty comb on which the bees can work.

Too warm a hive may lead to swarming. Hives should be in fairly well shaded locations, and good ventilation should be insured if bees are seen to hang on the outside of the hive in masses, by giving a large entrance opening. The hive may even be raised in hot weather by placing a small block under each corner, permitting ventilation and entrance on all sides of the hive. Masses of bees hanging on the outside of the hive do not always indicate that swarming is about to occur.

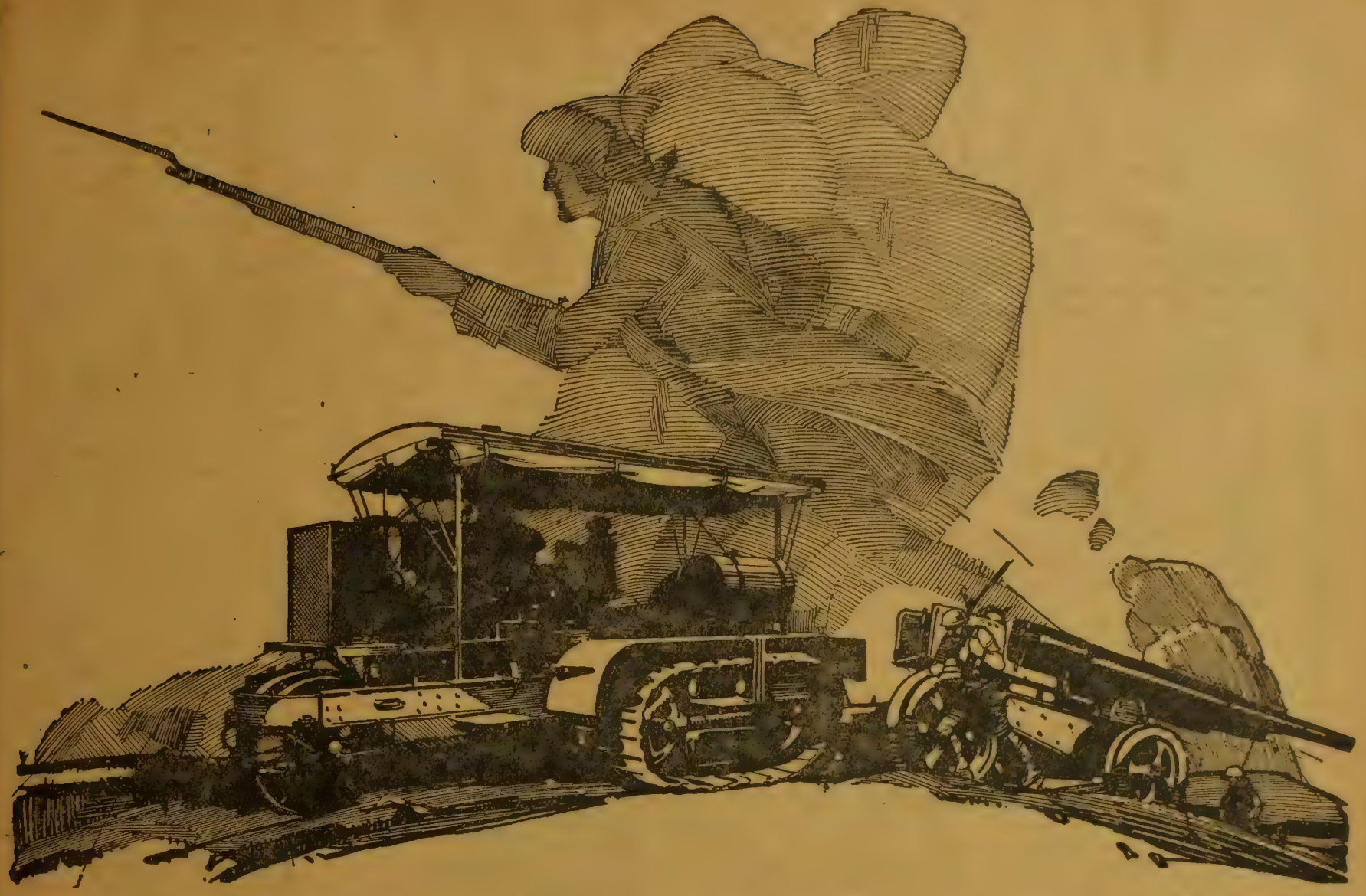
Clipping the wings of the queen some time before the swarming season is often resorted to, but does not always prevent swarming. However, the swarm cannot get away if this has been done, and the queen can be picked up from in front of the hive and placed in a new hive on the old location.

Inspecting the hives every eight days and killing the eggs or young found in queen cells is often, but not always, a successful preventive of swarming.

It seems to be pretty well agreed, that swarming is more likely to occur from hives having old queens than from hives having young queens. Therefore requeening with young queens is frequently a successful remedy.

Caging the queen or removing her for a period of ten days is another method used to prevent swarming. In case this is done the queen cells which the bees will at once produce must be sought and destroyed at the end of eight or nine days.

Removal of some of the brood and its replacement with frames of foundation or empty comb, or, what amounts to the same thing carried further, removal of the colony to another hive when it is preparing to swarm, is still another method. The latter may be done all at one time by placing a new hive containing frames of foundation or empty comb in the old location, removing the old one to one side, and shaking the bees down in front of the new hive. When the brood has hatched in the old hive it



The Farmer of '17 and the Farmer of '76

Each went to war in defense of his country and of the ideals which he held dear.

The farmer of Revolutionary Days beat his plow share into a sword with which to carve out a free America.

The modern farmer performed a similar and an even more important service, for by patriotically yielding to the priority of Government orders which limited the output of the Holt factories available for domestic delivery, he contributed one of the greatest mechanical agents of the war—the "Caterpillar" Tractor.

Through the genius of the military experts of this country and its Allies, this *peace-time* machine, designed to till the soil of a million farms, was adopted for the most strenuous *war-time* uses.

Adopted in armored form as the mighty armored "Tank," which is conceded to have saved 20,000 lives on the Somme in the Fall of 1916 alone.

Adopted as the standard heavy hauling machine by America and its Allies, being used to move guns and caissons and supply trains, making sure that no matter how fast the dough-boys might move, or how muddy or rough the terrain might be, their artillery would be right behind them, ready to lay a protecting barrage at a moment's notice.

Of course, only the "Caterpillar" Tractor would do for the armies' most strenuous work. That is why, when The Holt Manufacturing Company in 1914 put its facilities at the disposal of the Allies, the English and French took practically the entire output of its eastern factory. And that is also why the U. S. Ordnance Department, when it launched the most complete motorization plan the world had ever known, after severe tests adopted "Caterpillar" Tractors exclusively for all the heaviest and most severe work, taking not only the output of the Holt eastern factory, but also engaging scores of other eastern factories on the production of Holt tractors, assemblies and parts.

But at last the stress of war is ended and Holt factories are again on a pre-war basis, strengthened by their war-time service and experience, now again making immediate delivery of "Caterpillar" Tractors and parts.

The same efficiency of principle; the same rugged construction; the same self-track-laying design, turning engine power into draw-bar power with a minimum mechanical loss—all the qualities which won the "Caterpillar" Tractor honor upon the battle-fields of Europe—are at the disposal of American Agriculture as in the days before the war.

Reconstruction time should be tractor time. Write today for full information regarding the "Caterpillar" Tractor. Ask for Catalog 401.

"Caterpillar" Tractors—built only by Holt or under Holt contracts and patents—the only track type of tractor adopted, after rigid tests, for the severe war service of America, England and France.

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is added by shaking to the new one. This change may be accomplished in two operations by removing half of the brood frames from the hive and replacing them with empty comb or foundation frames, after which the bees are shaken from the removed frames in front of the hive entrance. After work has been well started on the newly added frames replace the remaining half of the old brood frames in the same way. Give the frames of beeless brood to colonies that can use them.

Remember that there is no single infallible remedy, and select the remedy or remedies that judgment dictates as most likely to meet the conditions in a particular case.

Do not permit excessive swarming in any case if a profitable honey crop is expected, and try to prevent any swarming whatsoever. A larger number of colonies is really needed in the apiary.

State Engineer Thomas Maddox of Arizona, states that the federal appropriation for good roads is based largely on the 1910 census which gives Arizona 204,354 population, while the soldiers were furnished on an estimated basis of a population of 409,203. He has asked the Arizona delegation in Congress for legislation which will give the state a larger portion of the road funds.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Turks Dying

Am losing lots of my young turkeys. They seem to have no get up, droop around and finally die. I feed clabbered milk, young onion tops and crumbs. They have plenty of range in 40 acre peach orchard, plenty of good drinking water. I keep housing quarters clean and in first class shape. Is there anything I can do to remedy present conditions?—Subscriber, Delano.

It is possible your turkeys are lousy. Have you dusted their heads and under their wings with buhach powder? If not, that is the first thing to do. Dust them well and dust the hen also. Lice are deadly foes of young turkeys. If there are no lice we must conclude that the turkeys are dying of blackhead, though you do not mention diarrhoea, which is nearly always a symptom of this disease. In that case the only thing to do is to feed less. Your ration is all right, except that bread crumbs are not as safe feed as rolled oats. If your turkeys have good range they need very little besides. It would be a good plan to feed nothing but cottage cheese in addition to the greens they get on range until you are sure they are all right. Most little turkeys die from overfeeding, and once they are sick there is no cure.—J. A. K.

Incubation at Fault

What is the matter with my little chicks? They are dying very fast and not two weeks old? They become pasted up with a substance that was of a creamy color. I washed them off with warm water with lysol in it, but they eventually died; they had buttermilk and sour milk to drink, so it does not seem that it could be white diarrhoea. There are others with no signs of any discharge. They stand with their wings out like a fly, eat little, drink little, do not move much, some times they live several days, some times only a few hours. The brooder house is new on new ground. The hatch was a poor one; one incubator began to hatch between the eighteenth and nineteenth days and all were out by the twentieth. The other one did not begin until the twentieth day. Only ten per cent eggs were unfertile, but many died in the shell. My hens are three years old, some of the roosters also, others are young. Out of 100 eggs only 49 chicks came out. Some of them were weak and crippled. Incubators had not been used for two years, but there were no weak or sickly ones in the last batch before they were put up for the season.—Subscriber, Dos Palos.

A positive diagnosis of white diarrhoea can be made only by a careful bacteriological examination of a dead chick. If they continue to die it might be well to send one to Agricultural Experiment Station, Berkeley, and ask for an examination. Meantime continue the buttermilk diet and remove sick chicks as soon as they show signs of the disease. There was evidently something wrong with the incubation of these chicks, and that may be at the bottom of the trouble. The fact that there were cripples shows that the temperature ran too high at some time during the hatch. If the incubator had not been used for two years how do you know the thermometer was accurate? If it was just a little out it might easily have spoiled the hatch. Any druggist will test your thermometer. It is possible, too, that your brooder does not keep the chicks warm enough or that you have been running the temperature too low. Forty chicks in a 100-chick brooder need a higher temperature than 100 chicks would. The only test is, are the chicks comfortable? Do they lie comfortably around on the brooder floor, or do they huddle and peep? If they do not act comfortable, give them more heat.—J. A. K.

Smut

Herewith twigs covered with smut or sooty appearing deposit. What is it, and what will cure it?—Subscriber.

This smutty deposit, or rather growth on trees and plants, is an indication of insect infestation. There are many insects which induce the growth of this fungous trouble, and the remedy is to spray or fumigate so as to remove the insects. The most common of these are the black scale, aphis and mealy bug, and there are many others. Hence the remedy has to be fitted to the particular insect which causes the trouble. Presumably the trouble in this case was the aphis because the twigs indicate no infestation with scale. These twigs were sent to Professor H. S. Fawcett, and he says: "I think you are correct in assuming that the twig contains the ordinary black sooty mold which usually follows or accompanies the presence of some of the honey dew secreting insects."

Growing Orange Nursery

I would like to have some advice on the care of young orange trees. I planted a nursery this spring and they are just budding out. Some of them appeared to have dried up after transplanting but are now shooting out from the bottom. Should I cut off the dried tops? When can I expect to bud? Can you tell me the name of a book that will give general information for a beginner?—Subscriber, Porterville.

The most complete nursery book we know of is "The Nursery Book" a complete guide to the multiplication of plants, written by Professor L. H. Bailey and published by the Macmillans of New York, at $1.50 net. This, however, is not written from a California standpoint although there are several pages given to citrus fruits, stocks for, and to other phases of orange tree production, but the book is most complete as to the general nursery practice. As to the specific questions above these plants should be given sufficient cultivation and fertilizer to push out good vigorous growth, and if the top is dying back as suggested then choose one of the more vigorous shoots which will come out near the base of the plant and encourage its growth until the fall of the year when fall or dormant budding may be practiced. The more sucessful buds, however, are produced by the spring buds which should be set in March or May of next spring.

Black Scale

I would like to ask about black scale on orange trees. My three and four year old trees are showing it for the first time. Is there any spray that



will kill it?—Subscriber, Long Beach

At one time growers worried somewhat over the black scale. It is found to be very easily controlled, however, the best method being through the use of the fumigation tent. If there is no outfit near you however, the best way would probably be to spray with kerosene emulsion or other contact insecticide. These may be had of any seed and plant house with information as to proportion to mix with water. It would perhaps be well not to spray these trees, however, until later in the summer as results from spraying on blossoms or recently set fruit might not be favorable to a big crop this year.

Peach Leaf Curl

I have a number of three-year-old seedling peach trees, and this year six of them are affected with a leaf disease; the leaves thicken and turn red and curl up. What is the remedy? Is it too late to spray?—Subscriber.

We have never observed the ill effect of peach leaf curl to the extent which has been shown this season. It now appears that some vigorous trees will be killed or at least seriously injured by this trouble. This pest has been a serious one for many years and nearly a score of years ago Professor Pierce of the United States department of agriculture, and at that time in charge of the Pacific Coast laboratories located at Santa Ana, issued as a regular department publication, "Peach Leaf Curl: Its Nature and Treatment." This is a 204 page book fully illustrated and discussing from all angles this pest of peach orchards. We presume this book is out of print but if the department still has copies subscribers whose orchards are infested and would like to have this information may secure it by writing to Secretary, United States Department of Agriculture, Washington, D. C. Meantime regarding treatment: It is too late to secure effective results. It should be treated before blossoming time by spraying with a strong Bordeaux mixture. A lime-sulphur wash is also excellent, but we believe according to Professor Pierce and other investigators that the Bordeaux shows somewhat better results. The only thing to do now is to spray with weak Bordeaux mixture; two pounds of copper sulphate, three pounds of lime and 50 gallons of water. The above will answer also nearly a dozen other inquirers who have written and sent leaves showing this disease.

Apple Blight

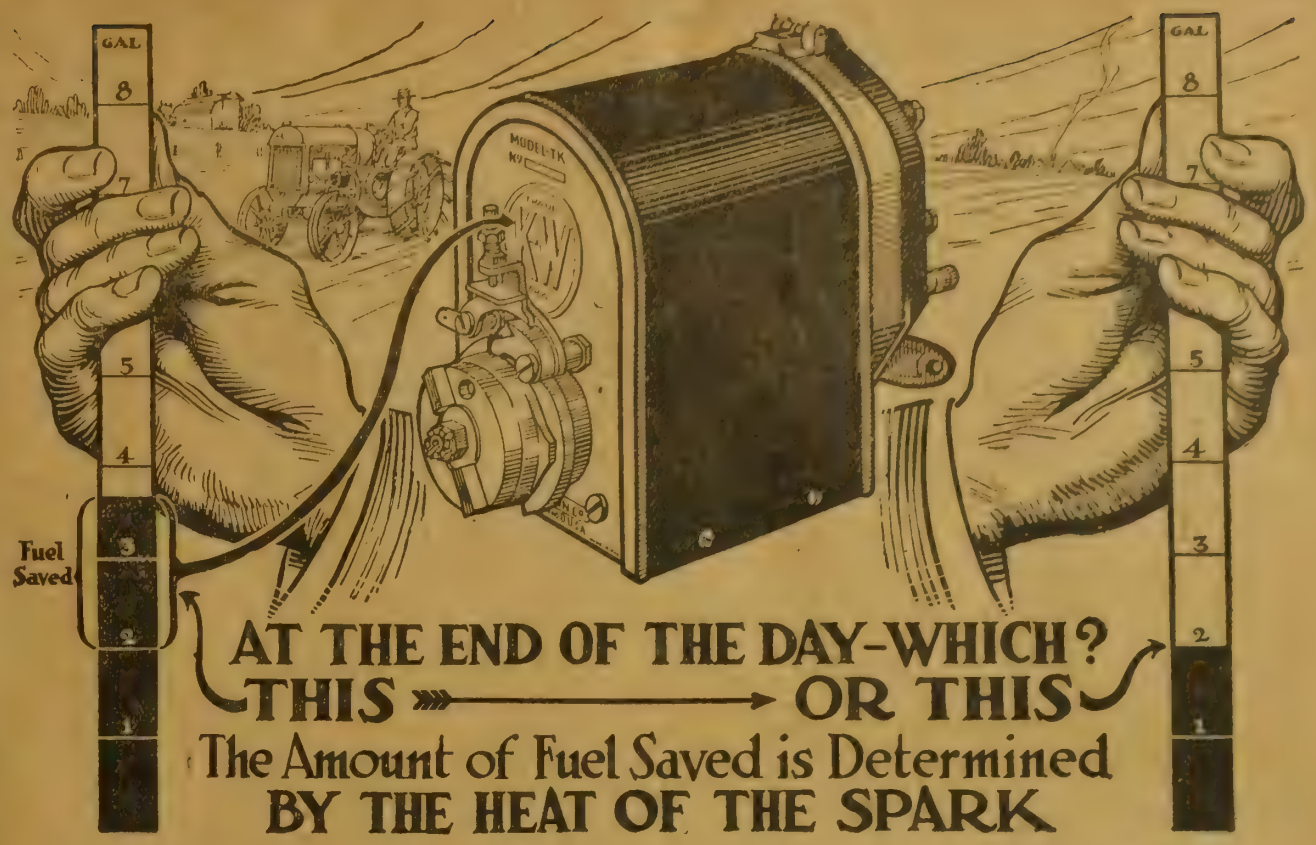
I have some apple trees on my place that look sickly and some of the limbs are dying. I sprayed them when I sprayed my peach trees. What is the best spray for apple blight?—Subscriber.

There is no spray that will control the apple or pear blight. The only method of controlling this pest is to cut as fast as it appears, removing all dead branches and even the young growth as the blackening leaves indicate the presence of the blight. The tools used in the pruning should be dipped each time a cut is made in formaldehyde or bichloride of mercury solution.

Fertilizer for Roses

I have a number of very large rose bushes, such as General McArthur, Chatenay, Cochets, White American Beauty, etc. They are eight or more years old. Ground always kept in good condition, but practically no fertilizer. What commercial fertilizer is best for them during summer? How applied? How much?—Subscriber, Long Beach.

Poultry manure would perhaps be the best application around these roses. Also use lawn clippings, leaves or other vegetables which will dry on the ground. For commercial fertilizer we assume there are only a few bushes to be fertilized. Any seed house can supply complete fertilizer in small packages. Any "complete" fertilizer would answer the purpose or in the Long Beach section if fertilizer is wanted in large quantities we doubt not bone meal and dried blood can be secured. Apply, say, a pound or a pound and a half of bone meal and a half pound of dried blood, to each bush. Near ocean sections often find value in sea weeds.



The measuring stick tells its own story. Many tractor owners have found a big saving in fuel bills after changing to a K-W High Tension Magneto, due to the hot, fat, intense spark a K-W develops at all speeds. **Your** cost to plow, fit the seed bed and seed one acre depends to a great extent upon the heat of your spark.

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Greatest power is obtained from your engine when the hot, intense spark fires the mixture rapidly—that is, when complete combustion takes place in the **shortest time.** Rapid expansion of vaporized fuel develops maximum power at the piston—slow expansion reduces the power at the piston. **Engineers know that the hotter the spark, the more rapid the combustion.**

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As a result owners of K-W equipped tractors can fire leaner mixtures and still get full power from their engines which means a **material reduction in fuel bills.** They are also able to fire the lower and cheaper grades of fuel because a K-W magneto fires all fuels;—and more, it gets maximum power out of every drop used, regardless of how slow or fast the engine runs.

Turn ordinarily wasted fuel into useful work by making sure the tractor you buy is K-W equipped. Look for the K-W Trade Mark. Write today for a list of K-W equipped tractors and free illustrated booklet, "Plow This Additional Acreage Without Fuel Cost." If your present tractor is **not** K-W equipped and you want to plow additional acreage without fuel cost, write us,—a K-W Magneto will do this.

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Farm for profit. Nitrogen increases the yields, hence the profits. ARCADIAN Sulphate of Ammonia supplies nitrogen at a low cost.

ARCADIAN Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past. Especially kiln-dried and ground to make it fine and dry. Ammonia 25¼ per cent. Made in U. S. A. Arcadian is the great American Ammoniate.
For sale by all the principal dealers.

For information as to application, write

The Barrett Company
Agricultural Department
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BERKELEY, CAL.

False Rumors!

False rumors have been circulating concerning the

McAlister & Sons' Dispersion Sale

200--REGISTERED HOLSTEINS--200

May 21-22, Chino, California

It has been rumored that this is not a complete closing out sale. Just to prove that it is a genuine closing out sale,

The McAlister & Sons Ranch is for lease for a period of ten years.

The dairy utensils—equipment—farm implements — horses — and furniture are for sale.

Don't Forget the Days---May 21-22

Your great opportunity to buy stock from California's premier herd at your own price!

Jerseys

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right
S. F. WILLIAMS
ORLAND, CAL.
Member Orland Jersey Cattle Club.

Venadera Herd
REGISTERED JERSEYS
Young bulls from proven dams in Register of Merit
GUY H. MILLER
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ALL MY RECORDS
are made under ordinary dairy conditions. The farmers cow is
The Jersey
YOUNG BULLS FOR SALE
C. D. HAYWORTH
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Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
W. J. HACKETT
MODESTO, CAL.

Get One of My Jersey Bulls
to increase the production of your herd. They are rich in the blood of the great cow, Gertie of Glynllyn.
Visitors Welcome Correspondence Invited
A. A. Jenkins
R. R. Box 46 Tulare, Cal.

The Keep On Herd
REGISTER OF MERIT JERSEYS
Young Animals for Sale
DR. H. W. HAND - - - Orland, Cal.

Remember July 10th
On the above date I will sell the most select offering of
Shorthorn Cattle
ever offered in the West. Practically the entire lot will represent the choicest of Scotch breeding. Watch for future announcements.
W. M. Carruthers
Live Oaks Cal.

DUROCS OF THE
BEST BLOOD LINES
Bred sows, gilts bred and open. Have one very nice O. C. K. boar 9 months old. Dam sold for $1,100 and sire for $1,000 in last month's sale.
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Auctioneer
"Specialist" in Pure Bred Stock, Dairy Cattle and Real Estate
Will Appreciate Your Work
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P.S.—Will buy any good Dairy Herd or Beef Cattle

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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

How Union Stock Yards Would Help

FROM time to time the Cultivator has published articles urging that a more modern and efficient plan of marketing live stock is needed by California producers, and we have declared for a properly regulated union stock yard located at the two principal killing centers, San Francisco and Los Angeles.

We are just in receipt of a letter from one of our readers stating that he does not agree that a union stock yard would result in any improvement over existing conditions, but adds that he is open to conviction and would like to have pointed out some specific benefits accruing from such a plan of selling.

Without attempting to point out all the benefits resulting from a more modern plan of selling, we will enumerate a few of the more important improvements that can be expected:

An open market.

Competitive buying.

A graded market based on quality and finish.

Reliable market quotations and reports.

Stabilization of live stock loans.

Development of feeder and stock trade.

An open market is the most vital and fundamental need confronting California live stock producers. Under existing conditions producers in the state are denied such a market. Practically, there are three methods of selling live stock in vogue in California. The producer can ship direct to the killer, standing the heavy shrink and taking whatever price he can get; he can sell to the country representative of the killer who offers him the best price either for immediate or future shipment; or he can sell to the speculator who offers him the best price, and who in turn will drive a deal with the killer.

At first glance it would seem that such methods of selling would be satisfactory—that the stock owner can bide his time at his own ranch and wait the coming of the different buyers who will bid against each other and that he can close with the man offering him the best deal—and do all this business right at home—unless he elects to ship direct. As a matter of fact the system doesn't work quite so smoothly. The buyer has every advantage. He knows the market; the supply and demand; the comparative quality of one lot of stuff with the general average, and usually the financial and feed resources of the seller. Naturally he takes advantage of this information. It may happen that he will delay making an offer until financial and feed conditions force the seller's hand. But the other buyers,—what of them? Country buyers have a happy way of keeping off each others "reservation".

If the seller refuses all home offers and decides to ship direct, what is he up against? Just this: He ships direct to a killer without knowing the ruling market quotations. His stuff is unloaded at the private yard of the packer, miles from home, and with a freight bill on them. The stuff may or may not be sorted. An offer is made. If unsatisfactory, the seller can hardly reload and ship home, nor can he take his stuff to another buyer. He takes what is offered. The stuff is driven over the packer's own scales without a fill.

The statement was just made that the seller shipped without possessing a knowledge of prevailing market quotations. To many that statement may sound strange in view of the fact that San Francisco and Los Angeles papers carry a daily live stock market report. These alleged reports mean little or nothing as compared to the market reports issued on Eastern markets. Eastern market reports are compiled from actual transactions whereas Coast reports, aside from Portland, are furnished by individual firms and are in no way representative or indicative of actual sales.

During the recent meeting of the California Cattlemen's Association and the California Swine Breeders' Association a representative of the bureau of markets of the United States department of agriculture was present and when asked if the bureau planned to issue a San Francisco report, frankly stated that it was impossible to issue a reliable report for California markets inasmuch as there was no way of ascertaining the actual prices paid. A prominent packer who was present admitted as much.

Another intolerable condition prevailing on California markets is the practice of selling live stock without efficient grading. For instance, take a representative California market report. It reads about as follows:

Good steers, 12.00@12.50; medium steers, 11.00@11.50; common steers, 9.00@10.00; good cows, 10.00@10.50; medium cows, 8.00@9.00; common cows, 6.00@7.00; No. 1 hogs, 175-225 pounds, 18.50@19.00; No. 2 hogs, 250-400 pounds, 17.00@17.50; feeder hogs, 13.00@14.00; spring lambs, each, 7.00@8.00; regular lambs, cwt., 15.00@16.00; regular lambs, No. 2, cwt., 14.00@15.00; wethers, No. 1, cwt., 11.00@12.00; wethers, No 2, cwt., 7.50@9.50.

Another report reads:

Cattle — Grass fed, on foot, gross weight, No. 1 steers, weighing 1000 to 1200 pounds alive, 12@12½; 1200 to 1400 pounds, 12@12½; second quality, 11@11½; thin steers, 9@10.

Cows and heifers—No. 1, 9½@10; second quality, 8½@9; common to thin, 4@7.

Calves — Light weight, per pound, 11½@12½; medium, 10½@11½; heavy, 8@10.

Sheep—Pound, gross weight: Wethers, unshorn, 11@11½; ewes, unshorn, 8½@9½; lambs, yearlings, 12@12½; milk, 13@15.

Hogs—Hard grain fed, weighing 100 to 150 pounds, 18½; 150 to 250 pounds, 19; 250 to 300 pounds, 18½; 300 to 400 pounds, 18.

Still another reads:

Quote the following prices for live stock delivered and weighed off cars at their plant in San Francisco: Steers: Choice, 1050 to 1200 pounds, 12½@13; medium to good, 950 to 1050 pounds, 12@12½; good grass steers, 1000 to 1200 pounds, 12@12½; other steers, 950 and over, 11@12. Cows, 1000 pounds and up, 10@10½; medium to good cows, 9@10; canners, 5@6.

Hogs—Hard grain fed, well finished, 175 to 250 pounds, 19¼; 150 to 175 pounds, 18½; under 150 pounds, 17¾; 250 to 300 pounds, 18½; 300 pounds and up, 18.

Confusing to say the least and not at all uniform in range or grade.

One firm quotes "No. 1" steers, subgraded 1000-1200 pounds; 1200-1400 pounds; "second quality"; and "thin steers". Another firm quotes "choice" steers; "medium to good"; "good grass steers" and "other steers 950 pounds and up". A third quotation grades "good", "medium" and "common".

A typical Eastern market report is based on actual sales and established and uniform grades, as follows:

Steers: Choice to prime heavy, 19.50@20.25; medium to good heavy, 18.00@19.50; choice to prime handyweights, 19.00@20.00; good to choice handyweights, 17.75@19.00; fair to good shortfeds, 14.75@16.75; common to fair steers, 12.00@14.75; light stockery steers, 9.00@11.00; good to choice yearlings, 16.50@18.75; medium to good yearlings, 14.50@16.50; common to medium yearlings, 11.50@14.50.

Butcher cattle: Choice to prime cows, 13.25@15.75; fair to choice cows, 10.00@13.25; cutter and plain butcher cows, 7.25@950; canner cows, 6.50@6.85; good to prime heifers, 13.50@16.00; inferior to good heifers, 10.00@13.50; good to prime fat bulls, 10.50@14.00; common and bologna bulls, 9.50@10.25; fair to best veal calves, 14.00@14.50; heavy and medium calves, 9.00@13.00.

Hogs: Bulk of sales, 20.75@21.00; light butchers, 20.80@21.10; heavy butchers, 20.95@21.10; choice light bacons, 20.65@20.95; choice to good mixed, 20.70@20.90; heavy mixed packing, 20.65@20.85; rough heavy packing, 19.75@20.25; good to choice pigs, 17.00@19.20; boars, 13.00@14.50; stags, 18.00@19.00.

Sheep: Good to choice lambs, 19.00@19.65; fair to good lambs, 18.50@19.00; common to fair lambs, 16.75@17.75; good to choice yearlings, 16.75@17.75; fair to good yearlings, 15.50@16.75; good to choice wethers, 16.00@16.50; fair to good wethers, 15.00@16.00; good to choice ewes, 15.00@15.50; fair to good ewes, 11.75@15.00; rams, 10.00@12.00.

Aside from the fact that better bred



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(STANDARDIZED)
Parasiticide. Disinfectant.
USE IT ON ALL LIVESTOCK
To Kill Lice, Mites, Fleas, and Sheep Ticks.
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USE IT IN ALL BUILDINGS
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EASY TO USE. EFFICIENT. ECONOMICAL.
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Registered young bulls from best families.
Registered Berkshire Pigs
Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.
Careful attention given to mail orders.
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My services are available to all who plan to sell live stock, farm equipment or real estate, and who want the high dollar. Pure bred live stock sales a specialty. Terms reasonable. Write or wire for dates.

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Registered Shorthorns
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Berkshires—Both Sexes
H. L. & E. H. Murphy
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Breeding Date Book—FREE
We have issued a convenient little book for the keeping of breeding dates of cattle, hoping to aid the breeder and cattle owner in maintaining accurate records. We will gladly mail you a copy free if you request it. A postal will do.
CALIFORNIA BREEDERS SALES & PEDIGREE CO.
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HOLMES STOCK FARM
Registered Holsteins of best breeding. Young bulls for sale.
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When Writing Advertisers, Mention the Cultivator.

stock can be marketed at a younger age and scaling more pounds than common stuff, there is scarce reason for California stock men to institute a systematic plan of stock improvement until our markets recognize the fact that better bred animals are worth more than trash, even at the same weight. From California quotations could one infer that a thin steer weighing 1200 pounds, and a fat steer weighing 1200 pounds would be classed as "No. 1" and sell for the same price per pound?

Contrast the above plan of selling with the system developed in other sections. An Eastern producer knows that the daily market reports are reliable. With this knowledge in hand he has two methods of marketing. He can sell to a country buyer (and country buyers in the East buy on a more "human" margin than California buyers) or, if he has a carload he ships direct to his nearest market with the full knowledge that the market can absorb his stuff. Of course gluts develop in the East from time to time, and the price is often affected. But to proceed — this stuff is loaded, the owner may or may not accompany the shipment. In either case it is consigned to a commission firm. These commission firms maintain an expert corps of salesmen and buyers—men who are in daily touch with the market, who know the various classes of live stock and what each grade is worth.

The stock arrives at the yards and complete charge is assumed by the commission firm. It is unloaded, watered and fed. If it is a mixed lot the agent knows just how to sort to best advantage. He gets in touch with the various buyers and drives the very best deal possible for his customer. There is keen competition among commission firms for business and consequently it is their interest to get every nickel a shipment is worth. A nominal charge is made for the services rendered, and a complete and detailed financial statement of the deal, together with the check is forwarded to the consignor.

The advantages of such a system over the California plan must be obvious. First the producer is assured a market at which all killers are represented; a market based on established and uniform grades and through the commission firms he has the advantage of expert salesmanship by men who are as familiar with every angle of the live stock market as the packer-buyer. Under the established system of the Eastern markets the the shipper has another important advantage over a shipper to either San Francisco or Los Angeles, this advantage is the practice of selling after the shipment has been watered and fed—given a "fill". The argument used against the practice of filling claims that the advantage of a fill is overestimated because the buyer always takes into consideration the amount of fill before making his offer, and that the price is made according- [illegible] Regardless of the merits of such a practice, the fact remains that the fill widens the margin between Eastern markets and Coast quotations. When it is pointed out that Eastern quotations are on a filled basis and Coast prices on an unfilled basis it is clear that there exists a wider margin than first appears. A 20 cent hog at Chicago and a 19 cent porker at San Francisco hides more than a cent difference. The same is true of cattle and sheep.

Union stockyards serve to develop other phases of the live stock industry than simply affording a meeting place for producer and packer. Because of the open nature of the market and the established grades a general buy-and-sell business is developed. Stuff of various grades of quality, particularly cattle and sheep, not meeting with a ready demand from packers are classed as "feeders" or "stockers" as the case might be, and men who make a business of feeding out unfinished stuff, men who are long on feed and men who want to stock their places can come on to the market and bid for such stuff as meets their requirements.

Is such a business carried on out here? No. The only way the speculator can operate is to go to the country, and not many are following such a plan. Once the stuff is unloaded in any packer's yard in either San Francisco or Los Angeles no one else sees it. The speculative element around a union yard forces the packer to pay full value.

There is no denying the fact that occasionally certain abuses have developed in Eastern markets through the fact that the yards are under packer control, but for the most part the system is by far the most efficient and satisfactory yet worked out. What the Cultivator hopes to see develop is the establishment of union yards at San Francisco and Los Angeles and that these yards will be controlled by the producers but that packers and transportation companies be represented in the ownership and management.

As stated last week we believe that

Warranted to Give Satisfaction

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Has Imitators But No Competitors

A Safe, Speedy, Positive Remedy for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs and Lameness from Spavin, Ringbone and other bony tumors. Cures skin diseases or Parasites, Thrush, Diptheria. Removes Bunches from Horses or Cattle.

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Every bottle of **Caustic Balsam** sold is warranted to give satisfaction. Price $1.75 per bottle. Sold by druggists, or sent by parcel post, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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Galls Cured While Horse Works

Don't lay your horse up in curing him of galls and sores! Don't delay and let the trouble get so bad you have to call in a veterinary. Bickmore's Gall Cure is GUARANTEED to *cure your horse while he works.* If you are not perfectly satisfied your money will be returned. Bickmore's is wonderful for collar and saddle galls, broken skin, rope burns, sore shoulder, mange and other skin diseases, bruises, cuts, chafes, mud scalds, grease heel, chapped teats on cows and other wounds on horses, cattle, pigs, and poultry. W. R. Pearson, Oakville, Kentucky, says: "I had a mare with an awfully bad shoulder but have worked her every day since I received your remedy and it has healed up nicely. I will never be without it as long as I have stock." Get Bickmore's from your druggist, harness dealer, hardware or general store. Accept no substitute; watch for the famous "Old Gray Horse" trademark—known for 34 years all over the world. Or send 10c for liberal trial sample and helpful Farm Account Book, giving valuable pointers to farmers and showing how to keep track of all expenses and receipts. Bickmore's is now being refined and put out for human use. It is called "Bickmore's XYZ Skin Ointment," and will soon win as big a reputation as Bickmore's Gall Cure. At your dealer's—or direct from us. The Bickmore Company, Dept. 315 Old Town, Maine.

Grand Champion Berkshire Blood

Ames Rival 70th

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Introduce this blood into your herd at small expense. Buy pigs and grow them out. Mills Berkshires are utility Berkshires — bred for constitutional vigor and prolificacy. We must be satisfied they are good pigs before we ship them. Price very reasonable. Write today.

James Mills Orchard Corp.,

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Attention Buyers

For sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.

Hannon Bros.,

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Breeders of

Registered Holstein Friesian Cattle

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Stock for Sale Visitors Welcome

Chino, Cal.

Prince Walker Cornucopia

The Highest Record Son of Prince Gelsche Walker



His dam ALBA SADIE CORNUCOPIA CRIELTA has just completed official records of 30.25 pounds butter from 736.1 pounds milk in seven days. Her previous records were as follows:

At seven years—
Milk 365 days.....18,849.40
Butter 860.28
At six years—
Butter seven days 34.13
Milk 532.40
At five years—
Butter seven days 28.85

She is a daughter of Sir Sadie Cornucopia, son of the first 30 pound cow, Sadie Vale Concordia.

Over 60 of our best females are bred to PRINCE WALKER CORNUCOPIA, and he will be given the fullest opportunity in this herd. Put one of his young sons at the head of your herd.

Santa Anita Rancho

Anoakia Breeding Farm

Santa Anita, California

Anita M. Baldwin, Owner W. H. Taylor, Supt.

His Calves Are Beauties

Every one who is fortunate enough to own a son or daughter of KING KORNDYKE PONTIAC 20TH our $6500 herd sire, is enthusiastic about the splendid type and beautiful marking of his calves. While they are only babies his daughters show great promise of developing into exceptional dairy cows.



King Korndyke Pontiac 20th

His young sons are moving fast, and it will pay you well to see us now about one for your herd, for we are not going to be able to fully supply the demand for some time to come.

Our Entire Herd is Tuberculin Tested

Tulare Holstein Farm

W. J. Higdon, Owner TULARE, CAL. H. L. Redd, Herdsman



Sir Fayne Pontiac De Kol Pietertje

H.B. No., 157535

Will offer for sale this valuable Herd Sire. He is from a 24 pound granddaughter of King of the Pontiacs.

Born April 17, 1915.

Sire—Sir Mooie Fayne De Kol Jane 76287.

Dam — Whittier De Kol Pontiac Pietertje 173965. Butter seven days, 24.12.

Todos Santos Rancho

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Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average

Milk one year....24,089.88 pounds
Butter ..... 1,105.07 pounds

This butter average is equalled by only one other bull of service age in the world. Buy your next bull from

Eldorado Herd

Alex. Whaley, Owner Tulare, Cal.

Listen!

How would you like to own a young bull sired by a son of SIR VEEMAN HENGERVELD —a sire with more 30 pound daughters than any living sire. We have several young bulls for sale.

R. F. Guerin, Breeder of Holsteins

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Jacks and Jennets for sale at all times. Come and see them.

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SURFACE IRRIGATION PIPE

Prompt Delivery

Write for Catalog and Prices

Manufactured by

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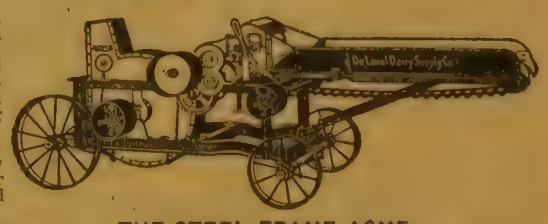
Why buy a cutter you can use only for silo filling? The Acme is a combined silo filler, feed chopper and alfalfa meal machine

You can make $2.50 more out of every ton of hay you raise this year by chopping it with an Acme Cutter.

The ACME Cutter

Year after year you can cut feed costs with this stoutly built cylinder cutter. Its Steel frame means durability and light running. It can't warp or sag or the bearings get out of alignment causing unnecessary vibration and wear like the old style wood frame cutters.

The spiral knives don't tear and bruise the silage. They cut clean and give the machines large capacity on dry feed.



THE STEEL FRAME ACME

SEND FOR COMPLETE CATALOG

also Bulletin "Economy of Chopping Dry Feed" and Sample of Meal

De Laval Dairy Supply Co.

61 Beale St., San Francisco

Cooperation in Dairying

Point One — Everyone should eat more milk and butter, ice cream and cheese; city people especially, but they don't know it.

Point Two — The dairyman should advertise his product same as other producers advertise theirs.

Point Three — He will sell more and at better prices and will then have more money with which he will get better cows that will give more milk per cow, that will supply the increased demand caused by his advertising that will give him more money to get more cows and so on.

Point Four — For every advertisement for butter substitutes there ought to be one for milk or butter or ice cream or cheese.

Point Five — Not an advertisement for some one's Brand but a truth telling advertisement about the product itself.

Point Six — You say you are too busy to attend to it yourself; then combine with others in the same line and who are also too busy.

Point Seven — Subscribe a small sum of money, have someone on the job for you ALL THE TIME, telling the truth to the public, contradicting erroneous and false statements putting up YOUR side of the case and all under your own control.

Point Eight — The National Dairy Council and several State Dairy Councils are doing this.

Point Nine — California Dairy Council will be ready to do it too as soon as its membership and income are large enough.

Point Ten — Write NOW. Say you want to join and ask what YOU are expected to pay.

California Dairy Council

2311 Fairfield Avenue, Hollywood, Los Angeles and 268 Market Street (Room 242) San Francisco

union stock yards are coming and we also believe that producers should take the initiative and that now is the time to start.

The live stock industry of this state has tremendous possibilities, but it is all predicated on satisfactory markets and it is not to our credit that California is being held back by our antiquated cumbersome system that broke down years ago.

Live Stock News Notes

Higdon Makes Good Sales

W. J. Higdon of the Tulare Holstein Farm has just sold the first $1000 bull calf to be raised in Tulare County, A. J. Pellerin being the buyer. The animal is Prince Korndyke Walker, son of Prince Gelsche Walker, and his dam is Leda Hengerveld De Kol Korndyke who has a seven day record of 30.87 pounds of butter from 648 pounds of milk. The bull is 14 months old. Mr. Higdon also has sold a 10 months old son of Prince Riverside Walker to J. H. Portress of Fresno for $450.

Tulare Cow Testing Association

The monthly report of the Tulare Cow testing Association for April shows 13 cows which produced more than 50 pounds of butter fat during the 30 day period. The amounts ranged from 50.40 to 78.79 pounds, produced by a Jersey belonging to A. A. Jenkins, the milk production for the cow being 1876 pounds.

A Correction

In the issue of May 3, the statement was made that Walter Donders of Fresno had sent a very promising daughter of Prince Aralia De Kol to W. J. Higdon's herd to be put on test. The ownership of the heifer in question should have been credited to Mrs. Annie Donders of Fresno. Holstein interests will be glad to know that on April 18, this heifer, Dora Walker, broke the state record for combined milk and butter production in the senior two year old class.

Berkshire Breeder Buys Holsteins

J. Francis O'Connor, proprietor of Castleview Ranch, Santa Rosa, has recently purchased a small herd of high grade Holsteins that he will maintain as an adjunct to his Berkshire herd. O'Connor believes that there is nothing so good as milk for developing young pigs. He has secured a son of Prince Gelsche Walker out of a good producing dam and expects to eventually keep only pure bred Holsteins.

Shorthorn Sale During San Francisco Show

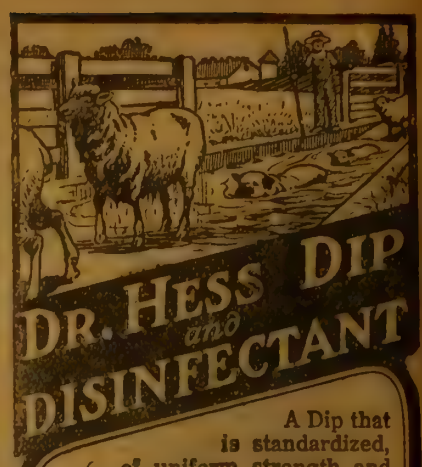
The California Shorthorn Breeders' Association recently met in San Francisco and decided that the association would sponsor a sale to be held at San Francisco during the live stock show scheduled for November. This association has done much to spread the propaganda of the red, white and roan, and has found the public sale one of the best mediums.

Stock in Fine Condition

J. L. Thatcher of Riverside, western representative of the Purity Biological Laboratory, Sioux City, Iowa, is planning to establish a northern office at Sacramento. Thatcher has just returned from an extended trip through the principal live stock centers of the state and says that he does not recall a year when stock in general was in better condition than this season. Feed is abundant in most sections and he says that cattle will move to market rather early. Thatcher found unusual interest in the state fair and believes that this year there will be a record beef cattle show.

Will Sell Shorthorns in August

There will be more auctions of registered Shorthorns held in California during the next six months than in any previous two years. The Butte City Ranch, Butte City will hold a calf sale early in August. Manager Guilford states that since their initial sale a few months ago many of the buyers have insisted that a fall offering be made and that the demand for registered Shorthorns is developing so rapidly in the upper Sacramento



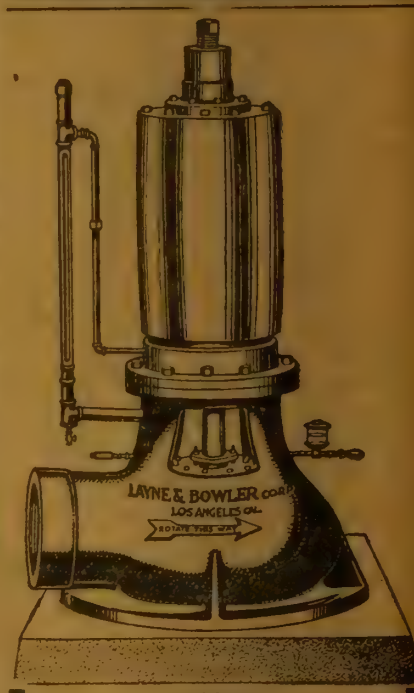
DR. HESS DIP and DISINFECTANT

A Dip that is standardized, of uniform strength and **GUARANTEED.** One gallon makes 70 gallons of dipping solution.

For Scab, Ticks and Skin Troubles

Dr. Hess Dip and Disinfectant cleans and makes the skin healthy. It is more than a Dip—it is also a Disinfectant. Use it freely about stables, hog pens and poultry houses to destroy disease germs and maintain good health conditions. Also for home use, in garbage cans, sinks, cesspools. Sold by 28,000 dealers on a money-back guarantee.

Dr. HESS & CLARK
Ashland Ohio



A New
Layne & Bowler Irrigation Pump
Light Duty — Full Floating Belted Head

Designed for the application of up to 60 horse power.

All bearings in head are lubricated by positive circulating oiling system. Ball bearings of latest design.

Ask for Folder No. 30

Layne & Bowler Corp.
900 Santa Fe Ave Los Angeles, Cal

There is no argument as to the best and cheapest source of available nitrogen for worn out frosted orchards. Where

Nitrate of Soda

is used the fruit never fails to set. Apply to orchard now for best results.

Mention crops interested in when writing for free information and literature.

Nitrate Agencies Co.
W. S. SPARR, Agent
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MACHINERY
OF EVERY DESCRIPTION
Bought, Sold and Rented
BUTTRESS & McCLELLAN
209-7 N. Los Angeles St., Los Angeles

Valley that he finds it necessary to expand the herd.

In addition to the Shorthorn offering, Shropshire sheep and Berkshires will be sold.

Can't Raise 'em Fast Enough

Mrs. Ruth Hardy, manager of the Anchorage Farm, Orland writes that the demand for Berkshires has been unusually good the past 60 days—as a matter of fact the last few months have been the most prosperous of any since the establishment of the herd. Mrs. Hardy states that the demand for bred sows and gilts greatly exceeded the supply and that the herd is quite sold out of females and that only boar pigs are for sale now.

The Anchorage Farm Berkshire herd is headed by the great boar Star Leader, reserve grand champion at the P. P. I. E.

State Fair Judges

Secretary Charles W. Paine of the State Agricultural Society states that the list of judges who will officiate at the forthcoming state fair is about complete. In addition to list recently published, Paine has secured Professor R. F. Miller of the Texas A. & M. college to judge sheep. Miller was formerly in charge of the sheep work carried on by the University of California and is regarded as one of the best authorities in the country. Guy Putman of Tecumseh, Nebraska will judge Duroc-Jerseys. Professor J. I. Thompson of the University of California will judge in the swine department. The Berkshire and Poland-China judges have not been selected.

The other judges who have accepted the invitation to serve at the 1919 state fair are: Professor E. A. Trowbridge, University of Missouri, who will judge light horses; Professor John C. Burns, Texas A. & M. College, who will judge beef cattle and draft horses; Hugh G. Van Pelt, editor of Kimball's Dairy Farmer, Waterloo, Iowa, who will judge the dairy cattle.

Secretary Paine is enthusiastic over the prospects for a record live stock show and is making every effort to secure the best judcial talent available.

Berkshires Sell Well

The dispersal sale of registered Berkshires owned by the estate of Theodore Weisendanger, Sacramento, May 6, proved to be one of the most satisfactory sales of the season.

The top of the offering was an aged sow purchased by John McCormack of Rio Vista for $200. A number of other sows sold around $150. The entire offering of 47 head, including 19 pigs, averaged $51.

The principal buyers were: Haley and Morrison, Sacramento; John McCormack, Rio Vista; Calac Orchards, Martinez; T. G. Meckfessel, Davis; Frank B. Anderson, H. C. Maddux, T. Calligon and A. J. Leifer of Sacramento; Gus Olson, Clarksburg and H. H. Cannon, Suisun. Col. Ord L. Leachman of Sacramento was the auctioneer.

Dairy Council In South

The branch of the California Dairy Council, recently organized in Los Angeles by State Manager S. H. Greene, is succeeding in getting dairymen and milk handlers into line in the advertising campaign. A regular southern representative has been appointed in C. J. Brown, whose headquarters are at 2311 Fairfield Avenue, Hollywood.

HIS BRIGHT IDEA

"Please, can you give a poor man a little something to eat? But I don't want no bread, please."

"You don't want no bread, eh? I guess you ain't starving. You can jist get along out of here."

"Wait till I explain, madam. You see, the woman next door just now give me a piece of paving stone for bread, and as she said she was the best bread maker on this street—"

"The best bread maker on this street! Jist come right in here, my poor man, and I'll show you what good bread really is. Lor', how some people does brag!"—Pittsburgh Chronicle-Telegraph.

NON-FULFILMENT OF CONTRACT

Two growers of Blackeye beans of San Bernardino County, Andrew Davis and Ernest Burris, have entered suit against the Pomona Milling Company for non-fulfilment of contract in the purchase of Blackeye beans. The suit comes off in one of the courts of Los Angeles County this week. Messrs. Davis and Burris had each contracted to deliver their crop of beans to the defendant, for which he was to pay six cents per pound less cost of grading in case of rain damage. The beans were delivered and Mr. Davis informs us that no notice of rejection of the crop was received for two months. Other growers of Blackeyes agreed with the purchasing company on a two cent pound basis. Messrs. Davis and Burris prefer, however, to leave the matter to a decision of the courts: hence the suit.

The new board of governors and members of the council of the Salt River Valley Water User's Association, Arizona, took the oath of office May 5. The Water User's Association is now an important institution, representing property worth some $20,000,000.

The Pacific Silo—Your Ideal

If all the farmers could get together, exchange ideas and agree upon an ideal silo, then start in and build it as they wanted, the result would be the Pacific.

The Pacific Silo is just the one you have always wanted. Talk to the farmer who owns one, or better still, talk to the man who owns two—a Pacific and some other. See what he says about it. His word is our best advertisement.

The Pacific is built of Redwood—that long-lived wood of everlasting qualities. Coming as it does from forest giants this wood makes a perfect silo lumber. We use nothing but selected 2-inch Redwood staves.

Heavy round steel hoops, doubled at the bottom where pressure is greatest, tightly bind and lock the staves into place. Interchangeable doors, hingeless and secured by four corner clamps. Self-supporting, water-tight cover fitted with hinged ventilator and manhole.

The Pacific is a long-lived Silo—a permanent landmark. Build it now. Your children will use it after you're gone.

No other one word in the English language describes "**Service**" such as "Pacific."

Mail the coupon today for descriptive matter and prices of Pacific Silos and Tanks. Tell us your needs and we will gladly supply any special information desired.

Water All The Time

Water is the second greatest worry of the man who owns stock. Stock need water all the time—day and night, spring, summer, winter and fall.

A PACIFIC REDWOOD TANK will provide them with plenty of water when they need it—just like a spring.

Made of heavy Redwood. Bound with large steel hoops, fitted with patent non-shrinking feature that keeps the tank always tight. Will not leak, shrink or burst. Will last a lifetime and give service every day.

Write for information about our non-shrinking feature. Find out why the Pacific is always tight and never leaks.

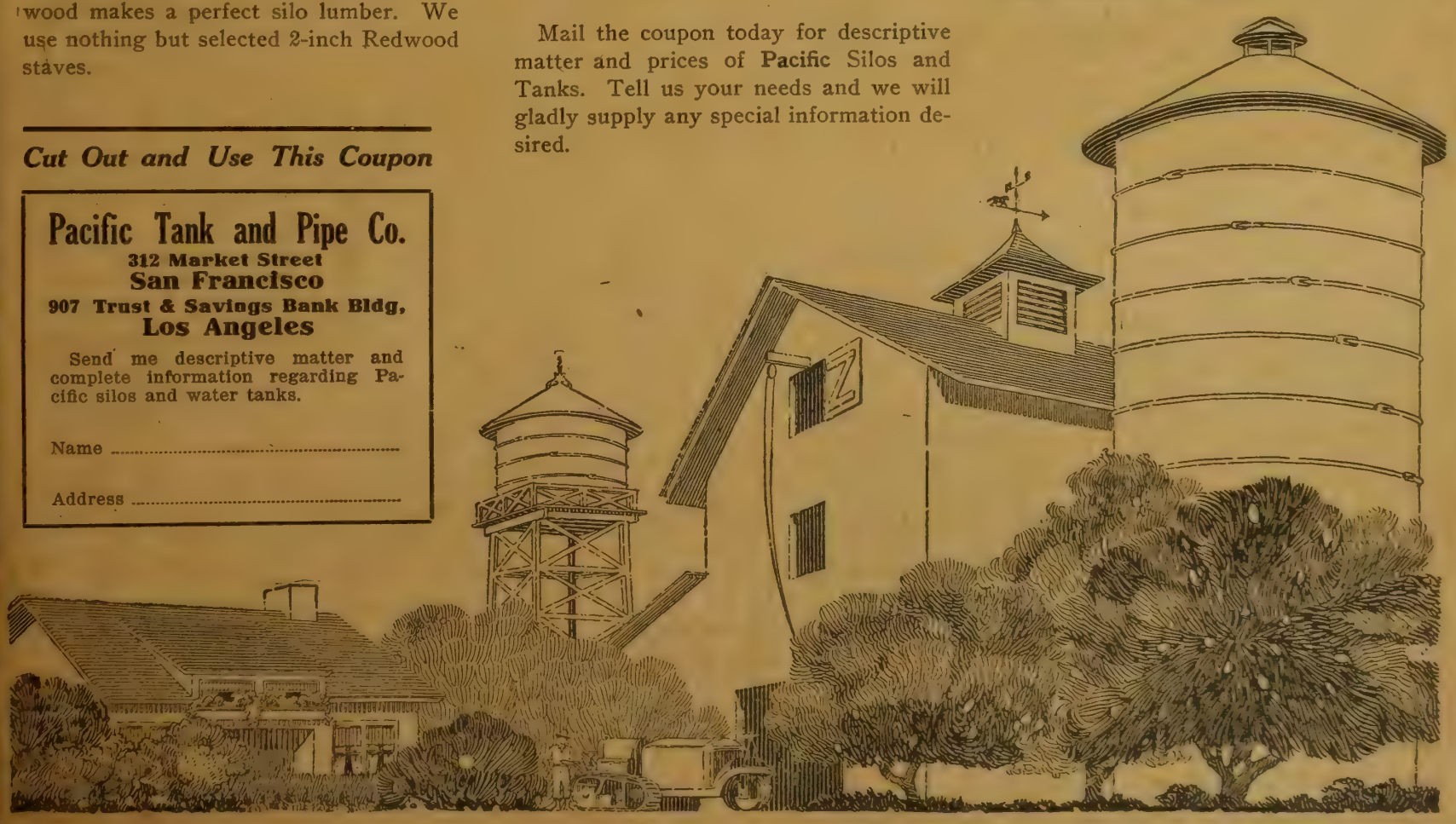
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312 Market Street
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Send me descriptive matter and complete information regarding Pacific silos and water tanks.

Name .....

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LENDORRIS RANCH

This is
Lendorris Liberty Bond

—A boar destined to make Poland-China history in California. No better ever bred. Weight 215 pounds at five months. We will have something bred to him for sale this fall.



W. L. Haag & Son
Hanford, Cal.



Raising the Standard of California Bacon

MONTELENA HERD

Large Yorkshires

Have large litters. Service boars of exceptional quality, in best breeding condition. They are strong, active, long, deep fellows, with big bone and splendid heart girth. Come and see them, or write to

A. L. TUBBS CO.
Calistoga - California

CALIFORNIA CHAMPION HAMPSHIRES

As good as the best and better than the rest. A boar or a sow pig sired by my great herd boar Director, and out of one of my choice sows will add prestige to your herd. I am booking orders now for the pigs of March and April farrow. Write now and place your order.

L. A. DENKER
Boquet Canyon Saugus, Cal.



Young Boar Pigs

We are ready to carefully select for you a young boar pig containing the blood of the world's famous Berkshire sire

Star Leader

Grow him out on your own farm. You can secure one of these at a very reasonable price and solve your future herd sire problems.

Anchorage Farm Berkshires have size and mature rapidly. Write for full particulars.

Anchorage Farm, Orland Cal.

Important Duroc Offering

We recently purchased a car of excellent Duroc-Jerseys selected from some of the East's leading herds.

Thirty-five yearling and aged sows for sale. Will breed them to any boar on the farm. Several young boars ready for service and fall shows.

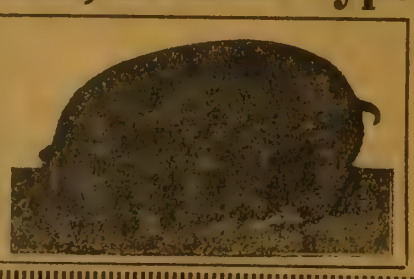
Young pigs of both sexes.

H. P. Slocum and Son
Willows, California
The Key Herd of Duroc-Jerseys

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett
Hanford, Kings County, Cal.





Raise Your Hogs and Cattle at a Profit
Assist Nature by Feeding
Economy Stock Powder
A general conditioner, a worm expeller and a disease preventive.
Send for FREE SAMPLE and our BOOK on LIVE STOCK.

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ECONOMY HOG & CATTLE POWDER CO.
Hearst Bldg. San Francisco, Cal.

FISH MEAL PROVES ECONOMICAL PROTEIN SUPPLEMENT

During the annual meeting of the California Swine Breeders Association at the University Farm, Davis, April 10, Professor J. I. Thompson made public the results of a recent hog feeding test conducted to determine the relative values of certain protein supplements when fed in conjunction with barley. The test was similar to a trial carried on last fall and the results were practically the same. In giving the results Professor Thompson stated that it should be borne in mind that the figures may vary under different conditions, but that apparently they did indicate in a comparative way the relative values of the different supplements.

Four lots of ten pigs each were used. All were fed in dry lots and self feeders were used for the barley, tankage and fish meal. Lot number one received barley and skim milk. Lot number two received barley and Milkoline, a concentrated form of buttermilk. The Milkoline was fed as directed by the manufacturers, and the same amount fed as in lot number one. Lot number three received barley and tankage, lot number four barley and fish meal. The trial lasted 43 days. Below is given a table indicating the results of the trial:

Lot	1	2	3	4
Ration—	Barley. Skim Milk.	Barley. Milkoline.	Barley. Tankage.	Barley. Fish Meal.
	Lbs.	Lbs.	Lbs.	Lbs.
Initial weight	1112	1120	1115	1110
Final weight	1842	1720	1760	1789
Total gain	730	*540	645	679
Average daily gain	1.70	1.26	1.50	1.58
Average daily feed—				
Barley	6.93	7.05	6.31	6.98
Supplement	11.84	11.84	.42	.29
Feed per pound gain—				
Barley	4.08	5.61	4.54	4.42
Supplement	6.96	9.41	[illegible]	.18

*Due to substitution.

From the above figures, and knowing the local costs of the various feeds, hog raisers should be able to work out a satisfactory and economical ration.

The showing made by fish meal is particularly interesting inasmuch as this meal is a comparatively new source of protein that will undoubtedly increase in importance.

WASHINGTON WOOL SALES

Only three sales of Yakima Valley wool have been reported so far this season, and most of the buyers, who have been in Yakima from Boston, Portland and Philadelphia for several weeks past, have quit the field, the growers preferring to consign. The Ernest Berg clip was secured at 35 cents by George F. Gish of Denver, Colorado, representing George J. Webb & Company of Philadelphia. This totaled 40,000 pounds. The Stice Sheep Company clip of 12,000 pounds was purchased at a figure not announced by Charles Green, representing Hallowell, Jones & Donald of Boston, who shipped it to the Pendleton Woolen Mills for their Indian blanket trade. William Wilson's clip of 20,000 pounds went to the Dalles (Oregon) Scouring Mills to fill an Eastern order, at 35 cents. It is stated that close to 750,000 pounds of wool have been consigned. The clip is about half over and will total about 1,000,000 pounds.—G. N. Angell.

BARLEY AS DAIRY FEED

Professors Woll and Voorhies give report of extended investigations of the influence of barley on the milk secretions of cows, and the results are now issued in Bulletin 305 of the University of California, Berkeley. Barley is one of the standard feeds for all live stock in Western states, and this investigation is of material value. The summing up of the lessons of the bulletin are given in its last paragraph, which is:

"In view of the results and discussions presented in the preceding, there is every reason to utilize barley for feeding dairy cows when it is not needed for human food and whenever its price is not too high in comparison with other concentrates to make it an economical stock feed. During the past two seasons the insufficiency of the wheat supply has made it necessary for our people to use substitutes in bread making and for other household purposes, and barley was the best known substitute available. Under normal conditions of the grain market, however, and when the attention of the civilized nations shall again be turned to peaceful pursuits, the main market for barley in this country will again be for stock feeding, unless a demand for brewing barley should be reopened. In either case, barley growers may look to our stockmen to use a very large proportion of their crop, and it should be kept in mind that this cereal is well adapted for feeding different classes of farm animals, including dairy cattle."

NAPA GRADE HOLSTEINS SELL HIGH

Following closely the McGillivray sale of grade Holsteins at Sacramento, the Napa State Hospital sold 95 head of grade Holsteins for an average of $125. That average while seemingly low does not indicate that the offering included but few mature cows. As a matter of fact the bulk of the sale consisted of heifers just bred for first calving and at least 35 head ranging in age from two weeks to nine months. Only eight cows were listed. In view of the many young things it is safe to say that this sale was one of the most remarkable sales of the season and a record breaker in some respects.

A feature of the sale was the selling of the twin daughters of the famous grade cow N. S. H. Monte, which produced 20,596 pounds of milk and 762.28 pounds butter fat. One of the twins, just bred, was sold to Henry Struve of Watsonville for $300, the record price for a bred heifer, and the other, just fresh, sold for $295.

Nine pure bred bulls, yearlings and calves, sold at average prices of $335. The top bull was N. S. H. Hazelwood Netherland Korndyke, which sold to A. W. Foster of the Hopland Stock Farm, Hopland, for $600. This youngster is a grandson of the 33-pound Bonnie Lass Pauline, dam of Bonnie Ormsby Lass, grand champion at the P. P. I. E.

The sale served as another practical and forceful demonstration of the possibility of herd improvement through the use of superior bulls and careful herd management. One who is in touch with sales in general could not fail to note how the buyers appreciated this well bred lot of young things as compared to average grade offerings. It costs no more to raise the better kind and the better they are bred the more valuable and practical they are. There is no more certain way in which to increase dairy profits than through the use of well bred bulls. The men who are making the real money in the dairy business are the men who have applied that fact.

Among the heaviest buyers were George Dierson of Sacramento, Albert Meister of Sacramento, Henry Sturve of Watsonville, A. W. Foster of Hopland, and representatives of State Land Colony at Durham. Nevada buyers were represented by Professor Scott of the University of Nevada, Reno.

The sale was managed by C. L. Hughes of the California Breeders Sales and Pedigree Company, Sacramento, and Col. Ben A. Rhoades of Los Angeles served as auctioneer.

LIVE STOCK COMMISSIONER TO SOUTH AMERICA

The bureau of markets, United States department of agriculture, has perfected plans to investigate in South America the possibilities for pure-bred stock from the United States and to stimulate interest in importations from this country. David Harrell of

Austin, Texas, who until recently was representative of the war trade board in Spain, has been appointed as live stock commissioner to perform this work, and he plans to sail about the middle of June.

MILK AND CREAM

Here are some definitions which have been adopted by the committee on definitions and standards working under the food inspection act:

Milk is the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and five days after calving, or such longer period as may be necessary to render the milk practically colostrum free.

Skimmed milk is milk from which substantially all of the milk fat has been removed.

Cream, sweet cream, is that portion of milk, rich in milk fat, which rises to the surface of milk on standing, or is separated from it by centrifugal force. It is fresh and clean. It contains not less than 18 per cent of milk fat and not more than two-tenths per cent of acid-reacting substances calculated in terms of lactic acid.

Whipping cream is cream which contains not less than 30 per cent of milk fat.

Pasteurized milk is milk that has been subjected to a temperature not lower than 145 degrees Fahrenheit for not less than 30 minutes. Unless it is bottled hot, it is promptly cooled to 50 degrees Fahrenheit or lower.

Buttermilk is the product that remains when fat is removed from milk or cream, sweet or sour, in the process of churning. It contains not less than eight and five-tenths per cent of milk solids, not fat.

Homogenized milk or homogenized cream is milk or cream that has been mechanically treated in such a manner as to alter its physical properties, with particular reference to the condition and appearance of the fat globules.

ANNUAL MEETING OF A. J. C. C.

The rapidly increasing development of the dairy cattle industry is reflected in the year's work just finished by the American Jersey Cattle Club. In addition to recording the greatest number and percentage of registrations and transfers in its history, the breed will also be able to point to the largest number of new breeders that have ever gone into the Jersey business within one twelve-month.

The annual meeting takes place on the first Wednesday in June this year, as against the first Wednesday in May in previous years. It will be held June 4 in New York City. A "Victory Banquet" will be held the night before the meeting.

OREGON JERSEY MEN TO JUBILATE

Oregon Jerseys have been doing things and now hold four of the eight Jersey records, by ages, with prospects good for copping a third.

In honor of their achievements, and especially the two new records, those of Vive la France and Old Man's Darling II, the Oregon Jersey Cattle Club are inviting their outside brethren to join in a regular Jersey jubilee, May 20-25, when a number of Jersey herds from Portland to the state agri ultural college 100 miles to the south will be visited and inspected.

HAWAIIAN TERRITORIAL FAIR

Arrangements are being completed for the Second Territorial Fair to be held in Honolulu, Hawaii, June 9-14. The awards to be made by the live stock section show full list on Aberdeen-Angus, Herefords, Shorthorns, Ayrshires, Brown Swiss, Dutch Belted, Guernseys, Holsteins and Jerseys. In hogs, Berkshires, Durocs, Hampshires, Poland-Chinas and Tamworths, all have places on the list.

Prof. John T. Kane, extension animal husbandman of the United States department of agriculture recently visited a number of ranches in the Salt River Valley, particularly those where range steers are being finished, upon leaving he said "I believe that Arizona is the beef cattle nursery of the whole Southwest. There is a very great opportunity for the further development of the beef cattle industry, beth breeding and feeding for beef."

Care of Pigs Before Weaning

The fastest and cheapest gains by pigs are made before weaning time, so ordinarily it will pay to keep the small pig growing as rapidly as possible. The sow should, of course, get some good milk producing feed, and she should be fed to her full capacity as soon as the pigs are old enough to take all the milk she will give. It will not pay to limit the feed at this time, according to L. A. Weaver of the Missouri college of agriculture, since the pigs make the most economical gains from feed fed through the sow. When the pigs are about a month old, they will be able to use more feed than that obtained from the sow even though the sow is properly fed and a good milker.

As soon as the pigs will eat, which is usually at four or five weeks of age, they should be fed separately from their dam. They should have access to a small pen where the sow cannot go to receive their feed. Skim milk fed in a shallow pan is very good for them. The pigs may also be taught to run into the creep for feed by allowing them some shelled or ear corn. As soon as they begin to eat well, a slop made of milk, some shorts, a little bran, and some linseed oil meal or tankage, fed along with the corn, will make a ration which, with proper exercise, will prevent thumps or scours.

A good ration for young pigs is made up of four parts by weight of corn, four parts of shorts, one part of bran, and one part of tankage. As the pigs become older the corn may be gradually increased until the amount has been doubled.

In addition to proper feed, however, the pigs must have plenty of sunshine and exercise. These things cost little to supply and are absolutely necessary for best results.

FEED MINERALS TO HOG

Watch the mineral part of a hog's ration.

This is the advice of specialists in the Kansas state agricultural college. A hog requires a continual supply of minerals, contained in feeds, if its bodily functions are to be kept in healthful operation.

If proper minerals are not supplied a hog is compelled to draw on his own body for them. This is dangerous. Weakness in the legs, cramp, and excitability, are some of the symptoms that develop. Unless the condition is corrected, death results. It has been found that hogs given absolutely no mineral matter in food die more quickly than if given no food at all.

Minerals contained in the body of a hog include potash, soda, lime, magnesia, oxides of iron, phosphoric and sulphuric acids, and chlorine. This is shown by an analysis of ashes from a burned carcass.

Young Pigs Need Attention

Chlorine and sodium help in the digestion and assimilation of food. Sodium chloride makes many feeding stuffs more palatable and promotes the flow of digestive juices. Potassium is found in cell walls, in muscles, and in blood corpuscles. Sodium is present in blood, lymph, saliva, and gastric juice. Lime, magnesia, and phosphoric acid are in bones and other parts of the body.

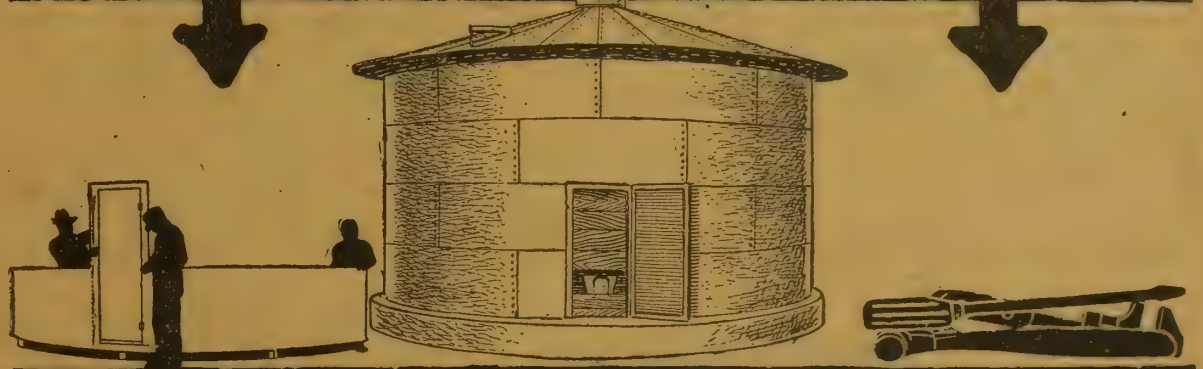
Hogs, and especially young pigs, need more attention along this line than other kinds of stock, because they are limited in variety of food. Horses, cattle, and sheep eat more "roughness" and so have better chances to acquire the mineral constituent.

Here are some of the feeds which will supply mineral matter:

Lime—clovers, hay, and legume seeds; phosphoric acid—straw, chaff of cereals, pulped mangels, potatoes, bran, and slaughter house products; inorganic phosphorus and lime—precipitated calcium phosphate, burned bones, or ground rock phosphate.

If lime alone is needed, chalk may be fed.

Three men and these tools



will put up a CALCO BIN quickly

ERECTING a Calco Grain Bin is simplicity itself. A book of instruction, illustrated, accompanies each bin. Every piece of the Calco Bin fits—exactly. No skilled labor is needed, three men and three tools can do it quickly. From laying out the guide stakes to fastening on the ventilator cap—every operation follows naturally—the result is a permanent investment on your farm.

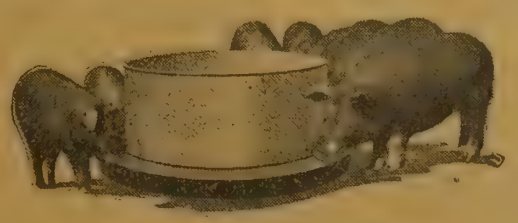
The free booklet "Calco Grain Bins" tells of many ways of saving money with the Calco. Write for it today.



Model 244

Calco Hog Trough

Popular because practical. They help raise healthy hogs; they are sanitary, strong and durable. Built of Armco Iron and Cast Iron. Lengths from 24 to 120 inches. Ask for price list of this profit increasing trough.



Model 252

Calco Automatic Hog Watering Fountain

Constant fresh water, without overflowing. Connects to water supply pipe—works automatically. Bottom and trough of cast iron, reservoir of galvanized Armco Iron. Write for circular with complete specifications and prices.



Model 250

Calco Automatic Grain Feeder

Gives plenty of feed—without waste. Feeding trough and bottom of cast iron, storage bin of galvanized Armco Iron. Capacities from 2 to 10 bushels. Write for details and price list.

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Are These Your Cows?



FREE BOOK OF BARN PLANS and a copy of the big Louden catalog will be sent on request to any dairyman.

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Do your cows enjoy the comfort and freedom of flexibly hung swinging steel stanchions, or are they cramped and miserable in rigid, unsanitary wood "stocks"?

Louden Steel Stalls and Stanchions

not only keep your cows clean and healthy, but help you get maximum milk production. Cows respond to good treatment—Contented cows give the most milk.

The Louden line includes everything needed about the dairy ranch—from Stall Fittings to Gutter Drains and Feed Carriers. We are distributors for the entire line. We are also

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When Dairying and Cooperation Combine

TO MAKE dairying mean more prosperity instead of drudgery has been the notable achievement in the Grove City community of Pennsylvania. Unprofitable methods with inability of local farmers to gain more than a meager living from the soil had distributed seeds of discouragement throughout the community.

Under such conditions the United States department of agriculture induced the business men and others of Grove City to establish a creamery. Built and equipped by home capital, this plant is operated by the department as a part of its experimental and demonstration work. In three years Grove City has developed into an advanced dairy community. The first day the creamery opened its doors 20 patrons marketed 78 pounds of butterfat. By June 30 of the same year the number of patrons had increased to 106, a year later to 338, the next year 579, and at the end of the third year, or June 30, 1918, it was 614. But the increase in the income is even more remarkable. The first fiscal year, or from July 1, 1915, to June 30, 1916, inclusive, the gross income of the creamery was $82,432; the second year it had increased to $212,904, and the third year it was $375,596. Last year one of the Grove City banks increased its deposits $450,000 of which approximately one-third resulted directly from dairy farming improvement.

City Helping Country

The Grove City community has followed the principle that "In union there is strength," and at the present time is admirably organized for profitable results. The local commercial club of 200 members has been of great assistance in winning the confidence of the farmers, in making them feel at home, in entertaining them and in strengthening the bonds between them and their town neighbors. The club rooms are now used as headquarters by farmers and their families when they are in town and twenty of the most progressive farmers are now members. Often the club has been active in obtaining help for the farmers during busy times while occasionally the members themselves have assisted the farmers in urgent work.

The two local banks have supported the "better agriculture" movement and one of them has aided in financing the purchase of pure bred dairy sires and cows. It has brought in eight carloads of high producing animals and distributed the cattle at cost among the farmers. In addition it has loaned money for the purchase of better cattle and for general farm improvement. The bank publishes a monthly paper which circulates among the creamery patrons and deals with community development problems and other topics of interest. Each month it publishes the names of farmers receiving the largest checks from the creamery and the names of the owners of cows whose average production exceeds 40 pounds of butterfat a month. The lists stimulate friendly rivalry among dairymen and benefit the local industry.

More Good Cows Brought In

Today Grove City is a region of profitable dairy cows, due to the intensive work of the home cow testing association which has worked for the shipping in of better dairy animals and the shipping out of low producers. Farmers have heeded the evidence of the milk scales and the Babcock test. One dairyman found that nine of his eleven cows were "loafers." He immediately sold them to a local butcher and purchased profitable stock to take their places. The Grove City Cow Testing Association records for 1917 and 1918 show that it cost an average of $74 a cow to feed the 262 cows that completed a year's test—approximately $50 to feed the lowest producers, and $97 for the cows whose average production was 400 pounds or more of butterfat a year. One cow in the 400 pounds class yielded more income over cost of feed than an entire group of 25 cows that averaged only 100 pounds of fat a year.

Work of the Bull Association

Two cooperative bull associations, Jersey and Holstein-Friesian, have been organized since the development work began. Each of these organizations is divided into four sections or blocks, with one bull to each block. The Holstein-Friesian Bull Association consists of 25 farmers who subscribed $75 each for the purchase of four registered Holstein sires of meritorious breeding. To avoid inbreeding, the sires are changed from one block to another every two years, and according to this plan the bulls now will be serviceable for the next eight years. Thus each member of the club gets the use of a fine sire while the organization is able to keep its bulls at a maintenance cost of about one-sixth of what it would be if each herd were headed by a separate bull. The Jersey Bull Association was organized along similar lines. This campaign for better breeding has brought about the establishment of more than 40 pure bred herds in the community during the last year.

The Guernsey Breeders' Association at Grove City consists of 28 members, owning 71 registered Guernseys, each member owning either outright or

Redwood For Durability

No Other Wood Used for Silos Will Last as Long as Redwood Under California Conditions

Remco For Mechanical Perfection

Perfect Workmanship is as Essential to a Perfect Silo as is the Best Material



You Get Both in the

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Redwood Stave

SILO

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A FAIR PRICE

Redwood Tank Outlasts 4 Towers

Prior to American occupation in California (1846) a ranchman near Cayucos erected a Redwood Tank on a tower of other wood. Since that time he and his son, who succeeded him, have put four towers under this same tank, replacing towers that had decayed.

Four years ago the owner built a redwood tower under this famous old veteran tank and both are now good for many years to come.

He also installed a Remco Redwood Silo.

There are hundreds and thousands of Redwood Tanks in California that are from 30 to 40 years old.

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Write to The

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1608 Hobart Bldg., San Francisco

jointly a carefully selected registerd sire.

In the main, the dairy cattle in the community are free from tuberculosis; more than 100 herds have successfuly passed two annual or three semi-annual official tuberculin tests. As a result they have been included in the tuberculosis-free accredited herds listed by the United States department of agriculture.

Boys and Girls Working Too

The Boys 'and Girls' Pure Bred Dairy Cattle Club was organized more than a year ago with 53 members. In addition to the cattle club there are pig clubs, garden clubs, canning clubs, and a club recently organized under the direction of the county agent known as "The Young Farmer Club", in which eligibility to membership requires the winning of a prize in some "worth while" contest.

In spite of the high price of building materials last year, 25 new silos have been built while 57 old barns have been remodeled and equipped with such improvements as concrete floors, up to date stanchions and better lighting and ventilating facilities. In the Grove City district, dairy development has made such rapid progress that many dairymen have had to keep their cattle in barns not designed for such a purpose. However, using these old barns has allowed the dairymen to devote more of their capital to the purchase of high producing cattle.

Another organization, known as the Grove City Federal and State Accredited Dairy Cattle Show and Sales Association, encourages the development of healthy herds and the exhibition and sale of dairy cattle. Each member must furnish the secretary-treasurer with an extended pedigree of all animals he offers for sale or exchange. Once a year the county holds a round-up picnic and dairy cattle show. Last year 1500 people attended.

Example for Other Communities

The creamery fieldman aids the farmers in building silos, remodeling and rearranging their barns, tuberculin testing their herds, detecting and disposing of undesirable cows.

Under the supervision of a qualified man, practically any farming community, it is believed, can improve its organization, farming methods, market operations, and similar activities. Whenever such a community tackles the business of self advancement energetically in the proper manner, a spirit of confidence will prevail and work well begun will go forward to still further success.

The foregoing information comes from a recent publication of the department of agriculture. "How Dairying Built Up a Community."

HOW PURE BREDS PAY

Not long ago there appeared in the Cultivator an article setting forth the results that had been obtained through the use of pure bred bulls in the herd of cattle maintained on the great Parker ranch in the Hawaiian Islands. The figures were for dressed carcass weights over a period of years and indicated a steady increase in weights, most of which could be credited to the policy of using high class bulls.

One of our valued readers was inclined to discount the value of better blood on the range. For his especial benefit, and other doubting cattlemen, we take the liberty of quoting the following story by Will C. Barnes, of the Forest Service, which appeared in a recent issue of The Breeder's Gazette. Mr. Barnes wrote as follows:

"Some months ago one of your California subscribers wrote inquiring as to the 'feeding and fattening of pure bred cattle in comparison with inferior grades,' his idea evidently being as he frankly put it 'to prove that the policy of the Forest Service in advocating pure bred cattle is not wise.' Dr. True of the University of California answered the question admirably from the feedlot standpoint, but the inquiry was perhaps quite as much tied up with range fattening as with the feedlot. Running over some reports recently I came across one from the supervisor of one of our northern Utah forests in which some figures were given that answered this man's question so nicely that I can not refrain from giving them. They show how well-bred cattle will make good when placed in competition with scrubs, and grazed entirely on range grasses and forage.

"Near this Utah forest two neighbors owned about the same number of cattle, wintering them partly on open public domain ranges supplemented with some roughage near spring. The two herds then entered the forest ranges for the summer season at about the same time, used them for the same number of months, and grazed on practically the same kind of grasses and forage plants while there. Each man paid exactly the same grazing fees and each herd received the same attention from its owners, which I may say was very little. In the fall the steers from the two herds were cut out and shipped the same day on the same train to the same commission house in Omaha, where they were sold the same day under identical market conditions. Both bunches were fat. The pure breds, well-bred Herefords, brought $2 per cwt. more in cash than their scrubby brethren, averaged 200 pounds more in weight and netted their owner exactly $40 per head more than the scrubs netted their owner.

"They say that 'money talks.' That extra $40 did some talking for improved stock. I fancy that to the owner of the pure bred steers it talked with soft and kindly accents all the way back to his Utah ranch."

Hauser's Digester Tankage

GIVES GREATEST VALUE FOR LEAST MONEY
IT MAKES THEM FAT

Hauser Packing Co. Los Angeles

Dispersal of Splendid Jersey Herd

Goldie Beauty Nehalem

283330

Register of Merit record at three years four months—

Milk 365 days .....12,367.7 pounds
Butter fat ..... 750.51 pounds
(World's record in class when made.)

Register of Merit records at four years six months—

Milk 365 days .....15,323.5 pounds
Butter fat ..... 904.91 pounds

(Butter fat record for two years world's record at age when made.)



At Public Auction, Tuesday, May 27, 1919

State Fair Grounds, Sacramento, Calif.

In this history making sale Mr. Clifford F. Reid, president of the Northwestern Trust Company, Portland, Oregon, will disperse his entire herd of famous producing and show winning registered Jerseys. The demands made upon his time by his several large commercial enterprises led Mr. Reid to the decision to sell this splendid herd, and other breeders will profit themselves if they take full advantage of the opportunity to buy from this offering.

The Goldie's Nehalem Beauty Group

There will be 50 head of males and females in the sale, of which number the wonderful cow Goldie's Nehalem Beauty, her dam, two sisters, one daughter, two sons, fourteen granddaughters, and six grandsons, account for 27 head. The balance are choice cows, some of them imported and some with good Register of Merit records, together with their offspring

Who Will Own Goldie's Nehalem Beauty?

What Jersey breeder is going to own this great young cow and add to his herd one of the very greatest cows the Jersey breed has yet produced? No Jersey cow in the world ever sold in public sale with as high a record as she has, and she is looked upon as a candidate for even higher honors after her next September freshening.

Who Will Own Her Two Sons?

What breeders are going to be far-sighted enough to own her two sons that will be in this sale. Think what it will mean to the two California herds, assuming that these two bulls both stay in California, to have at their heads the two highest record Jersey bulls in the state! Surely it is THE opportunity for someone to get on the Jersey map BIG and QUICKLY.



Goldie's Nehalem Gold
One of the sons of Goldie's Nehalem Beauty in sale



Goldie's Catillon Beauty
Daughter of Goldie's Nehalem Beauty in sale

Come to this great sale, whether you want cows, heifers, service bulls or bull calves. It will be worth while if you want the good ones.

Sale Begins Promptly at 10 a.m.

REMEMBER—This herd is now and has been for a long time under Federal supervision for health and not a suspicious animal on the last tuberculin test.

CATALOG FREE ON REQUEST. SALE UNDER MANAGEMENT OF

California Breeders Sales and Pedigree Company

J. M. Henderson, Jr., President Sacramento, California C. L. Hughes, Sales Manager

Auctioneer—Col. Ben A. Rhoades, Los Angeles

CASH
FOR
Your Poultry Products

Ten Reasons Why the National Poultry Co., Inc. Should Receive Your Poultry Products

First: The National Poultry Company has set a standard and established a reputation which must be maintained. It will be maintained, because the same principles that have given character to our establishment since we were doing business in a 25 foot, one-story building are maintained in our modern plant.

Second: The National Poultry Company's reputation is built on fair dealings, honest weights, and quick remittances, covering a period of ten years. Ask your own banker about us.

Third: This explains why the National Poultry Company's methods stand out so strongly, why we were unanimously chosen by the Poultry Producers' Association of Southern California, a body of 530 leading poultry men, to exclusively handle 100,000 of their broilers.

Fourth: This is why thousands of California, Arizona, New Mexico and Nevada producers ship us regularly every season.

Fifth: Because we are the largest exclusive wholesale poultry plant on the Pacific Coast. Our capacity is 32,000 live broilers on feed at one time. We have our own cold storage plant on our premises. The only poultry firm in Los Angeles having trackage to the door for handling carload lots.

Sixth: It has been our conviction that in the poultry business, as elsewhere, patronage will always go where it is best treated.

Seventh: It has been our conviction also that the more the producer gets out of his shipment, the better showing we can make for ourselves in increased sales. The new business method is the increased volume of business on a small margin of profit.

Eighth: The National Poultry Company realizes its obligations to continue this same method with increasing usefulness to producers.

Ninth: It is unthinkable now that we should imperil our position by abandoning the policy that has made us.

Tenth: The above methods have always been the standard which J. Will Blackman, president of the National Poultry Company, has applied in building up this business.

Write Us For Quotations

National Poultry Company, Inc.

609 E. Third St. **J. Will Blackman, President** **Los Angeles**

"Ask any man who has shipped to us"

Since 1902

Pomona
DUPLEX-PLUNGER
Pumps

One Pump Will Do Your Work

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

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Coulson's Baby Chick Milk Mash

The Best Feed for first six weeks

Write for particulars

Coulson Co.
Petaluma, Calif.



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Treatment for Roup

By Jean A. Koethen

ROUP is rather a fall than a spring disease, and yet there are some cases even now, especially in those sections where fogs are of frequent occurrence. It may affect the head, in which case there is a discharge from the nostrils, thin at first, but gradually growing thicker and more putrid, often a swelling of the eyes which are sometimes stuck together, and sometimes an abscess, or more than one, in the eyelid or between the eye and the mouth. It may affect the throat, in which case a diphtheretic membrane forms and the bird may choke to death. Happily these diphtheretic cases are rare at any season.

It is always difficult to tell just when a cold ceases to be a cold and becomes roup. Some poultrymen are inclined to call every cold roup. Salmon describes "non-contagious catarrh," or cold, as a disease which usually affects only a few individuals in the flock. "They are disinclined to move, appetites are diminshed, they sneeze and the mucous membrane is thickened, causing some obstruction to breathing through the nostrils. There soon appears a thin, watery discharge which later becomes thicker and glutinous, the eyes are often watery, the eyelids swollen and sometimes held together by a thick, viscid secretion." In roup, "the first symptom of the disease is usually a putrid catarrh from the nostrils, the affected fowl is generally restless, separates from the other members of the flock becomes dull, cowers in the corner of the coop or mopes in the corner of the pen, with its head close to its body and often covered with its wings, and the eyes often shut, the lids being glued together by the sticky discharge from them."

Whether the symptoms are those of roup or only of cold, the sick bird should be removed from the flock and put in a warm, dry place. If it will eat, give it all the greens it will consume and nourishing food such as bread and milk or chopped cooked meat. Unfortunately, a very sick bird will not eat, and this makes treatment more difficult.

The simplest treatment for roup is what is called the permanganate treatment, and this should always be tried first. Into a lard pail full of tepid or warmish water drop a few crystals of potassium permangante—just enough to make the water a deep pink. Into this solution dip the head of the sick bird after pressing with the fingers between nostrils and eyes to loosen the discharge and hold it under a few seconds. This cleanses the nasal passages and eyes, and if it is repeated twice a day, with the solution fresh each time, usually cures all but the most serious cases.

When there are abscesses in the face or about the eyes, they must be opened and cleansed with some antiseptic application, such as two per cent boric acid in a decoction of chamomile flowers, or one-half per cent solution of corrosive sublimate. Sometimes these abscesses are inside the mouth or in the throat, when they should be opened and the cavity sprayed or washed. Salmon recommends washing cavities of nose and throat with peroxide of hydrogen diluted one to three times with water. Sanborn recommends spraying with the following mixture: Extract of witch hazel, four tablespoons; liquid carbolic acid, three drops; water, two tablespoons. He applies the spray twice a day, squeezing the bulb five times for each nostril and twice for the mouth.

POULTRYMAN'S CALENDAR—MAY, THE TURKEY MONTH

Lice, overfeeding and dampness are the three great enemies of baby turkeys, but the greatest of these is overfeeding.

Dust all poults on the head as soon as they are put in the coop with buhach powder. If the hen has not been dusted before the hatch came off, dust her well. There is no excuse for lice on turkeys.

Move the coop in which the poults are brooded to new ground at least every week. They should be on the ground, but the ground must be clean.

The more green range poults have, the less they should be fed.

Clabbered milk and cottage cheese and greens, especially onions and onion tops, are the safest feeds for poults, but whatever you feed, never let them have all they want. It is not what you feed that matters so much as how much.

The second month is the critical one, for it is then that blackhead most frequently appears. Turks can stand overfeeding for a while, but in the second month they are quite sure to succumb if they have been overfed.

Let the first grain feed given be rolled oats and do not be in a hurry to add other grain. This may seem an expensive ration, but it is less expensive than losing the turkeys.

To Preserve Eggs

By Jean A. Koethen

Of all sad words of tongue or pen,
The saddest are these—"I have no hen".

So writes a would-be humorist, but what he says is no joke at all. It is the plain, unvarnished truth. Especially true is it in this spring season, when every hen is shelling out eggs, for the hen owner may not only have bacon and eggs every morning, but he may prudently provide for a continuous supply of fresh eggs for seven or eight months to come.

The preserving of eggs in waterglass has become so common that it is hardly necessary to give directions for it, and yet there are always those who are beginning, and others, perhaps, who have tried and not had the best success. Only last week a friend said to me: "Mrs. B— says she tried preserving eggs last year, and when she came to take them out of the solution they were all rotten."

If waterglass eggs are rotten, it simply shows that sufficient care has not been exercised in putting them down. The art of preserving eggs is made up of apparently insignificant details, but ignoring one of these details may easily cause the loss of many dozen eggs.

The principle on which sodium silicate or waterglass is used for the preservation of eggs is simply this, that the solution makes a coating over the pores of the egg, excluding the air. If this coating is absolutely clean the egg is kept comparatively fresh for a long time. If the coating contains germs of any sort these germs find their way through the pores to the inside of the egg and work dreadful havoc there. Now if the sodium silicate is poured directly from the bottle into boiled water, and the solution covered and kept covered there is only one way in which germs can contaminate it, and that is from the eggs themselves. Eggs that are put into waterglass must be fresh. They should also be infertile. A fertile egg will rot sooner or later, and one rotten egg in a five-gallon jar of infertile eggs might easily spoil the whole. Not only should they be fresh and fertile, they should be clean. One never knows how many germs there may be in the dirt on the outside of a dirty egg.

But if the eggs are dirty, don't wash

them. Washing removes the delicate coating on the outside of the shell, and while the immediate application of the silicate coating lessens the likelihood of air or bacteria entering the egg, it is best to take no chances. In egg preserving, as in surgery, absolute cleanliness is the one essential. If eggs are dirty, wipe them with a slightly damp cloth. If this does not clean them do not try to preserve them.

The preserving solution is prepared by boiling nearly enough water to fill the jar or keg that is to be used, and then letting it cool before the waterglass, which may be bought at any drug store, is added. Some of the published directions give one part waterglass to ten of water as the correct proportion. Others make the proportion of water a little greater. One to ten is certainly safe; one to 11 or 12 may be equally so. Whatever proportion of water you use, remember that the solution will gradually thicken as it stands, on account of evaporation, hence more boiled water must be added from time to time.

When the sodium silicate has been well stirred into the boiled water, the solution is ready for the eggs. "Why must it be stirred in?" is sometimes asked. Just to make sure that the silicate is uniformly distributed through the whole solution. Now bring in your eggs, fresh laid, wipe the dusty ones, and discard all that are cracked, fertile, or cannot be wiped clean. Drop them in and cover the jar. Every egg in the jar must always be completely immersed in the solution. If one side of one egg is out of water there is a chance for germs to enter. Keep the jar (a stone one is best) in the cellar or in some other cool, dark place, and in six months from now, if you have been careful to follow directions, you may fry the eggs from that jar and hardly know that they were not laid the day before.

POULTRY SCHOOL

The University of California will hold its Southern California school this year at San Gabriel Mission Play house near Los Angeles. Former schools have been held at Riverside, Pomona, Van Nuys and Gardena.

More romantic or historical setting could not have been chosen for this school which will begin Monday morning, May 26, and continue to and including the 29th. It will be under the direction of Professor J. E. Dougherty who will be assisted by E. J. Hauser.

POULTRY KEEPING FOR THE BLIND

Blind Edward Jones of Jefferson City, Missouri, has made a record in keeping poultry which many who have eyes have not equaled. Moving among his birds, which seem to understand how he is handicapped, and guided only by his sense of touch, he performs his daily work. He has built his own poultry house and brood coops, and has hatched and raised all his chicks. Blindness does not prevent him from culling his flock. The birds not intended to be kept are marketed as broilers, and the others are kept for the production of winter eggs.

Mr. Jones attended every poultry meeting held in his section last fall. He is now trying to organize a poultry club for blind people, and the home demonstration agent in the county has volunteered to read to the members the publications on poultry sent from the United States department of agriculture.

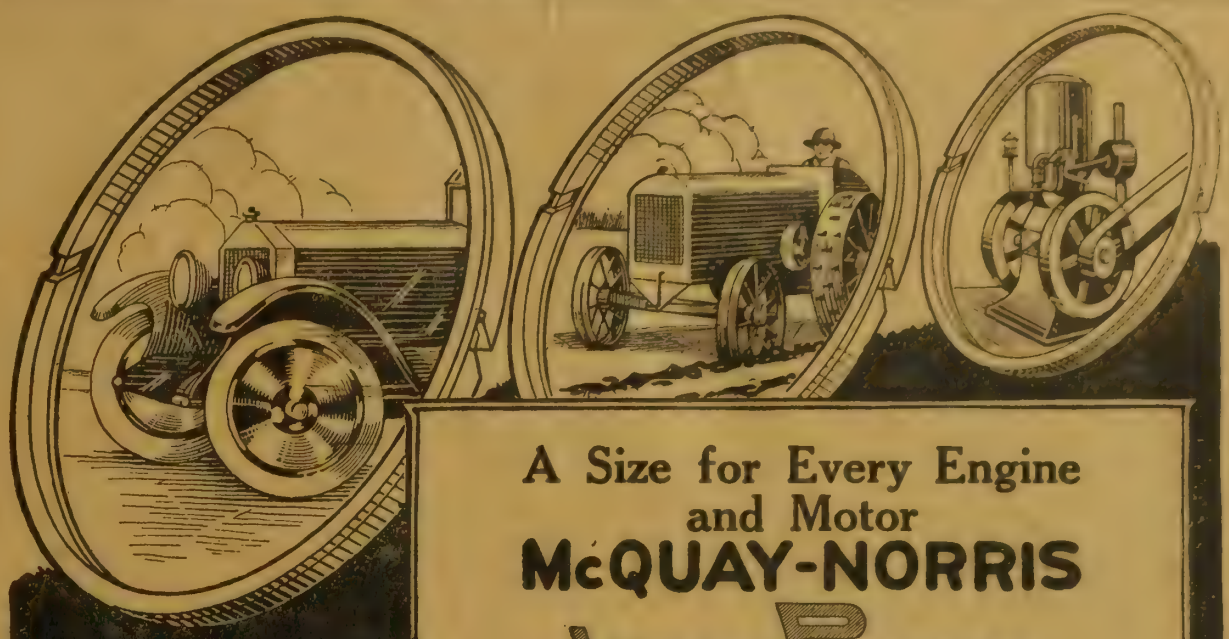
HURRICANE SERVICE EXTENDED

The weather bureau of the United States department of agriculture is arranging to install at Fort Myers, on the southwest coast of Florida, about 150 miles south of Tampa, a special meteorological station to aid in the detection of the tropical storms that appear at intervals from June to November. The new station is expected to be in operation about June 1. The weather bureau already has in operation in the Caribbean Sea region about 15 stations, most of them located on islands under the sovereignty of foreign governments. These stations furnish the "hurricane service" which gives warning of dangerous weather disturbances in the Caribbean Sea and the Gulf of Mexico. Through the observations cabled or sent by wireless to the weather bureau at Washington "the makings" of great storms often are identified while in the germ stage, sometimes days before these disturbances have developed into the hurricanes that spell danger to shipping and to life on shore. When a storm appears to be brewing in this "breeding place of hurricanes" warnings are sent throughout the endangered region by every possible means, and records show that much life and property have been saved through the service.

THE WRONG END

An irate man rushed into a local drug store the other day and demanded his money back. "You advertised 'No more colds, no more coughs, certain cure'," he shouted, adding "and I've drunk the whole darn bottle and I've got a peach of a cold.'

The clerk answered mildly: "Why didn't you read the label? This is a solution to put on the soles of your shoes to keep them dry."



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Superoyl
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A special ring for engines that pump oil. Used in top groove only of pistons to control excess oil, with McQuay-Norris LEAK-PROOF Rings in lower grooves to insure maximum compression and fuel economy.

A Size for Every Engine and Motor

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Increase Power—Decrease Carbon
Save Gas

The design and construction of these rings assures uniform action all around the cylinder wall—power producers because they leave no place for the power to slip past.

Wherever you are and whatever your motor, you can get immediate service on these rings. Complete stocks of standard and over-size rings are carried by over 300 jobbers and supply houses throughout the country. Many thousands of dealers can extend to you our service, which enables them to specify your size requirements for practically every make or model of motor without delay. You don't have to wait.

Send for Free Booklet
"To Have and to Hold Power"—a simple, clear explanation of piston rings, their construction and operation.

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ECONOMICAL
Irrigation Power
From Low Priced Oils
Type "Y" Oil Engines



Easy starting

Force feed oiler to cylinder

Ring Oiling Bearings on main shaft provide positive lubrication

Anne Price C

HIGH DUTY MARINE TURBINE PUMPS
32ND AND SANTA FE AVE.
LOS ANGELES

Fairbanks, Morse & Co., Feb. 26th. 1919.
Los Angeles, Cal.

Gentlemen;

The record of the 25 horse-power, "Y" Engine, you installed at the Price Ranch, over two years ago, speaks for itself:-

When not irrigating our 65 acres of Valencias, we sell water and the plant runs almost constantly, our longest run being 46 days without a stop.

Fuel-	48 Gal. per. 24 hours-	@5¢-	$2.40
Lub. Oil-	1½ " " " "	@36¢	.54
Man's time figured liberally-			.56
			$3.50

Making the cost of pumping 70 inches of water, from 60 feet- 5¢ per. inch, per twenty four hours.

The man fills the 5 gal. lubricating oil tank (when necessary) the first thing in the morning and inspects the oiling system on his way to dinner and to supper totalling, possibly ½ hour per. day. We have not spent one cent for repairs on either engine or pump since you installed them.

Yours truly,

CEP/3

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The direct selling method from producer to consumer, and a clearing house for over 33,000 readers, weekly.
Liner rates: Single insertion 3c per word;
35c per issue minimum charge.

TREES

For Sale—All kinds of Citrus Nursery Stock, 1 and 2 year buds, fine roots. Y. Yamaguchi, Box 574. Phone Sunset 652W. Upland, 10th Street and Cucamonga Avenue, Upland.

Closing Out—4000 choice Marsh Seedless grapefruit, Eureka lemons and Washington navels, two-year-old buds in June, thirty cents each in lots of fifty, twenty-five cents each in lots of one hundred. P. M. Bevington, Elsinore, California.

For Sale—Budding Cloth 50c yard; also leading varieties citrus nursery stock. Selected and pedigreed buds. Order quick for early delivery. Cyrus W. Wilhite, Citrus Nurseries, Glendora, California. Box 154.

For Sale—6000 Orange, Lemon and Grapefruit trees, ⅛ to 1 inch caliper. 50,000 fine sour orange seedlings. Sales Yard, northwest corner East Colorado and Huntington Drive, Pasadena, Paul B. Magee Nurseries.

Florida Sour and California Sweet Seedling Orange Seed-Bed Stock. The time to plant is propitious; order now. SOUTHLAND NURSERIES, 1941 E. Colo. St., Pasadena, California.

Avocado Nursery Opportunity; 5000 Avocado Seedlings for sale; will furnish buds for same. West India Gardens, Altadena, California.

For Sale—1000 Late Valencias, one-year-old on three-year old roots. Enterprise Nursery, 1197 N. Fair Oaks Ave., Pasadena, California.

For Sale—Sacks and Burlap for Balling Trees. Write or Phone Boyle 1800. J. Ross, 313 N. Boyle Avenue, Los Angeles, California

For Sale—3000 select orange trees. Also 3000 lemon trees; first class trees; 20,000 seed bed stock. A. R. Rideout, Whittier

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—Eureka Lemon Stock well rooted 2-year buds. Charles Brooks, Sierra Madre, California.

BUDDED AVOCADOS
MATHER'S AVOCADO NURSERY, 137 N. Fair Oaks Ave., Pasadena, California.

MISCELLANEOUS

For Sale — 20,000 ft. of new guaranteed garden hose, ½-in. and ¾-in. Regular 18c and 22c hose—OUR PRICE 13c and 16c per ft. Mail orders promptly attended to. If not satisfactory, money refunded. Hayward Iron and Bottle Yard, 529 Watkins street, Hayward, California.

You are Losing Money if you farm without a soil analysis. Write me today for free proof of this statement. I can show you. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, California. Phones: Office Pico 843. Residence West 702

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Look Tobacco — Homespun, chewing or smoking, mild or strong. Lb. 50c, 10 lbs., $4.50 postpaid. One order will convince what real tobacco is. Write for particulars. RANDOLPH TOBACCO FARM, PADUCAH, KENTUCKY.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 816 Washington Building, Los Angeles, California

Bees For Sale—Golden Italians in patent hives. Address John G. Mee, St. Helena, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 816 Washington Building, Los Angeles, California.

ENGINES

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale—40 H. P. Fairbanks-Morse gas engine in first-class condition—used two seasons. P. O. Box 251, Santa Ana, California.

For Sale—C. L. Best 30 H. P. Tractor—all track model and six disc Saunders' engine plow. $1500.00; half cash. H. J. Warr, Perris, California.

60 H. P. Holt Caterpillar Tractor for sale, exchange, real estate. Smith-Form-A-Truck. W. M. Stansbury, 2025 East First Street, Los Angeles.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 South Los Angeles Street, Los Angeles.

Caterpillars, Two Holt 75's. Trailers. Bargains. Myers, 1117 Haas Building, Los Angeles.

For Sale—32 H. P. Fairbanks-Morse Gas Engine. Guaranteed perfect. $600. J. J. Pottinger, 115 Main St., San Francisco.

FOR EXCHANGE

Will Exchange My Equity in piece of ground 290x215 ft., small house, well, chicken house, corral and some small fruit trees. Mortgage $250 to be assumed. For lot, small shop and some blacksmith tools in some small town. See Golden State Bank, Anaheim about title. See me at place west of Buena Park School. Ernest Giesel, Buena Park, California.

SEEDS AND PLANTS

The Garden Beautiful in California by Ernest Braunton, a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant, also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

Seed Corn—Fancy selected Seed Egyptian, Jerusalem, Dwarf Milo, Common Milo, Hickory King, Iowa Gold Mine, Iowa Silver Mine, King Phillip, Amber Cane, Honey Drip Sorghums, Sudan Grass, etc. Write us for samples and prices. FARMERS' UNION WAREHOUSE, Box 420, Tulare, California.

One Row Pays the Extra Cost. Garden Grove, Kansas, variety real Dwarf Milo maize, 6100 pounds threshed corn to the acre grown here last year. 15c per pound. 100 pounds or over 12½c; express paid. D. M. K. Co., distributors, Holtville, California.

Seed Beans—We carry choice hand picked and fumigated of all varieties and now ready to make immediate delivery. We have an especially fine lot of the Henderson Bush Lima, and the highly recommended Ninety Day Lady Washington. A. B. SHOEMAKE CO., Modesto, California.

Cabbage and Kale Plants—Any quantity delivered anywhere, 100 40c; 300 for $1.00. By express, collect, $2.00 per 1000. Tomato, Cauliflower and Pepper, 25c per dozen. I. F. Tillinghast, Santa Rosa, California

Red Jersey Sweet Potato Plants, best early, sweet and easily grown, free from pests or disease; 50c per hundred, $2.00 for five hundred, $3.50 per thousand, postpaid. R. M. Plympton, Arroyo Grande, California.

Dwarf Milo Seed, Head Selected from a field yielding over seventy hundred pounds of threshed grain to the acre. Six dollars a hundred pounds. F. O. B. San Jacinto, L. S. Cushman, San Jacinto, California.

For Sale—Fancy Recleaned amber Sorghum and Sudan grass. Also handpicked Seed beans; any quantity. Stock pumpkin seed 20¢ per pound. Aurora Seed Mill, Stockton, California.

R*O*S*E*S 50c per dozen. Fruit and Ornamental Trees, Plants, Vines, etc. Write for catalogue. KAVAN NURSERIES, San Bernardino, California.

Box 501, Fowler, California. Write for circular, prices on seed and plants, Sudan, Dwarf Milo Maize, Honey Sorghum, Amber Cane.

Yellow and White Sweet Potato and Tomato plants—ready now. Ancona Farm, Ontario, California.

Millions of Tomato, Pepper, Celery and other plants for sale. L. C. Johnson, Pomona.

Dwarf Milo Seed. From field that produced better than 2½ tons per acre. $6.00 cwt. W. L. Helwig, San Jacinto.

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SPECIAL BARGAINS
THAT SHOULD INTEREST YOU OR YOUR NEIGHBORS.
IRRIGATING PIPE.

4-in. galv. surface irrigating pipe..$16.50
6-in. galv. surface irrigating pipe.. 24.50
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6-H. Lambert gas engine, fine shape.$125
Fine double acting 8-in. cylinder, cost $300. Never been in water, $150.
No. 4 horizontal centrifugal pump.....$ 85
No. 6 horizontal centrifugal pump....$145
No. 3 Ames double acting pump, double 24-in. stroke, $275, cost $800; pipe, rods, cylinder extra.

WINDMILLS-TANKS-STEEL TOWERS

8-foot steel windmill wheels...$ 29.50 up
10-foot steel windmill wheels... 39.50 up
12-foot steel windmill wheels... 65.00 up
16-foot steel windmill wheels... 135.00 up
STEEL TOWERS FOR WINDMILLS, $35 TO $40. NEW, USED GALVANIZED, REDWOOD TANKS, ALL SIZES.
RANCH MACHINERY.

10-ft. Hoosier grain drill, $95; 4-row beet drills, $35 to $45; 3 and 4-gang disc plows, $95 to $125; bean, beet cultivators, $35; potato planters, $75; 4-ft. Fresno scraper, $14; 5-ft., $16; 6 corrugated galv. tanks, about 1000-gal., $28; 3000-gal. heavy corrugated, $68; another plain iron, $58; cider mill, $17.50, cable.

Many other bargains. Trade us tools you don't need and little cash for material you do or pay with Liberty Bonds. Have you anything for sale? If so, phone or write us. Material guaranteed as represented or money refunded. DEMMITT CO., office upstairs, 120 N. Main. Yards, 816 Yale. Phone 15191. Los Angeles.

For Sale—Complete Pumping Plant, $2800. No. 38 Pomona Head—260 feet 10 inch column pipe, rods, cylinder—25 H. P. motor—12-inch leather belt. All in fine shape. Has seen very light duty. Well gone dry reason for selling. Orange, California. Phone 502R1. Hugh T. Thomson.

No. 7½ "Mann" Bone Cutter for hand or power use. New price $33.00, will take $10.00; 250 feet standard fire hose, good condition; 1 Bulldozer pump, 240 gal. galvanized tank $15.00. Clark, 8701 So. Main, Los Angeles.

3-Inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2

Wanted good used silo. State size, condition, price. Box D, Cultivator.

MULES

For Sale — Twenty-five young mules, one and two years old. Chas. Hubbard, Riverdale, California.

HOGS

NICK GENTRY
Dean of the Berkshire Breeders, breeder of Baron Duke 201st, Grand National Champion, says: "I never saw a better width of loin than he has. If more breeders would produce the type of Baron Duke 201st there would be many more Berkshires raised and sold. Every animal on both sides in pedigree of Baron Duke 201st for many generations back were good ones; every one of them. His great size, good heart girth, very smooth shoulder, back and loin, legs and feet are hard to equal in one animal. If he is not a good one and a well bred one there is no other. I am glad to give you my opinion of Baron Duke 201st." N. H. GENTRY.
You can buy his three months' old weanling pigs from 650-pound prolific sows for $35.00. They are going fast. Order now.
SANDERCOCK LAND CO.
In charge of Natomas Land Sales.,
23 Montgomery Street,
San Francisco, California.

CASTLEVIEW

Giant Type Berkshires.

We are booking orders for spring pigs from Grand Champion sows and sired by Mayfield Rockwood, sire of Champion barrow at 1919 Western Berkshire Congress.

Castleview Ranch, Santa Rosa, Calif.

BERKSHIRES BERKSHIRES

ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

Billiken Chester Whites. Not many left now; one 1917 fall boar; one 1918 fall boar; both cholera immune. All pigs farrowed to date are booked for sale excepting 10 boar pigs. Have 10 sows yet to farrow during May, June and July; will book orders from these litters, delivery to be made when weaned. C. B. Cunningham, Mills, California.

DUROC-JERSEYS at IRELAND
The snappiest—big type—fall boars—in Southern California—are now on exhibition and FOR SALE. Sired by Cherry Vol. 2. Strongly bred Orion Cherry Kings. Some of them will be herd leaders. Ranch at Owensmouth. City Office, 1219 Brockman Bldg., Los Angeles.

Grape Wild Farm Berkshires. A few fall Boars by Big Leader Grape Wild Farm Leader and Majestic King, also spring pigs. A. B. Humphrey, Prop., Escalon, California.

O. I. C. BREEDER'S NOTICE
I will sell (Ohio Boy) two year old imported boar, none better. Also boar pigs ready for spring breeding, sire (Ohio Boy), dam (Toddler's Beauty Imported). Write for full information. Jas. Little, Wasco, California

SWEETWATER DUROCS
The most popular herd in the West—our Durocs make us money. They will do so for you. Winsor Ranch, Bonita, San Diego County Address R. K. Walker.

We Pay Cash for Hogs of All Sizes, weights and breeds. Any number from one to several thousand considered. What have you? Durbin & Forbes, 722 San Fernando Bldg. Broadway 4170. 3030 E. Vernon Ave., South 2712-J. Los Angeles.

Lark Meadow Ranch

Berkshires

Geo. A. Stingle, El Monte, California.

Have Sold All the Pigs advertised recently. Will have fine pigs from spring litters for sale in June. Fine Shropshire ram lambs, pure bred, for sale. J. J. Prendergast, Redlands, California.

Fall Boars of the BIG TYPE POLAND CHINAS ready for light service. Excellent prospects. Sired by King Timm. Priced reasonable. Dimmick Bros., Lemoore, California.

Duroc-Jerseys—We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California

Duroc-Jerseys — Burke's Good Enuff, Golden Model, King's Colonel, and Pathfinder blood. Derryfield Farm, Capital National Bank Building, Sacramento.

For Real Good Berkshires, cholera immune, write Frank B. Anderson, Box 724, Sacramento, California

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

MULEFOOT HOGS, LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, Calif.

REGISTERED BERKSHIRES. FAIR OAKS RANCH WILLITS CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

PIPE

"TESTED" and "GUARANTEED"
Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.
PACIFIC PIPE CO.,
Established 1906.
Main and Howard Sts., San Francisco

POULTRY

THE MISSION HATCHERY
Can now supply for May and June delivery.
WHITE, BROWN, BUFF LEGHORNS
Baby chicks of quality breeding, hatched right, and priced right, and shipped to arrive safely. Express or parcel post. Large or small lots. Also booking orders for late May and June delivery. Barred and White Rocks; Black and White Minorcas.
Circular and prices for the asking.
The Mission Hatchery, Box 27, Campbell, California.

Baby Chicks For Sale—250,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock. 25, $3.50; 50, $7.00; 100, $12.50. Special prices, 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Shipped safely anywhere West of Rockies. Finest hatchery in the world. Established 1898. Must Hatch Incubator Company, 438 Seventh Street, Petaluma, California.

It's like groping in the dark to attempt raising poultry successfully without some knowledge of the business. Poultry for Profit tells you how to house, feed and raise chickens, ducks and turkeys successfully in California. It contains 225 pages with 18 pages of illustrations and bound in cloth $1.00 postpaid. Cultivator Publishing Co., 115 N. Broadway, Los Angeles, California.

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for 2[illegible] years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

S. C. White Leghorn Chicks by the 10[illegible] or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockerel at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 2[illegible] eggs per hen. Hatching eggs, $2.50 per 15 eggs. Chicks 30c each; 7 pullets May hatch, laid 12 dozen December, 10 dozen January. Call mornings or phone 5599 Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California.

Baby Chicks from my thoroughbred heavy-laying strain of S. C. White Leghorns. Am booking orders now for May and June delivery at $11.00 per 100, $100.00 per 1000. Write for particulars. J. E. Heinrich Poultry Yards, Arroyo Grande, California.

Poultry for Profit—A 225 page book, with 18 pages of illustrations, tells you how to successfully house, feed and raise chickens, ducks and turkeys in California. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 N. Broadway, Los Angeles.

Chix—Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

Light Brahmas, large stock direct from the East. Eggs, $3.00 and $5.00 per 15. Rouen duck eggs, $3.00 per 13; big winners. Seabright Bantam eggs, $2.50 per 15. Emma V. Miller, Farmington, California.

Baby Chicks—Barred Plymouth Rocks, R. I. Reds, Buff Orpingtons, Black Minorcas, Brown, White and Buff Leghorns from Hoganized stock, bred to lay. Tobener Hatchery, Washington Avenue, San Jose, California.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

Baby Chicks—Hatching season ends June 1, except for special orders. A few chicks still available for latter part of May—leading varieties. B. W. Archibald, Soquel, Santa Cruz County, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

White Leghorn Baby Chicks every week, good strong youngsters from fine layers. Also other varieties. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

White Wyandotte setting 15 eggs, $2.00. Mission 281. G. O. Tetley, 190 Edgewood Place, Riverside.

Wanted—1000 Poultrymen to try the New Perfection Automatic Poultry Fountain. None better. Free circular. John Imschweiler, Box 70, Inglewood, California.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Plymouth Rocks. BABY CHICKS, eggs. Cockerels. Fairmead Poultry Farm, Fairmead, California

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo. Schmitt, Box 268, Corcoran, California

For Sale—Buckeye Incubators, 600-egg capacity in A-1 condition. Still in operation. A. O. & P. M. Forster, 2918 Otis Street, Berkeley, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARM, San Leandro, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, at Reservoir, Pomona, California.

POULTRY

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns. CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGAINZED hens. Safe delivery of full count live chix guaranteed. Prices per 100; February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

FARM LANDS FOR SALE

For Sale—140 Acre Improved Ranch including household goods, crops, live stock, tools, at a price 100 per cent lower than anything of equal value obtainable in Southern California. Poor health compels me to give up heavy farm work. This is the proposition: 80 acres in heavy crop hay, 10 acres in potatoes, 20 acres set to walnuts, 4 to almonds. Large family orchard. New buildings. Crop should net $4000 to $5000—available within a few weeks. Location Fallbrook, state highway, 2 miles from R. R. and P. O. 800 feet elevation. 12 miles to ocean, 105 to L. A. coast route. The peer of any climate in California. No frost. Large portion of land proved highest grade citrus land. (Lemons adjoining). More good walnut and almond land; some for alfalfa without irrigating. Water in abundance and going to waste, at practically no cost. I will retain a small portion of property if a buyer can't handle it all. Price complete, including crops, $19,000 — $12,000 cash. Would take as part payment small, improved, well located ranch to five or seven thousand dollars. At this figure I will guarantee a sale within ten days and if interested suggest quick action. C. E. HOWLAND, Fallbrook, California, Box 14.

For Sale—18-Acre Country Home. Situated five miles from SANTA CRUZ on beautiful Branciforte Drive, among the redwoods. Rural delivery, telephone, living stream, unlimited water supply. Seven acres practically level, ideal for strawberries, poultry or alfalfa. Acre and half family orchard. Balance of land in wooded pasture. New modern house of nine rooms. Has four sleeping porches, attic, concrete basement, furnace and showers. Finest of plumbing throughout. Has own electric light and power plant. Water system, separate cottages for help. Garage, barn and sheds. Beautiful views and scenery. Gardens. All within 20 minutes of Santa Cruz beach. Address "Owner," 221 Branciforte Drive, Santa Cruz, California.

British Columbia—Choice of three mixed farming ranches in Central British Columbia, partly improved. GOOD ARABLE LAND. Plenty grass and extra cattle range from B. C. Government at low rental or for purchase. Owner is experienced British Columbia Land Surveyor in delicate health. He will, in each case, give two years option to purchase at $110. Semi annual rental, in advance, after examination. OWNER WILL PAY TAXES. State in first letter, whether interested in CATTLE, HOGS, SHEEP, Dairy Stock, GRAIN, or a mixture. Also please state your resources. J. H. Brownlee, CANADIAN LAND SURVEYOR, 403 Peoples Saving Bank Building, Sacramento, California.

SAN FERNANDO VALLEY

For Sale—40 Acres San Fernando Valley land just one mile from stores, schools, boulevard and railroad station; water main on two sides; rented for $25 an acre cash rent; no sand or washes, all fine soil. Priced for quick sale at $350 per acre; good terms. H. L. ALLARD, 410 Security Bldg., Los Angeles. Phone Broadway 1696.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator. Box B. A. J.

Mountain Ranch—334 Acres, 90 acres under cultivation, 30 acres Bearing Orchard; balance in Timber, Oak and Pine. Free Water, deep, rich soil, eight-room house, 100 tons hay, barn and out buildings. Will subdivide. Price $7500. Terms. Address, Paradise Ranchita, P. O. Box 123, Paradise, Butte County, California.

For Sale—$1000; clear; 160 acres, 30 miles northeast San Diego; 25 tillable rolling, 15 bottom, three plowed, balance grazing. Small new house, well, spring, timber. Abundance water to irrigate bottom. Fine bee, cow, pig proposition. E. T. Gray, (Owner), Petrolia, California.

For Sale—Good Unimproved Land near Delano. Soil a sandy loam with no hardpan. Easily leveled, water conditions IDEAL. Unlimited supply with lift of only 25 feet. Cheap electric power. Price right. Terms easy. Bidelman, 523 Black Bldg., Los Angeles.

For Sale—320 Acres Alfalfa Land, including water, located in Kings Co. Price, $100 per acre. Will divide, terms. J. A. Elliott, owner, 130 E. 25th street, Los Angeles. Phone 63247.

For Sale—Unimproved mountain ranch in San Diego County; 160 acres, one-quarter cultivatable, balance good pasture, oak, timber, fine bee location. Price $2500. John Wilmot, Orange, California.

Profitable 387 Acre Grain Ranch. Fine farm home, Stockton, three miles; bargain for real farmer, $35,000. C. A. BODWELL, Lakeville, California. No agents.

For Sale—90 Acres well improved alfalfa ranch. Best located in San Jacinto Valley. If interested address B. R. Gehart, San Jacinto, California.

100-Acre stock or dairy ranch. Situated north border of town of Lathrop, on highway; suitable for subdivision. Mrs. S. G. Reyner, LATHROP, California.

For Sale—10 Acres, deep well, pit cabin, chicken house, few trees, berry vines, two acres barley, $1050. At your terms. Geo. Moody, Acampo, California.

For Sale—151 A. Almond land in San Luis Obispo County. Address G. L. Lane, Hotel Athens, Oakland, California.

FARM LANDS FOR SALE

For Sale—120 Acres, one mile from Coachella, suitable for DATES, grapes, alfalfa. Partly improved. THIS IS A SNAP, INVESTIGATE. Bargain. Box 624, Coachella, California.

CATTLE

Guernseys—We will sell stock from our prize winning, high producing herd, at reasonable prices, valued according to individuality and breeding. Our supply is limited but if the buyer wants a number of animals and will write us we will furnish him with particulars. Revada Guernsey Farm, Yountville, Napa Co., California.

BUTTE CITY RANCH
SHORTHORN CATTLE, SHROPSHIRE SHEEP, BERKSHIRE HOGS, SHETLAND PONIES. Stock for sale at all times. Second Farm Sale—all breeds—August 2, 1919. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale—35 Head high grade Holstein cows fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch. Hannon Bros., Third Street, Lankershim. Care of Chas. Irwin.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery Street, San Francisco, California.

For Sale—20 Registered Holstein Cows and Heifers. G. U. Clark, Hanford, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—Registered Guernsey bull and heifer. P. J. Weisel, Santa Fe Springs, California.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced, California.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Ayrshires — Pure bred bull calves ready for service. Redwoods Ayrshire Farm, La Honda.

WANTED

Wanted — Every rancher to know about the National Back Rest for tractor and implement seats. Quickly attached and detached without tools. Lots of comfort, spring and strength. Just what you have been looking for. Price $3.00 delivered. A few good agencies open. Carl G. Jorn, 57 Plaza Square, Orange, California.

Wanted—Place as foreman. Advertiser is thorough in all lines of farming, fruit growing and the care of live stock. Experienced in working all kinds of labor, both tenant and wage systems. Address, Box 22, Care of Cultivator.

Wanted—Settlers with means and energy to investigate land opportunities on line, Nevada-California-Oregon Railway. Full and reliable information furnished by addressing S. H. McCartney, General Manager, Alturas, California. Dept. "B."

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

Feeder Hogs Wanted. R. B. & N. Ranch, Waukena, Tulare Co., California.

DUCKS

Davis White Muscovey Drakes, prize birds 4½ months old weigh 11 lbs., $10.00 each. Two ducks and one prize drake (1 pen) $35.00. Also the black Muscoveys. The dark ones have the dark meat and do not weigh so heavy. All fine layers laying 60 eggs to a clutch. The finest birds in the state. Eggs for hatching 35 cents each. Address: Anna H. Davis, 742 C Street, San Diego, California.

Mammoth Pekin Duck Eggs for hatching $1.00 per dozen, $7.00 per hundred. August Surtman, Merced.

Pekin Duck Eggs—Settings $1.50. Mrs. W. E. Court, Lathrop, California. R. 1.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC.
The Yellow Front. Established 1892
112-118 S. Los Angeles St. Los Angeles.

12-24 Nilson Tractor Practically New with P. & O. three bottom tractor plow; a real bargain. Jas. W. Parks, Colton, Washington.

TURKEYS

Eggs From Mammoth Bronze Turkey utility stock, 25c and 50c; show stock, $1, $2, and $3 each. White King Pigeons, $3 a pair. Paradise Valley Poultry Ranch, National City, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

GIVING THE SOIL A DRINK

(Continued from Page 687)

serve that by ordering an outfit of slightly larger capacity water may be supplied for stock as well, thereby eliminating hand pumping or the drudgery of carrying. In computing the amount of water required when asking for information the following figures are handy to have in mind: Each horse requires an average of 10 gallons per day, each cow 10 gallons per day, each hog two gallons per day, each sheep one gallon per day.

In wrestling with the problems of water distribution it is also convenient to know that a gallon of water weighs eight and one-third pounds and contains 231 cubic inches. A cubic foot of water weights 62½ pounds and contains 1728 cubic inches or seven and one-half gallons; 31½ gallons constitute a barrel. A cubic foot per second equals 450 gallons per minute while an acre foot is 325,829 gallons. When finding the velocity in feet per minute necessary to discharge a given volume of water in a given time multiply the number of cubic feet of water by 144 and divide the result by the area of the pipe in inches. Doubling the diameter of a pipe increases the capacity four times.

A type of pump that has been developing with rapid strides of late is the centrifugal. These are now manufactured in horizontal and vertical types and embody principles of construction and operation that make them highly dependable.

In California, the State of Paradoxes, conditions vary so widely that a separate treatise could be written upon the methods of irrigation most adaptable to each locality. There are many who can give reliable advice because they have passed through bitter and expensive experiences while others have been fortunate enough to hit upon a practical equipment and system with their initial investment.

Very few places in the state offer a dependable supply of irrigation water that can be distributed without a pumping plant. The man who relies entirely upon surface supply and gravity, as did his unenlightened ancestors, is destined to come to grief unless unusually fortunate. With an individual pumping plant installed the agriculturist can irrigate whenever necessary and put on exactly the proper amount of water. As is the case with all modern farm appliances he will discover that the first cost is soon erased by efficiency, dependability and convenience.

RABBITS

Raise Rabbits for us. We supply the breeding stock. Send stamp for particulars. H. E. Gibson Co., Arcadia, California.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

For Sale — Thoroughbred rabbits, all breeds. G. O. Tetley, 190 Edgwood Place, Riverside.

FERTILIZER

EARL A. HOLCOMB
SOIL LIFE
Fertilizer and materials mixed to balance every soil. Bureau of testing and advice free on all horticultural and agricultural subjects. 1022 Washington Bldg., Los Angeles. Phone 62907; res. 16116.

For Sale—Chicken manure in carloads. Cheapest and best fertilizer. MacDonald Sons. Phone 101, Watsonville.

GOATS

For Sale—Three pure bred Toggenburg buck kids—registered. Two pure bred Nubian does—registered. Also buck and doe Nubian kids—registered. Stamp for reply. Dr. Berg, Ripon, California.

For Sale:—Milch Goats. R. S. Payne, 229 North Los Angeles Street, Los Angeles. Telephone Main 7533; Home 13651.



Mr. Farmer
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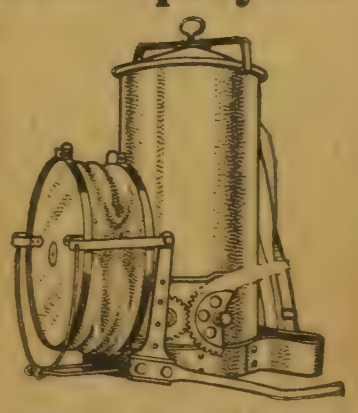
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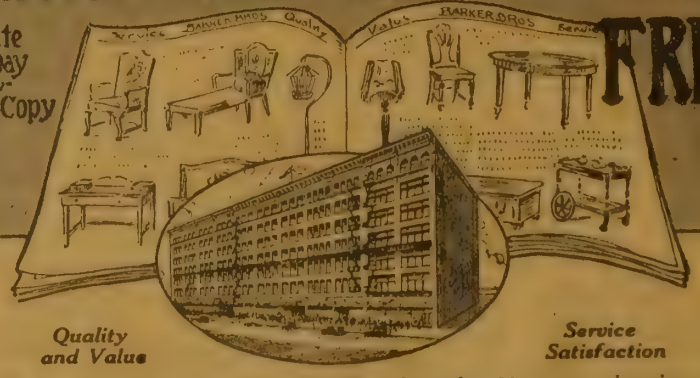
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YOU have no idea what an Auto-Wheel means to the boy on the farm. A boy can't make much headway if he has to do his hauling with a heavy, clumsy wheelbarrow—but just give him an Auto-Wheel! It's a fact, he can bring up stove-wood, gather apples, sack and haul in potatoes, go down in the field for corn, or do a dozen other jobs as easy as playing if he has an Auto-Wheel.

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Household Department

CHEER UP!

A feller has his worries, an' the world looks mighty black,
He kind of feels discouraged, there's a big load on his back;
He ain't got no ambition, an' he heaves a hopeless sigh—
But there'll always be a rainbow when the clouds drift by.

When the world is lookin' darkest, an' there's nothin' round but gloom
Then a feller gives up hopin' an' there's nothin' left but doom;
But he shouldn't let his troubles cause his mind to mortify—
For there'll always be a rainbow when the clouds drift by.

Straighten up an' sing a little, just brace up an' wear a grin,
For old Trouble hates a smiler like the good Lord hates a sin;
An' remember that the blacker an' the gloomier the sky—
There will always be a rainbow when the clouds drift by.

—Luke McLuke.

THE NEW RUSSIA IN ASIA

FROM the old Russia in Europe, a new Russia is rising in Asia, organized on many of the better elements of the old Russian civilization and containing many potential elements of strength which may later result in a new government knocking at the door of nations for admission as an autonomous state, said Charles W. Holman, representative of the United States Food Administration in the Far East during the war, in speaking on conditions in Siberia before the Civic Forum of the War Camp Community Service in Washington recently.

Mr. Holman has recently returned to this country after a stay of 11 months in Siberia and Manchuria, during which time he traversed both countries from Vladivostok to the Ural mountains and back.

Freed from contact with the old order of the czar, Mr. Holman said, Siberia is removed also from the disorganization and chaos that prevails in Russia. The present government, located at Omsk, while provisional, is liberal and sane, and gives many promises that Siberia will be the new Russia of the future.

Mr. Holman's address was given in connection with the series of lectures dealing with foreign political conditions which have been delivered recently before the Civic Forum of the War Camp Community Service in Washington. Continuing, he said:

"The Ural mountains are a natural dividing line between Siberia and Russia. In the crisis of the last two years they have been the barrier between Bolshevism on the West and liberal but sane government in the East. If Bolshevism continues its hold on the Russian people in the West the present Siberian attempt at self-government will gather added strength as time passes.

"Nurtured and fostered under proper influence, it is reasonable to look forward to the formation of a new national entity in Siberia.

"There are approximately 15,000,000 people in Siberia. Of these, 2,000,000 belong to the original tribes. The rest are Russians who have immigrated there with a minor per cent of political exiles among them. In general they are happy in their mode of life, rapidly becoming prosperous, and have quite good business ability. There is plenty of land for all, although it is nationalized; but then it has always been nationalized in Siberia, and the peasant is contented with use and occupancy rather than ownership.

"Their city systems of education are particularly well developed along cultural lines. There are several universities in Siberia, the oldest being at Tomsk with about 6000 students.

"The body of the Siberian people have never favored Bolshevism and are not in sympathy with the political conditions that exist in European Russia. The Russians of Siberia welcomed the return of the Czecho-Slovak army from Vladivostok to the Urals, and large numbers of Russian officers rallied to the support last summer of General Gaida, the Czecho leader, fighting however as independent units under their own generals. Since the Bolsheviki were pressed back, the Siberian people have measurably increased their army, and after some factional attempts to gain control of the provisional government have generally accepted Admiral Kolchak as temporary dictator. They are making strong efforts now to adjust their institutions to a new era of activity based upon stimulation of individual effort along lines of peaceful organization and promotion of trade with the outside world.

"Siberia is looking to the outside world for relief and support at this time. Its people do not want charity. They have a surplus of raw materials to sell. They want assistance from America in rebuilding their economic life. They desire instruction in railroading, in reorganization of education, in stabilizing currency, and advice in the formation and conduct of popular government.

"The Siberian people have already secured the assistance of the Allies in running the railroads. That is an opening wedge for other similar assistance. America has troops now guarding the railroad line that is the key to the economic rehabilitation of Siberia. These troops have been welcome, and their presence, and the presence of other Allied troops serve as a moral support in resisting Red Guardism.

"The most practical way for helping these people at this time is to continue and strengthen the present policy of friendly policing and economic assistance. If this requires more soldiers, they should be sent. There is a high duty falling upon the American people to give assistance—economic or military—which distance does not lessen.

"The Siberian people believe in the idealism of America, but they are restless wherever Japanese armies police their territory. They have not forgotten the Russo-Japanese war, and they fear now that Japan not only desires to obtain possession of the Russian built railroad in Manchuria, but also an economic stronghold on eastern Siberia. A series of unfortunate incidents following the movement of Japanese armies into northern Manchuria and eastern Siberia last summer and fall have agitated the Siberian people and increased their suspicions of Japanese intentions.

The Allied powers may well extend sympathy to the present efforts of the Siberian people. Their cities are growing rapidly—as fast as western cities in the United States have ever grown, and they are superbly located at the junction of rivers and railroads which destines them for even greater development.

Omsk, the present capital, is a great distributing center that, like many other Siberian cities, has more than doubled in population in recent months as a result of the influx of refugees from European Russia. Many of these refugees will continue to live in Siberia.

The foundation stone of a new Russia in Asia is friendly support from outside nations. Unselfishly given, Siberia holds the potential possibilities now a great and prosperous nation in years that are to come.

THE RED TERROR IN RUSSIA

In September, came the culminating act of the Bolshevist government, the manifest of September, written by Carl Radek, the most terrible document of which the brain of man was ever guilty, says Arno Dosch-Fleurot in the World's Work.

I will not attempt to quote it as I have not the manifest before me, but the sense of it was that every workman or peasant was immediately to kill without parley any one whom he suspected of counter-revolutionary tendencies. This threw down every bar, laid the way wide open to personal vengeance, plunder, and anarchy. The death and suffering that has occurred in Russia on account of this sweeping manifest passes all possibility of reckoning. It ended the last bit of justice between man and man in Russia. It turned loose anarchy in a situation filled with hate. It turned every man against his neighbor, made every house a fortress, and assured the deaths of tens of thousands of the only people who could possibly reconstruct Russia.

The actual deaths from the Red Terror must surpass all estimates. By one kind of terrorism or another, the deaths in Russia in the autumn of 1918 must have averaged a thousand a day. As the deaths of the French

revolution from the fall of the Bastille to the beheading of Robespierre was only about ten thousand, the difference is noticeable.

The Terror is having a certain success. It is gradually killing off all the culture there was in Russia, and, if it could go on long enough, there would be simply an aggregation of villages, some at peace, others at war. The cities have steadily disintegrated, and, after a year in power, the Bolsheviki have not one constructive act to their credit. But they are still in power late in November, as I write, and while they remain in power, the Red Terror will continue.

WHAT MARRIAGE IS—AND ISN'T

In most revues and musical comedies a young couple meet in some hotel garden, "fall in love," and are married in the last act, writes W. L. George in Harper's. Charge me not with lack of humor if I suggest that many marriages are so made. In my notebook are several confessions. Among them is that of a young girl who pledged her hand on board a liner because there was nothing else to do. (She was wrong; she could have jumped overboard.) People do marry as casually as they learn to play golf; but they take more pains with golf. In that negligence hides the nightmare that shall haunt them; they blunder into marriage; they think to conduct it without travail or diplomacy into the detachment of mature years. Therein they go astray, for marriage is a tool with many edges, and none shall use it with impunity that treat it without regard. For it may close as many doors as it can open.

That marriage can close doors none should deny, and it is folly to overlook its limitations, notably those which bear on individual freedom. No skill or tolerance can make of marriage a state akin to celibacy, and it is well to agree that the married are not free people in the sense of the unwed; this is not a reflection on the conjugal condition, for freedom is a word, and Silvio Pellico in the Spielberg found wings for his spirit that no Austrian peasant could fasten to his shoulders. To be free is sometimes to be derelict, and as in marriage such dereliction seldom arises, the loss is undamning to the state. But the married must, after the ceremony, realize "that they have this day lit a candle which cannot be put out"; accepting a new condition, they must be ready to adopt new manners, which is not easy when creatures are adult, differently bred and nurtured, perhaps rooted out of dissimilar social strata, even brought together across continents. They must abandon the idea that they may, unchecked, change their dwelling, their occupation, the circles of their friendships; all these things they may still do, but only in consultation. Of if they do not consult, if one imposes upon the other his will or the thrall of a nagging tongue, then shall victory turn as dust and ashes in his mouth.

THE CARE OF THE GROWING CHILD'S TEETH

By the end of the second year the baby should have his milk teeth complete and until the sixth or seventh year, when the permanent set will begin to appear, these teeth must serve all the purposes that the final set will serve later. Since this is the time the child is learning to chew his food, a process necessary not only for proper digestion but for the strengthening and developing of his jaws and for the proper growth of the permanent teeth, it is important to keep the first teeth in the best possible working order. The condition of the teeth is a fair index to the general health of the child.

Until the child is old enough to use a toothbrush himself, the mother should wash his teeth every day; but as early as possible the child should learn to care for his own teeth. If the teeth can not conveniently be cleaned after each meal, the mouth may at least be rinsed. Children should be taught that it is of special importance to wash the teeth and mouth after eating nuts, or any sweet, sticky or pasty food. The teeth should be carefully cleaned at bedtime since the fermentation of food particles left in the mouth, which leads to the decay of the teeth, proceeds more rapidly at night, when the mouth is still.

The child should be taught to brush the teeth from the gum downward or upward toward the cutting edge. When the teeth are brushed crosswise, the tendency is to push whatever is on them into the cracks and crevices of the teeth or under the edges of the gums. The inner surfaces of the teeth should also be brushed up and down, and the grinding surfaces should be scrubbed in all directions; after the scrubbing is finished the mouth should be thoroughly rinsed with warm water.

Some hard food like a stalk of celery or part of a ripe juicy apple eaten at the end of a meal scours the surface of the teeth and leaves a fresh clean taste in the mouth.

Children should be taken regularly to a good dentist once or twice a year after the first set of teeth is complete. If cavities appear they should be filled with soft fillings, and each tooth should be saved as long as possible. If the temporary molars are extracted before the sixth year molars come in, the latter will be apt to crowd forward into the space left vacant, and when the later teeth come they will be pushed out of their regular places, destroying the natural line of the mouth. The first molars furnish the grinding surfaces necessary to proper chewing of the food. If they fall out too soon the child is hardly able to chew hard or tough food, and is likely to swallow such food in chunks.

The care of the child's first teeth is important also because the health of the permanent set is largely dependent upon that of the first set. The second teeth are much larger than the first and consequently need more room in the gum. For necessary development the jaws must be given plenty of exercise. Consequently the child should have a mixed diet, including some hard food which he can not swallow without chewing. Toast, crusts, hard crackers, certain fruits like apples, salad, vegetables and meats should provide the food elements needed for healthy teeth if the child is thriving.

FOR THE CHILDREN'S BASKET LUNCH

1. Sandwiches with sliced tender meat for filling; baked apples, cookies or a few lumps of sugar.
2. Slices of meat loaf or bean loaf; bread-and-butter sandwiches; stewed fruit; small frosted cake.
3. Crisp rolls, hollowed out and filled with chopped meat or fish, moistened and seasoned, or mixed with salad dressing; orange, apple, a mixture of sliced fruits, or berries; cake.
4. Lettuce or celery sandwiches; cup custard; jelly sandwiches.
5. Cottage cheese and chopped green pepper sandwiches, or a pot of cream cheese with bread and butter sandwiches; peanut sandwiches; fruit; cake.
6. Hard boiled eggs; crisp baking powder biscuits; celery or radishes; brown sugar or maple sugar sandwiches.
7. Bottle of milk; thin corn bread and butter; dates; apple.
8. Raisin or nut bread with butter; cheese; orange; maple sugar.
9. Baked bean and lettuce sandwiches; apple sauce; sweet chocolate.

LOVE IN 1919

Ah, the good days of old
When to win a maid's glove
Knights went to the ring
And did battle for love!
How I'd fight if I could!
How my life's blood should flow!
How the huzzas should greet me—
A victor, I know!
But—the year's 1919.
I love her! I wean
I'll hike out and buy her
A washing machine! —Cartoons.

FEEDING THE PRODIGAL

"O father, kill the fatted calf!"
The prodigal, returning, cried.
The old man laughed a scornful laugh,
"Not by a durn sight!" he replied.

"The price o' veal is far too high.
What? Kill a fatted calf? Tush, tush;
But walk right in. Ye're welcome, Si.
Yer ma's jest made some corn meal mush." —Walter G. Doty.



Westclox

IT'S the way you *start* your day that counts. A leisurely, untroubled get-away in the morning usually means a day of many things well done.

That's what a good alarm clock does for you. Millions of men thank their Westclox alarms for smoother-running, more resultful days. They get off to business feeling *right*.

That's because each Westclox does *its* job right. It's built so it will. All Westclox have the same construction that won Big Ben's success.

Wheels turn on needle-fine pivots of polished steel. Friction is lessened. The clock runs easier; lasts longer. Westclox, on the dial and tag, means that kind of a clock.

Western Clock Co. - *makers of Westclox*

La Salle & Peru, Illinois, U. S. A.

No "holes" in it

RED CROWN GASOLINE

The Gasoline of Quality

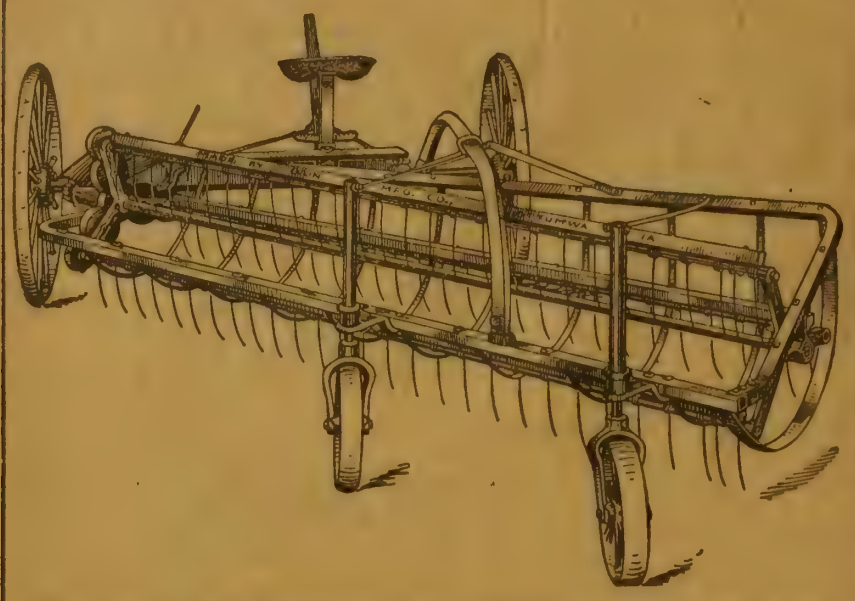
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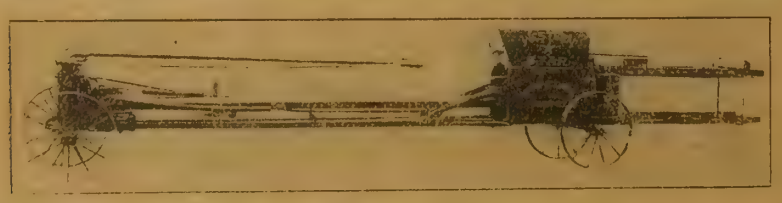
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Visitors Welcome **Correspondence Invited**

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Best Hay Baler in California Only $500



Make Quick Money operating the quick set, fast baling, low priced WESTERN STAR HAY PRESS, made in California. Light draft, big capacity, low step. Only baler made offering special non-binding head block feature for side hill sets. Over 600 in use in Southern California. No delays for repairs. Complete line heavy and light presses, horse, tractor and engine power.

DAVENPORT IMPLEMENT CO.,

1032 East First St., Los Angeles **(East First Street and Santa Fe Yards)**

At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

Los Angeles Market

Los Angeles, May 14, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 57 lb.; prices to retail merchants in 1-lb. squares, 57@58.

Dairy exchange prices last week on extras:

May	7	8	9	10	12	13
'19	55	55	56	56	56	57

CHEESE

Brokers' prices:
California fresh, lb., 31; price to retail merchants, 33@34.

EGGS

Fresh extras, Produce Exchange closing price; 50 doz.; price to retail merchants, 53 doz.; case count, Produce Exchange closing price, 49½ doz.; price to retail merchants, 51½ doz.; pullets, Produce Exchange closing price, 48 doz., price to retail merchants, 50.

Dairy exchange prices last week on extras:

May	7	8	9	10	12	13
'19	49	49	49	50	50	50

POULTRY

Prices to producers: Hens, 35; broilers, 35@36; fryers, 40; roasters, 40; old roosters, 14; capons, 42; ducks, 35; ducklings, 36@37; geese, 32; turkeys, 35@40; squabs, 45.

Belgian hares 14.

LIVE STOCK

The weak condition of the market for beef cattle existing since the middle of April shows no signs of improvement. While several train loads of cattle have gone Eastward to relieve the congestion in Los Angeles its effect as a market stimulant has not yet been visible. Local slaughterers are paying the prices quoted for good steers f. o. b. this city, when this class and grade of cattle is bought, but very few cattle coming into this market will grade up to that quality of steers.

The large markets in the East have recorded sharp declines in prices for beef cattle in the last few weeks, even though the receipts have not been heavy. The bulk of offerings consists of light half fed cattle that does not produce good dressing percentages. The local market receipts are of a medium and inferior grade that does not find favor with anyone.

Hogs appear to be very scarce and prices continue high on all grades. Local killers have reduced their killing quotas of hogs owing to the live price being so high they claim that it is not a profitable investment as the consumer will not pay the price for dressed pork consistent with its cost.

The receipts of lambs are not as heavy as was the case for the past six weeks, Many large shipments have gone Eastward and will continue to do so for another month. Two double decks and fourteen single decks of lambs left San Bernardino last night for Kansas City. Twenty-four decks lambs sold yesterday in Omaha at $18.50 to $18.75, averaging 55 to 65 pounds per head.

The Kansas City office wires that 4000 lambs from California averaging 60 to 69 pounds sold yesterday and today at a price range of $17.00 to $18.35, and the culls at $13.50. Also 1000 shorn ewes averaging 82 to 119 pounds at $10.00 to $10.50. California cattle at Kansas City sold today, 500 head averaging 789 to 932 sold at $10.75 to $12.80.

The local market is firm for lambs, but an undertone of weakness exists for sheep stock.

Omaha wires May 14, 10 A. M., "Three loads California beef steers averaging 1170 pounds sold today at $13.75."

Good steers	12.00@12.50
Medium steers	11.00@11.50
Common steers	9.00@10.00
Good cows	10.00@11.00
Medium cows	8.00@9.00
Common cows	6.00@7.00
No 1 hogs, 175-225 lbs.	19.00@19.50
No. 2 hogs, 250-400 lbs.	17.00@17.50
Feeder hogs	13.00@14.00
Lambs, cwt.	15.00@16.00
Lambs, No. 2, cwt.	14.00@15.00
Wethers No. 1, cwt.	11.00@12.00
Ewes No. 1, cwt.	7.50@9.50

VEGETABLES

These are the actual prices obtained May 13, Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz. .....25@75

Asparagus: Northern, green, extra fancy 9@10½; fancy, 6@8.

Beans: Local Wax 12@13 lb.; Kentucky Wonder, best, 15@17

Beets, doz. bunches 20@25.

Cabbage: Sales to retailers, best, cr. 3.00; poorer, 2 50.

Carloads f. o. b. usual terms demand and movement good, little change in prices. Early Winningstadt, California crates, best 50.00@60.00, mostly 50.00.

Carrots, doz. .....40@45

Cucumbers, bx of 2½ doz. .....2.25@2.50

Lettuce: Sales to retailers, best lettuce in cabbage crates, 65@75

Carloads f. o. b. usual terms—demand and movement moderate, market steady, little change in prices. Best 1.30@1 40.

Parsley, doz. .....15@20

Peas: Local (San Pedro) best, 9@10; northern, 10@11.

Radishes: Round Red 15@20 per dozen bunches. Long White, 40 per dozen bunches. Long Red 25 per dozen bunches.

Rhubarb: Local Winter Crimson, 1.00 @1.10 per packed bx. Strawberry, fy., 1.25 @1.50 per apple bx. Northern Strawberry, extra ch., 2.00@2.45.

Spinach, doz. .....15@20

Squash: Imperial, per 4 basket crate, 75@1.00.

Tomatoes: Quality and condition generally good; Mexico, best 4.00@4.25 lug box; Imperial, 4 basket crates, 3 25@ 3.50.

Turnips, doz. .....35@45

FRUITS

These are the actual prices obtained May 13, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtons, fy. medium size, 3.50; loose 7@8 lb. Oak Glen, Rome Beauties and Pearmains, 3.75@4.00.

Cherries, northern, supply light, 20@ 25 lb.

Pineapple, lb., 18@20.

Strawberries, 3.25@4.50 per 30 basket crate.

Lemons: Fy. packed, 4.25@4.50; local pack, 3.00@3.50; loose, some tree ripe, 1.75@2.00.

Oranges: Navels, medium and large size, fy., 5.00@5.75; local packed, 2.25@ 3.00; Tangerines, 7@8.



California Wonder Corn

The result of ten years' selection. Produces six times as much as common corn. First prize winner at San Francisco Land Show. Quick and big returns from a small investment. All seed produced from corn bearing 5 to 12 ears per stalk. Grows 10 to 16 feet in height, producing enormous crops of very rich ensilage. Choice selected seed for sale at reasonable prices, shelled, on the ear and stalks with all the ears on them. Our illustrated booklet, giving full history and details of this wonderful money-maker, sent free on request.

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Koger Pea & Bean Thresher Co.,

MORRISTOWN, TENN.

Grapefruit: Local fy., 2.25@2.75 bx; poorer, 1.75@2.25.

BEANS

Demand and movement moderate, market steady, no change in prices Carloads f. o. b. usual terms—pool prices, sacked per 100 pounds, choice recleaned basis, Limas 7.50, Henderson Bush 7.00. Warehouse cash to growers—choice recleaned basis, Small Whites best 6.00, Large Whites, sacked per 100 pounds, 5.75@6.00; Blackeyes, sacked per 100 pounds best, 3.00@3.25; Tepary, sacked per 100 pounds, 2.00@2 50.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat	19.00@24.00
Barley	16.00@19.00
Alfalfa	16.00@19.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy	26.00
Standard alfalfa	20.00@21.00
Standard alfalfa	20.00@21.00
Stock alfalfa	18.00@19.00

GRAIN

Prices on local Grain Exchange:

Egyptian corn	3.10
Eastern Kafir	3.25
Wheat, mixed feed	45.25
Milo Maize	2.60@2.78¾
Barley	2.60@2.67½
Corn, sacked, No. 2 yellow	3.45
No. 3 yellow	3.40
No. 3 white	3.35

San Francisco Markets

San Francisco, May 13, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extras	58½
Prime Firsts	57

Prices extras past week and year ago:

	May 6	7	8	9	10	12
'19	56½	57	57½	58	58½	58½
'18	40½	..	41	40½	40	..

Rcts wk. ending May 12, 499,900 lbs.

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	52½
Firsts	49½
Extra Pullets	50

Prices extras past week and year ago:

	May 6	7	8	9	10	12
'19	50½	50	50	51½	52½	52½
'18	40	..	40	40	40	..

Rcts. wk. ending May 12, 17,290 cases.

POULTRY

Hens, 36@38; roosters young, 45@50; old roosters, 20@24; broilers, 34@38; fryers, 35@48; ducks, 35@40; geese, 36@40; squabs, 60@65.

Belgian hares, live, 15@16; Jackrabbits, doz., 3.50@4.00.

LIVE STOCK

Cattle—On foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs alive, 12@12½; 1200 to 1400 lbs., 12@12½; second quality, 11@11½; thin steers, 9@10.

Cows and Heifers—No. 1, 9½@10; second quality, 8½@9; common to thin, 4@7.

Calves — Light weight, per lb., 11½@12½; medium, 10½@11½; heavy, 8@10.

Sheep—Lb., gross weight: Wethers, unshorn, 11@11½; ewes, unshorn, 8½@9½; lambs, yearlings, 12@12½; milk, 13@15.

Hogs—Hard grain fed, weighing 100 to 150 lbs., 18½; 150 to 250 lbs, 19@19½; 250 to 300 lbs., 18½; 300 to 400 lbs., 18.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers: Choice, 1050 to 1200 lbs., 12½@13; medium to good, 950 to 1050 lbs., 11@12; good grass steers, 1000 to 1200 lbs., 12@12½; other steers, 950 and over 11@12. Cows, 1000 lbs. and up, 10@10½; medium to good cows, 9@10; canners, 5@6.

Hogs — Hard, grain fed, well finished, 175 to 250 lbs., 19¼; 150 to 175 lbs., 18¼; under 150 lbs., 17¾; 250 to 300 lbs., 18½; 300 lbs. and up, 18.

ONIONS

Storage, cwt.	4.00@4.50
Garlic, lb.	50@75

BEANS

Demand and movement good, market steady, little change in prices. Carloads f. o. b. usual terms: Sacked per 100 pounds, choice recleaned, season, average basis, Small Whites 6.70@7.00; Large Whites 6.25@6.40; Pinks 5.85@6.25; Red Kidney 11.25@11.50; Red Mexican 5.40@5.50; Cranberry, 5.75@6.00; Blackeyes, 3.50@3.90; Tepary, 2.75@3.00.

VEGETABLES

Wholesale selling price:

Artichokes, doz.	50@90
Asparagus, lb.	4@8
Beans, string, L. A., lb	10@15
Wax	12@14
Ky. Wonders	16@17
Beets	1.00@1.50
Cabbage, Early Flat Dutch, cwt.	2.00@2.75
Carrots, sk.	2.50@4.25
Celery, cr.	1.50@5.00
Cauliflower, doz.	50@1.00
Cucumbers, hothouse, bx. of 30	3.75@4.00
Eggplant, southern, 30@40; Imp.	25@35
Lettuce: Demand and movement moderate, market steady, little change in prices. Street sales—head lettuce California crates, $1.00@1.50.	
Peppers, Bell, lb. 30; Chili	35@40
Peas	2@5½
Rhubarb, Strawberry, bx.	1.50@1.85
Spinach	75@1.25
Squash—Summer	1 00@1.25
Italian, bx.	1.25@1.50
Tomatoes, Mex., cr.	2.50@4.50
Imperial	3.00@3.50
Turnips, yellow	1.00@1.75

CITRUS

Per box: Lemons, 2.00@4 00; lemonettes, 2.00@2.50; grapefruit, 2.50@3.50; mandarins, half orange box, 3.50@4.00; tangerines, half orange box, 3.50@4.00; navel oranges, 4.00@5.75; Valencias, 4.50@5.25.

GRAIN AND FEEDS

Barley: Feed, 2.55@2.57 per cental; shipping, 2.60@2.75 f. o b. country.

Oats: Red feed, 2.20@2.40 per cental.

Corn: California yellow, 3.15@3.40 per cental. Egyptian, 2.90@3.00 for dry and 2.50@2.75 for rain damaged; Milo maize, 2.80@2.85 for dry and 2.40@2.60 for rain damaged.

Rye: 3.65@3.85.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.66 1-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 1-3

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

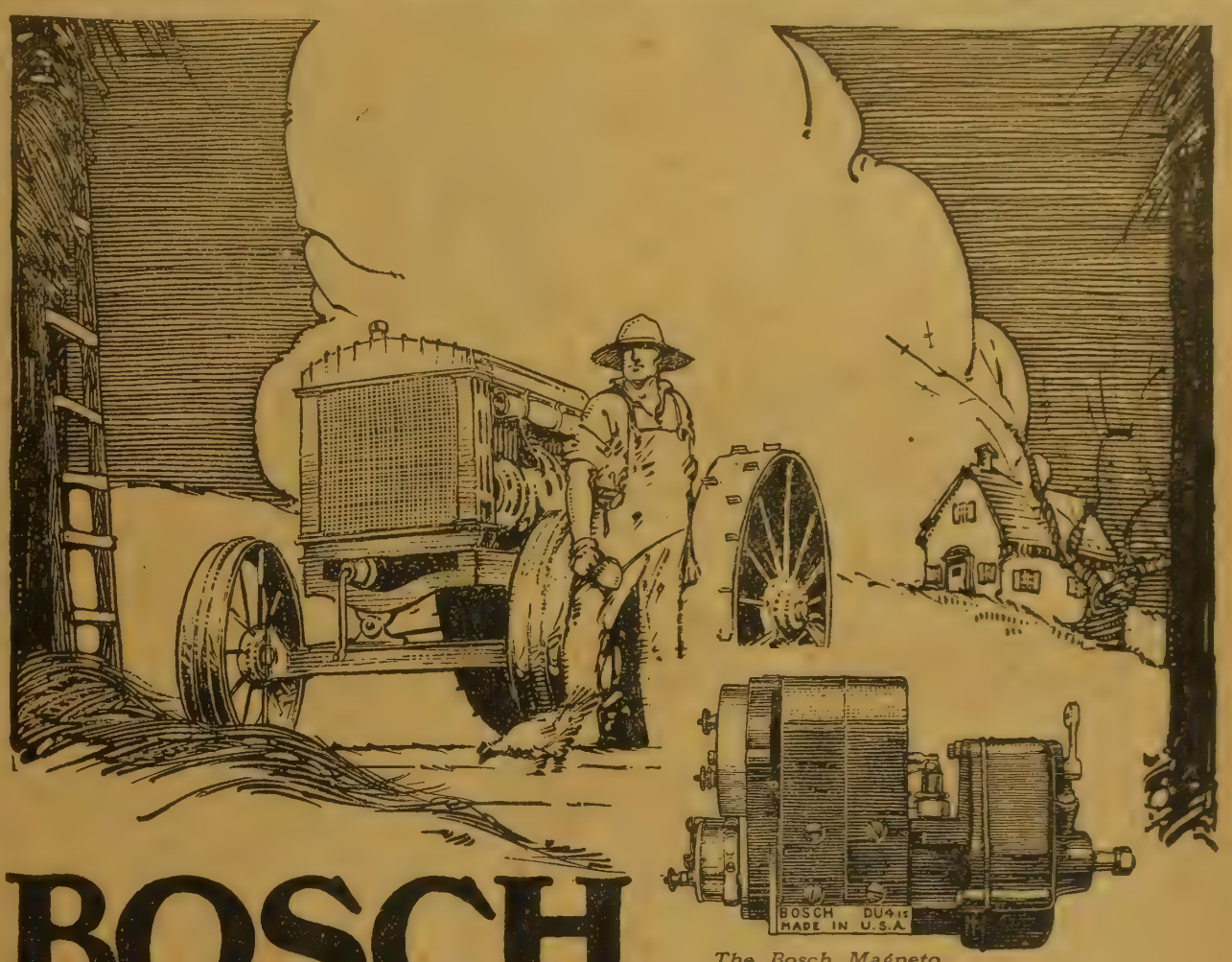
Mill Feed (per ton): Bran 43.00@44.00; mill run, 40.00@43.00; shorts, 42.00@45.00; middlings, 50.00@52.00. Rolled barley, 54.00@55.00, alfalfa, 30.00@32.00; scratch feed, 3.50 per cental. Linseed oil cake meal, nominal; cocoanut cake or meal, 20 tons, 41.00 per ton; 10 tons, 41; 5 tons, $41.50; less quantity, $42; smaller lots, higher proportionately.

HAY

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market for prices to consumers' charges of cartage, commission and handling expenses must be added according to conditions.

Fancy Wheat Hay (light 5 wire bales)	19.00@21.00
No. 1 Wheat or Wheat and Oat Hay	16.00@18.00
No. 2 Wheat or Wheat and Oat Hay	12.00@15.00
Choice Tame Oat Hay	17.00@19.00
Other Tame Oat Hay	12.00@15.00
Wild Oat Hay	11.00@14.00
Barley Hay	11.00@14.00
Alfalfa Hay	15.00@19.00
Stock Hay	11.00@13.00
New first cutting Alfalfa, in order	10.00@13.00
No. 1 Barley straw, bale	5.00@6

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NO part of the motor car has shown more constant development toward better things than the tire; and no part contributes any more to the ease and efficiency of the automobile.

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"There is now a Fisk Tire for every motor vehicle that rolls"



Next Time—BUY FISK

FISK CORD TIRES

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — May 24, 1919 — No. 21



Protect the Watershed

California cuts nearly a billion and a half board feet of lumber every year. The State has maximum manufacturing and motive power possibilities from its mountain streams of approximately 9,000,000 horsepower. The use of this wonderful energy, greater than that possessed by any other state in the Union, in no way lessens irrigation or navigation possibilities, but all these great sources of wealth are jeopardized by nearly 2,000 forest fires annually. State and nation unite in employing rangers or foresters to protect this wealth; counties and communities unite in organization of volunteer fire departments for protection from field fires. On the part of producers there is general realization of the enormous losses, especially to the irrigationist, caused by fires sweeping the watersheds and lessening the power to retain the winter rains and snow. Most of these fires are caused by carelessness. Pass the word along that the careless camper leaving fires may be suppressed, that the cigarette smoker, gunner and other visitors in national and other forests may become protectors of California's great assets.

Scene is in Los Angeles County mountains, on slopes of Old Baldy. Photo by Miss Blake.

Overland
TRADE MARK REG.



"Public Opinion"

The practical utility of the Overland Model 90, shown here, has created a constantly increasing sentiment of approval. In awakening public appreciation to the economical value of the automobile in general, the Overland has played an important part. Over Six Hundred Thousand of these dependable cars are serving their owners efficiently and economically. Model 90 is a car of such attractive appearance and sterling performance that owners everywhere praise its economy and practical value. Public appreciation thus won and expressed is your safe guide in buying a car.

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Willys-Knight Touring Cars, Sedans, Coupes, Limousines; Overland Motor Cars and Light Commercial Cars
Canadian Factory, West Toronto, Canada

Model Ninety Five-passenger Touring Car, $985, f. o. b. Toledo

California Cultivator

Vol. LII, No. 21 | Los Angeles, May 24, 1919 | One Dollar Yearly

The Value of Watershed Protection

By Arthur L. Dahl

SOIL, sunshine and water are the three elements necessary for successful agricultural and horticultural development. Southern California has millions of acres of fertile soil, an unlimited supply of warm sunshine, and only a fairly good supply of water. If more water were available the garden spots that have made the Southland famous all over the world could be extended and provision made for taking care of the millions of outside dwellers who look longingly upon this favored region and plan some day to live here.

Water is the most valuable asset of Southern California, and every drop of rain that falls on our mountains should be preserved and utilized. With our long dry season, when no rain falls, and when we need the water the most, it is absolutely necessary to conserve and store the winter rains and snows. Artificial or natural reservoirs save but a small portion of the precipitation, but nature has provided a means for holding back the waters that percolate through the soil and seek their way along subterranean channels to the sea.

The forests, or vegetation, have always been the great conservators of moisture, preventing the erosion of the surface and, through a mass of root systems which act as sponges, holding the waters in the ground for long periods and rendering the moisture available for man through live springs, flowing brooks or artesian reservoirs.

In the early days the mountains of Southern California were all practically covered with forests of trees, but gradually, through fires, lumbering and other causes the majority of these forests were destroyed, and there sprung up on the steep mountain slopes a chaparral growth, of no commercial value, but of the greatest use in conserving our water supply. In many ways this chaparral is of more value from the standpoint of water conservation than forest growth, because it grows so densely, and its root systems form such a mat of closely-woven vegetable matter just under the surface of the soil, that the falling rains are held in suspension for a long time, and only escape gradually by percolating through the root systems to replenish the springs that rise to the surface, or else to maintain the water level of our artesian wells. To the extent that this dense chaparral growth can be maintained on our mountain sides will our water supply be conserved.

Fire is the great enemy of the chaparral and constant vigilance is needed in the dry season to prevent its destructive appearance. Chaparral becomes very dry under the continued burning of the sun, and the woody fiber contains a large percentage of oily resins that burn fiercely when once ignited. The federal government has recognized the value of this brush cover in water conservation and practically all of the mountains and foothills in Southern California have been set aside as national forests, supervised and policed by government rangers.

A definite system of fire protection has been worked out, and in cooperation with county supervisors, large water companies and irrigation interests, thousands of dollars have been, and are being spent to maintain permanent trails and firebreaks so that fires, once started, can be quickly reached and easily controlled. Fire fighting tools are cached at various points along the hills so they will be easily available should a fire occur in that vicinity, and every precaution is taken to provide the maximum amount of fighting force with the minimum of delay. But the most important thing is to prevent the occurrence of fires, and in this every dweller or traveler in our mountains should feel a personal responsibility, and be careful to put out camp fires when through, to refrain from discarding burning matches or cigar stumps, and avoiding the causes of brush fires. The careless or thoughtless act of a single individual might cause a fire that will be felt by the water users of a valley many miles away.



Fire-breaks Protect Water Sheds

Showing portion of completed Sturtevant trail which also serves as a secondary fire-break. Angeles National Forest, California.

As it is the function of chaparral growth to form a natural sponge above and below the surface of the earth, the older this growth is the more compact and effective it becomes. When rain falls upon the side of a steep hill the force of gravity will cause most of it to run away along the surface of the ground, and with the merging of many raindrops the speed of the flowing water will increase as it descends the steep slopes. With the increasing volume of water its destructiveness will grow, until the loose soil of the surface will be washed along with the stream and deposited in the beds of the creeks or carried along to the rivers. Where the rainfall is heavy, large rocks are carried along by the force of the water to bring destruction to the lands below, and this erosive force of water will gradually denude the hillsides of their plant nourishing soils and vegetation will be incapable of thriving thereon.

What has been said is true only of barren slopes, for where chaparral grows the destructive forces of falling rains are annulled. Instead of the raindrops beating directly upon the ground they are caught on the leaves and boughs of the plant, the force broken and the water runs slowly down the trunk or drops from branch to branch until it reaches the ground. Here, too, its progress is retarded by the mass of dead leaves and humus accumulated on the surface, and the raindrops must force their way gradually through this accumulated litter before entering the soil. Here again the thick mass of vegetable roots obstruct the passage of the water, holding the soil and acting as a filter for the moisture as it sinks deeper into the ground. On a thickly covered mountain side the scientists of the government have found that it takes days, and often weeks, for surface rains to percolate through the vegetable growth and reappear in springs lower down the mountain. Careful records of water gauges maintained in mountain springs and streams have enabled the government to ascertain definitely the action of rainfall on various types of watersheds, and they are able, after a destructive fire on a particular watershed, to determine fairly accurately the diminution to be expected in the succeeding seasons' water supply.

Rainfall to be of any value to man must be utilized. If all of the moisture produced in a season of light rainfall is saved the results will be better than if only a portion of the fall of an extremely heavy season is preserved. Water which runs away to the sea in surface streams is of no value to the growers, and more likely than not it carries with it the rich silt of the land over which it traveled.

The most striking examples of the value of watershed protection are found in the experiences of China. In the early days of that old country the hills and mountains were covered with tree and plant growth, but gradually, through need of wood, the slopes were denuded until they became absolutely barren of vegetable growth, a condition in which they remain today. When the rains descend upon these barren slopes there is nothing to break their force, and the waters rush down into the streams, flooding the lowlands and rendering homeless thousands of people who lose their all. Famine and pestilence follow in the wake of the waters, and the people of the world are called upon to donate the food to keep the desolated people from death.

If all the chaparral growth on the sides of our Southern California mountains and foothills were allowed to burn up or be destroyed, it would not be long before our beautiful orange groves and our gardens of flowers and foods would die from want of moisture, and the land of beauty and plenty that now attracts the tourists of the world would become as desolate and barren as the land of the Chinese. Nature has clothed the mountains with a garment that will protect them from erosion and conserve the moisture needed in our valleys. All she asks is that man allow it to remain as it is and not cause its destruction through fire.

COTTON CONFERENCE

Call has been issued for a world cotton conference to be held in New Orleans, October 13-16. It is expected there will be present some 3000 delegates from the United States and also representatives from Canada, Great Britain, France, Belgium, Holland, Russia, Italy, Peru, Switzerland, Portugal, Spain, the Czechoslovak Republic, Greece, India, China, Mexico, Japan, Brazil, and Scandinavia

Subjects under discussion will include:

Buying and selling of cotton, with all that pertains thereto.

Growing and handling of cotton, with due consideration of the best methods of insuring long needed improvements in ginning, compressing and standardizing of bales.

Transportation of cotton with discussion of means to put an end to country damage, and to bring about better means for the warehousing of cotton.

World's consumption requirements of cotton, with careful thought for the possible need of a system of apportionment among the nations with which we enjoy reciprocal trade relations.

Means of increasing and improving cotton production in the United States and other countries.

Consideration of machinery needed for replacement and development of the textile industry, especially in France and Belgium, where much time and labor will be required to return it to its old footing.

The part the United States, as a creditor nation, is to play in world readjustment, with special regard to the needs of the future of the textile industry.

Financing and warehousing of cotton, two subjects so closely interwoven that to separate them would be impossible. Special reference will be made in the discussion of this question to the establishment of American warehouses, receipts of which for cotton stored therein will be accepted as collateral for loans, both in this country and in England — "International Warehouse Receipts" they might be called.

Last, and perhaps the most important of all, discussion of international standardization of hours of labor in the textile and other industries, as possibly the only solution of the labor problem.

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

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Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, May 24, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The cover of this issue speaks for itself through the graphic illustration which brings the snow-clad mountain side into our homes. This photograph was taken in that portion of the state which is not supposed to have any timber in its mountains, and in the usual commercial sense it does not. But these trees have future value and, more to the point, they have present day value in protecting the mountain slopes so that the snows and the rains have much less rapid run-off.

DAIRY COUNCIL

The first annual meeting of the California State Dairy Council will be held in San Francisco July 9. This organization has been formed but a few months but has outlined a campaign of work for a greater consumption of dairy products and appeals to the milk and butter trade and to dairymen of the country to encourage this effort.

DUST THE PESTS

Horticultural Commissioner Kellogg of Santa Barbara County reports excellent success in the control of walnut aphis by use of dust insecticide. A systematic campaign of control has been inaugurated and, so far as can be judged early in the game, it is proving entirely successful. Some growers are combining Bordeaux in order to prevent any fungous trouble. The present year is proving disastrous with various blights or fungous growths. The weather has been favorable to their development.

THE OLD HEN MUST GO

With feed at present prices the down-and-outer of poultrydom must be sent to the block or the profits of the poultry yard go glimmering. It is hardly probable the farmer or poultry man has raised his flock to such quality that his hens are averaging 200 eggs a year, or possibly not 170, or even 160, but to achieve success in these times of war prices calls for attention to the smallest details, and the lazy hen must pass, and quickly, for the larger laying season is now over, and with moulting but a few weeks away and the market for hens fairly good, the block should be liberaly used.

OVERSEAS

The three American airplanes which started for Europe have reached the Azores. The distance covered from the eastern extremity of North America to Europe's western outpost was about 1200 miles, by far the greatest non-stop trip yet made by airplanes. One of the planes was forced to drop to the ocean and made the last portion of the trip on the ocean surface. Another, seriously damaged was towed in by war vessels which were watching over the course. The NC-4 is now ready for the final dash of only a few hundred miles to Portugal.

The flight attempted by Hawker, the Australian, in an English made machine, has resulted in tragedy, he and his lieutenant, Mackenzie Grieve, giving their lives in the effort to make the crossing from Newfoundland to the Irish Coast.

PUT OUT THE FIRE

This will be a pretty good year to follow the plan of putting out the fires before they start. We have preached this doctrine so long that it is becoming trite and possibly even tiresome, but when we consider that 2000 fires annually destroy millions of dollars directly, and a greater number of dollars indirectly, and that practically every one of those fires is started by a human who has been careless, it appears that the preaching must continue. The percentage of fires caused by lightning or other natural causes is so extremely small that it is not worthy of counting, but the number caused by the careless camper causes so much suffering that every Californian, every vacationist, and everyone known to be heading for the mountains should be appealed to to use his influence in educating toward greater care.

POULTRY SCHOOL

Many poultrymen will attend the fourth poultry institute, or school, under the auspices of the state college of agriculture, Los Angeles County farm bureau, Poultry Producers of Southern California, San Gabriel chamber of commerce and San Gabriel Valley Cooperative Association. A local committee of poultrymen has made arrangements for the use of the Mission Play house. Professor J. E. Dougherty will be in immediate charge, and questions covering the range of principles of poultry feeding will be discussed from ten o'clock Monday morning through to a demonstration of chicken pox vaccine, one of the last numbers on the program in the week of school.

The management hopes that every poultryman attending will bring notebook and be on hand early Monday morning for registration. These poultry schools have been held in various parts of the state and have been very successful.

RIVERSIDE

Many a fruit grower will make an early Monday morning start with trailer and camp equipment for Riverside. This is next Monday, May 26, the opening day of the great convention. Riverside tells us that her beautiful park is open for these campers with all kinds of free privileges, including free wood, lights, free bathing and free boating, in addition to free admission to a great six-ring convention.

Some of the country's best authorities in matters cultural and scientific will make Riverside their headquarters next week. It is one of the greatest weeks yet offered California growers.

AGRICULTURAL EXTENSION

Farm bureau people are planing to make a campaign as soon as congress shall convene for correction of the mistake of the last session in not making appropriation for continuance of the work provided for under the Smith-Lever agricultural extension bill. Vast changes will necessarily be made in many of the activities of the United States department of agriculture unless this oversight of the former congress is corrected. The funds which have been appropriated for the work of the department will be exhausted by June 30. The bill to provide funds for the coming year was before the last congress but was filibustered out of existence and the beneficial work of the department jeopardized. Now the call for congress to convene gives opportunity to correct the error, providing quick work is done once the session is opened.

The principal concern of the farm bureau people is not only that an appropriation shall be made but that a sufficient appropriation shall be made. As a war measure agricultural extension work under the county farm agent was given funds far in excess of the maximum amount contemplated by the Smith-Lever extension act, and this excess appropriation is needed to continue the farm bureau work. Its members are hoping that for at least a few years this larger activity may be encouraged by congress and ask that congress take instant action.

Interested farm bureau people are writing congressmen and senators at Washington.

IT PAYS TO ADVERTISE

Last year Tillamook, one of the smallest counties in Oregon, spent over $5000 advertising Tillamook cheese in the city of Los Angeles. As a result the demand for that particular cheese has been such that the same little county now contributes through its dairymen and cheese factories $18,000 for an advertising campaign in various coast cities. The California state council is now pushing a campaign for advertising dairy products in general and will probably appropriate several times over the amount now being used by the Tillamook people.

One step in this campaign is the issuance of a brochure by the California Dairy Council, which affiliates with the National Dairy Council. The slogan on the title page of this attractive booklet is: "Milk is Indispensable to Good Health." Some 30 pages follow, giving scores of reasons why milk should be a greater factor in the diet, not only of the little ones but of all humans. The suggestion is made by the booklet that because of the great reduction in the dairy production of the country during the past year—less by 9,000,000 pounds than the previous year—there must be encouragement for the dairyman in order to secure greater production to meet the real needs of the country. So-called substitutes are finding greatly increased sale—this because of great sums invested in advertising.

Fortunately, the council and others pushing for an enlarged advertising campaign talk to believers in advertising. For example, one of the largest magazines in America in its April issue carried five full pages of advertising of California farm products, placed by cooperative organizations of producers. The advertisements were in color and probably cost in the aggregate somewhat over $50,000 for insertion in that one issue. They were placed by the California walnut growers, orange growers, lemon growers, peach and raisin growers. The dairymen are next door neighbors to these advertisers and have absorbed the advertising spirit.

VOLUNTEERING

The boys are coming home by the thousands, and the war department is offering every inducement to other thousands to join the regular army, the navy or the flying corps in the building up of the standing army of this country. Every large town now has its recruiting officer, and some boys who formed a liking for military life are doubtless taking their honorable discharge from the Guards or the American Expeditionary forces and immediately signing up with the government for permanent war work. There will be need of many thousands of soldiers in Europe and Western Asia, and it now appears that America is to have a hand in supplying a number of these troops which will have police duties to perform.

A LIVE FARM BUREAU

One county of California will watch with much interest the census returns during the next year to learn as to whether she holds first place in the production of crops. Los Angeles County has held the record for the past ten years as the producer of greatest value in her crops of any county in the United States. For a few years all agricultural sections of the United States have produced to their limit, so far as possible with labor shortage that has prevailed. Los Angeles County is no exception save that her crops being largely orchard crops there has been little opportunity for pronounced increase. However, through intercrops and other intensive methods, as advised by a live farm bureau, every possible advantage has been taken of opportunities.

The directors of this farm bureau met recently at a luncheon to celebrate some of the accomplishments of the past two years and to bid Godspeed to the retiring farm adviser, Dr. Coit. Dr. Coit returns to his former work at the head of the department of citriculture and semi-tropical fruits of the University of California, which position he was permitted to leave because of great reduction in number of agricultural students at the university, the boys practically all going overseas. They are now returning, and on June 1 the former farm adviser will be at the head of his department at Berkeley. He will, however, return to Los Angeles for the summer school.

At the luncheon the directors frankly expressed themselves in the matter of Dr. Coit's successor. Robert W. Hodgson, formerly assistant of Dr. Coit in the university work, and also his assistant in the work in Los Angeles County, was recommended by the directors, and the hope is that Professor Crocheron will appoint him to the office.

Sure it is the leaders in the county work have the support of a directorate thoroughly patriotic and alive to agricultural needs.

Science vs. Fertilizer Practice

From an Address by Professor Chas. B. Lipman at San Bernardino Citrus Institute

Scientists who have been making studies of soils admit today that the problems which confront them loom larger than they did years ago when there was less real information as to chemistry, and especially the chemistry — and physics—of soils. As we heard a speaker remark in one convention: "We have found it necessary to unlearn many of the things we formerly believed to be true." Even a few years ago it was a common belief that by the merest chemical analysis of soils and the application of a few chemicals improper soil conditions could be corrected; today the physicist is recognized as an important factor, perhaps even more important than the chemist, and the uncertainty and lack of absolute knowledge in many particulars was never more evident than at the recent citrus institute at San Bernardino. But the attitude shown, that of seeking for more positive information and admitting that present knowledge is inadequate, is most encouraging.

Some of the addresses given at that time have been reprinted in former Cultivators. Professor Chas. B. Lipman of the University of California made an address on "Science vs. Fertilizer Practice". It was far too long to reprint entire, but the larger portion of it, as Professor Lipman expressed it, clothed in language for the novice in soil chemistry, we reprint. This is in the form of dialogue and shows, we believe, wherein science may be somewhat against present fertilizer practice but wherein we hope ultimately it will be in complete harmony with practices which shall be followed. But this cannot be until there is more general education, for there are a thousand and one conditions confronting producers in different sections, and science and practice as used by the farmers must conform to those conditions.—Edit.

SINCE the subject which I have tried to discuss for you is very complicated and difficult for the layman to grasp, I hope you will indulge me if I repeat some of the things which I have said so that you may, perhaps, more clearly grasp the situation. For that purpose, I have decided to put before you an imaginary dialogue taking place between a citrus grower, Mr. A., and a modern soil expert. The dialogue follows:

Mr. A. "I have a twenty-acre orange grove in a certain district near San Bernardino. I would like to fertilize it. What fertilizer had I better use, in what quantities, and when should I apply it?"

To be absolutely honest, the expert must reply, "I cannot tell you, since there is no real scientific basis for fertilizing soils at the present time."

Mr. A. "I thought that was accurately known long ago. Can't you analyze my soil and tell me on that basis what fertilizer to use?"

Expert. "It seems to be the common impression that the exact relationships between soils and fertilizers are scientifically known, but that is not the case. Moreover, soil analysis has little or nothing to do with the case."

Mr. A. "What, then does the chemical analysis of a soil show?"

Expert. "If properly carried out, it shows what chemical composition the soil possesses, but nothing as to whether or not the constituents in the amounts determined are usable by plants."

Mr. A. "By usable, do you mean available?"

Expert. "Yes, in the broadest and most comprehensive sense."

Mr. A. "Then, is there no method for determining the available chemicals in a soil?"

Expert. "None that has yet been found reliable and exact enough."

Mr. A. "What is the difficulty in the way of so doing? Can't the chemist develop a good method?"

Expert. "There is no great difficulty in that respect from the chemist's standpoint. The method of analysis of the soil extract now available, or one which can be arranged easily will doubtless suffice for that purpose. But there is a real difficulty in the way of using such analysis for the purpose in question."

Mr. A. "What is that difficulty?"

Expert. "A soil is not a homogeneous mass, or, in other words, it is not of the same nature throughout a field. In fact, it may show marked variations in chemical and physical nature within distances of a few feet, or even of a few inches. Hence the soil extract obtained from one sample or even from a composite of several samples does not represent the true condition, or the average condition, of a field, no matter how small. But that is not the only difficulty in the way of appraising even the chemical value of a soil through an analysis of the soil extract. The soil and the moisture it contains constitute what to the scientist is known as a dynamic, as distinguished from a static, system. By this, we mean that it does not remain the same constantly, but, on the contrary, changes constantly. Moreover, the changes may vary greatly, due to variations in the intensity of temperature, evaporation from the soil, evaporation from the plant, and perhaps several other environmental factors. In addition to these effects of the climatic complex on the variability of the soil solution, we have others of great moment. Every farm operation may affect markedly the concentration, or even qualitative nature, of the solution. Tillage, irrigation, and rainfall, may do it markedly, but green manuring, ordinary manuring, or fertilizing with commercial fertilizers will do it much more markedly. You must, therefore, see that when one analyzes a soil extract, he merely obtains a picture of the approximate condition of the soil solution in that particular sample of soil at that particular moment, but not of the condition of the whole field at different seasons or even different days within a given season."

Mr. A. "Is there any set of circumstances in which an analysis of the soil extract may be of immediate practical value?"

Expert. "Yes. For example, when the soil extract shows an absolute lack of a certain essential element or an exceedingly small quantity thereof, we know that the soil solution needs enrichment in that respect. But there, again, we have a very difficult problem, because the addition to the soil solution of the missing, or deficient, essential element does not necessarily result in the desired enrichment with respect to that element. In fact, it frequently happens that it does not result in that manner. And yet the addition of the desired element may, and it frequently does, enrich the soil solution in some other element by its chemical effects on the solid soil particles. It not infrequently happens, therefore, that one may be obliged to add some magnesium or calcium salt to the soil in order to set free more potassium in the solution, or vice versa. Such extreme conditions as those in which an essential element may be wholly lacking from a soil solution are not frequently found, if ever, but a very great deficiency in any element may frequently be found in soils. Under California conditions, I have found this to be true for iron and at times for nitrogen, but not ever for other elements. This does not prove, however, that such conditions do exist here for the other elements."

Mr. A. "Then may I understand from your statements that the soil and plant problem is so complicated at present that no scientific rules for soil management, in the true sense, can be recommended?"

Expert. "That is exactly what I mean to say."

Mr. A. "Do you mean to say, also, that the scientist has learned nothing about the relations of soils and plants during the last 60 or 70 years?"

Expert. "I certainly do not mean to say that. Why the very fact that I can answer your questions as I have is an indication that the progressive students of soils and plants have done the hardest kind of work in order to learn how to study their problem. Oh no, we know a great deal about the relations of soils and plants. So much indeed that we are now, for the first time, impressed with the magnitude and difficulty of the domain which still remains unexplored, and with our utter inability to apply what we have learned at this stage of investigation, except negatively."

Mr. A. "Have the several 'long time' fertilizer experiments carried out at different stations in this country and in other countries given us no information of use in connection with fertilizing soils?"

Expert. "They have given us some information of value to the science, but very little, if anything, that is applicable to any specific fertilization problem on any ranch. There is not a single fertilizer experiment of which I have knowledge, which in the first place, was planned correctly enough to enable one to determine the error to which the experiment is subject. Most of them have not used enough control plots, and none of them have either used repetitions of the treatments as well as of the control plots or distributed the latter properly. In spite of all that, however, some of these experiments do actually show that fertilizer treatment in certain ways is unquestionably responsible for bigger crops than no fertilizer treatment. But, they show that only for that particular plot in the first place. Secondly, they do not show which fertilizer combination is the best. Thirdly, they do not show what amounts give the best results. Fourthly, they do not show what is the best time or times of the year to apply fertilizers for maximum results. Fifthly, they give no indication if the same fertilizers used once in two or three or five years are better or less effective than it applied every year. Lastly, and this is the most important practical point, they have never shown profits from fertilizer use as indicated by a correct statistical study of the experiment. All of the work done has never, until recently taken up by me and one of my associates, been studied statistically to determine what true significance, and not what apparent significance, attached to it. Of all the fertilizer experiments which have been and are being carried on, those at Ohio are the only ones which have used enough check or control plots to permit of a reliable appraisal of their significance, and there, as above indicated, they did not replicate their treatments.

Mr. A. "Do you think that we shall ever know how to apply the results of scientific studies on soils and plants to soil management, as regards fertilizer practice particularly?"

Expert. "I would have to guess to answer that question directly, and guessing is not science. As one man to another, however, I may add that I have every hope that we shall be able some day to apply the results of our investigations to the control of crop growth in fields."

Mr. A. "As one who has thought more about soils and plants, studied them more, and seen them under all sorts of conditions, can you suggest a purely practical way for us to determine what fertilizer to use?"

Expert. "The only suggestion I can make on that point is that you try out the fertilizer under properly controlled conditions. The treatment should always be given on a rather large tract, say five or ten acres, and a control untreated plot on what appears to be similar soil conditions should always be allowed. The results of the harvest on these two large plots will show whether or not the fertilizing has paid when all the costs are calculated."

Mr. A. "Such a suggested method, however, allows only for testing one kind of fertilizer. Does that suffice?"

Expert. "No, it does not. Any simple, or any mixed, fertilizer might work well on any given tract of land, and therefore, any of them may be tried. Moreover, the time of applying a fertilizer, and the amount applied, particularly the former, may make the difference between good results and no results at all."

Mr. A. "Is there any general recommendation that you can make along this line for citrus lands in Southern California?"

Expert. "I think it is always safe to recommend the use of as much organic matter as possible. There is probably no doubt that no year should be allowed to pass without at least one cover crop, all the yard or stable manure that can be obtained cheaply should be used, and bean straw, and alfalfa hay if it can be obtained cheaply, should be used in addition. Besides, it is generaly true that some nitrogen fertilizer, preferably sulphate of ammonia, among the minerals, or any organic fertilizer, may be used in small quantities, say 20 to 30 pounds of nitrogen per acre."

After all this, I cannot but admit a sense of failure which pervades me in the task which I have undertaken, that of rendering clearer to you the fertilizer situation. The staggering proportions of the unknown render it peculiarly difficult to clarify the relatively small domain of the known. The subject is so extremely intricate, so complicated, and so difficult that even for those who have given it years of time and constant thought, it is still a puzzle, and yet I have had the temerity to try to explain it to you in a brief paper. I cannot but feel that these remarks are too fragmentary and perhaps too technical to be of much service to you, and yet I have tried to put them in as simple a fashion as my humble powers would allow. Underneath an intensely critical attitude, however, I am filled with much optimism for the future of soil science and the future of soil management. Perhaps if this optimism should steadily prove itself to be justified, I shall have something more than fragmentary, something less technical and more useful to tell you about in the future.

Agricultural News Notes of the Pacific Coast

Northern California

Shasta County wool growers are selling wool at 45 cents.

Lincoln, Placer County, has turned water into its rice fields.

Sacramento contemplates a motor express to run as far north as Red Bluff.

The strawberry crop of the state this year gives promise of being the biggest ever.

The Napa County farm bureau will hold meetings at Mt. George, May 24; Chiles, 27, Union, 28.

Meetings of the Eldorado County farm bureau will be held at Union, May 23; Kelsey, 27.

Grass Valley, Nevada County, farm bureau is arranging dates for fat stock sales through the summer.

Professor R. H. Taylor of the University of California has been made farm adviser of Butte County.

California asparagus sold recently in New York City markets at as high as $8.00 and $12.00 per dozen bunches.

The California Tomato Growers' Association and the Vegetable Growers' Association have merged organizations.

The Northern California Counties Association is pulling for extension of good roads and discussing irrigation matters.

The first carload of cherries from Sacramento went out on May 8. It was shipped by the California Fruit Distributors.

Plantings of cotton will be made next year on the red lands near Oroville, is the announcement of the American Farms Company.

Colusa County Squirrel Inspector Barton is managing a clean-up campaign on ground squirrels. The farmers are cooperating heartily.

Owners of stock in the district of Sutter County that was flooded last winter are warned by the county veterinarian to keep a sharp lookout for anthrax.

Pear growers are watching their orchards closely to detect the first appearance of pear blight that affected branches may be removed and destroyed immediately.

It is announced that all creameries in the San Joaquin Valley from Bakersfield to Merced have become members of the San Joaquin Valley Milk Producers' Association.

B. B. Meek of Oroville has been appointed by the California Olive Association to take charge of a campaign to secure an increased tariff on olive oil and other olive products.

Meetings of the Tehama County farm bureau will be held at Los Molinos, May 26; Proberta, 28. The work of the month will have largely to do with starting a community program.

Sacramento Valley rice growers have word from the food administratin that in all probability the price of $4.32 which prevailed last year will continue during the coming season. This for paddy rice.

The annual meeting of the Almond Growers of Orland was held recently. There are over 40 members. The following officers were elected: President, P. D. Bane; vice-president, A. E. Lindstrom; secretary and treasurer, Dan Sturm; delegate to state exchange, Dan Sturm; directors, P. D. Bane, A. E. Lindstrom, George Sturm, T. H. Hilliard and Mrs. E. O. Royce.

Central California

Cantaloupe buyers are busy in the cantaloupe growing sections.

Kings County farm center meetings: Stratford, May 26; Oakville, 31.

Grasshoppers have destroyed 50 acres of vineyard and orchard in Tulare County.

The San Joaquin Valley reports many sales of lands which are to be planted to raisin grapes.

Stanislaus County irrigators are fencing ditches and canals so as to use inclosure for sheep pasture.

Stanislaus County Farmers' Union recently met and heard reports from the national meeting at Denver.

Many fruit growers believe that dried apricots will reach 20 cents; prunes, 10½; peaches, 15; raisins, 8.

Kings County raisin growers will pack their own raisins this year and they will go out under Kings County brand.

Live stock men of Paso Robles and other sections of San Luis Obispo County will raise a greater number of draft horses.

The Stockmen's Protective Association held its annual meeting and banquet at Livermore, Alameda County, on May 3 and 4.

Water users of Merced County are organizing a small irrigation district, it is alleged, to escape being included in a much larger district.

Kings County fruit growers have sold canning fruit: Elberta peaches, $45; Lovells, $40; apricots, $60; Muscat grapes, $25 to $27.50.

A very successful flower show was held at Gilroy, Santa Clara County, on May 3. Special features were made of wild flowers, hot house plants and roses.

The California Peach Growers', Inc., have named prices on the 1919 output of Practically Peeled brand: Per case of 11 ounce cartons, $6.25; two pound, $8.50.

The Lodi Sentinel reports 60 per cent almond and pear crop, but that the outlook for apricots, apples, cherries, peaches, prunes and plums was never better.

May 24 is Sunsweet Day, to be celebrated at San Jose with great pomp and parade. The day is set apart to spread knowledge of the value of the California prune.

The plans for the construction of a five million dollar meat packing plant at Sacramento are being pushed, and it is hoped a great plant for California producers will be erected there.

Two big dairy ranches were transferred recently in Merced County near Los Banos. A. A. Souza bought a 154-acre tract for $77,000, the other, 158 acres, going to A. J. Alevedo and J. R. Oliveria for $71,100.

Fourteen counties of northern and central California have united in the "Fourteen Counties Protective Association." One purpose of the association will be to secure control of vast acreage and prevent it from falling into the hands of aliens.

Many Stanislaus County grain growers are using caterpillars to bring their grain in for shipment. They hitch on about four trucks and handle about 250 sacks at each trip. Outfits of this kind have been quite common on the streets of Turlock the past week or two since the market revived to some extent.

Southern California

The telephone patrons of Riverside County are wrathful over increased rates.

San Dimas, Los Angeles County, is just finishing its navel season, having shipped 800 cars.

Los Angeles County has the largest sardine cannery in the world. It employs nearly 1000 hands.

The farm bureaus of Chino and Ontario wil unite in a campaign to secure more general planting of windbreaks.

Directors of the Southern California fair held at Riverside are asking the supervisors of Riverside for increased financial support.

Riverside, Imperial and Orange Counties are contemplating uniting in the construction of an inter-county tuberculosis sanitarium.

The Palo Verde section of Riverside County raised 13,672 bales of cotton in 1918. The first commercial plantings were made in 1911.

Yucaipa, San Bernardino County, now has 3300 acres planted to apples, the bearing portion of which promises exceptionally fine crop this season.

Navel orange shipments from Upland this season will total 1700 cars. Manager Myers of the exchange says the returns will be approximately $2,500,000.

Manufacture of potash from kelp has been suspended along the southern coast as the value of potash has dropped back to normal since close of the war.

Orange growers of San Dimas and North Pomona are considering the formation of a new exchange from a portion of the present San Antonio Exchange district.

Members of the Anaheim Fruit Association recently held all day picnic, enjoyed fine lunch and added 54 new members to the roll. The membership now numbers 217.

The labor situation in the Imperial Valley has been serious for some time and now teamsters and others have united in an organization which proposes to still more complicate the situation as to workers.

The federal department of agriculture says that there will be a shortage of sugar beet seed for next season's planting unless arrangements are made promptly by sugar factories, as the European countries which did not plant during the war will now be in the market for heavy supplies of seed.

Imperial Valley cantaloupe growers are conferring with inspectors, ordering supplies and making general preparations for a great cantaloupe shipping season. Nearly 15,000 acres are planted in the valley. The season will last about 50 days. In harvesting this year "half-slips" will be abolished entirely.

Dairymen of Riverside County have organized as a branch of the Southern California Milk Producers Association. Officers of the new association are: D. W. Thomas, president; J. T. Crimmins, first vice president; J. E. Cook, second vice president; R. E. Nebelung, secretary; board members as follows, Mark Worden of San Jacinto, M. O. Pulliam of Ethanac, George Thomas, M. E. Goodereau, J. H. Paulin, J. E. Wherrell, Bert Kenedy, W. F. Eldridge and H. O. Webber.

The Coast and General

Sugar beet planting in Utah entirely finished.

Spot cotton, New York City market 28.75 cents.

Georgia reports material increase in watermelon acreage.

Louisiana is shipping string bean to northern markets.

Texas will grow 20,000 acres of watermelons this year.

Oklahoma conducted a campaig this spring for "A Garden on Ever Farm."

The fruit crop of the Elko section o Nevada was damaged by frost comin as late as May 9.

Absence of spring rains favore early alfalfa crop in Arizona; cuttin exceptionally large.

Apple growers of Wenatchee, Wash ington, have contracted the comin crop at $2.00 per box.

The interior department is makin surveys of mountain lands in the wes ern half of Montana.

There is to be a demonstration da at the Mesa, Arizona agricultural e periment station May 24.

Seattle, Washington, reports ligh frosts unfavorable to vegetables an fruit; grain in good condition.

The agricultural colleges of Scotlan are making special courses in anim husbandry for returned soldiers.

Trinidad and some of the northern most South American countries h port large accumulations of flour.

The seventh annual meeting of th Chamber of Commerce of the Unite States was held recently in St. Louis

Illinois has appropriated a millio and a quarter to aid in carrying o Secretary Lane's soldier settlemen plan.

A Farmer's Mutual Insurance Com pany is being organized in Arizon with headquarters at Phoenix, Ari zona.

Because of unprofitableness of th crop of potatoes the acreage in Geor gia this year has been materially re duced.

Hood River, Oregon, held an Appl Blossom Festival on May 4. The bloom has been much retarded this year b cold weather.

A concerted effort is to be made t obtain the benefits of the federal farm loan act for the lands under the Sal River project, in Arizona.

Shirley Christy, secretary of the state fair commission in territorial days has been appointed again secre tary to take the place of Chas. F Price resigned.

Florida is talking of making a two cent a box tax on fruit to fight citrus canker. This is made necessary be cause of the lapse in the department of agriculture appropriation.

The fruit crop of Yakima Valley, Washington, is estimated at 14,675 carloads. Apples, of course, will be the heaviest shippers, with 8960 car loads; pears and peaches next with about 2500 cars each.

Cattlemen of the Parker Canyon district are objecting to traps which are being set by the United States biological survey, on the grounds that more calves get caught in the traps than are killed by the predatory ani mals the traps are presumed to catch.

Orange Pruning Important Subject

By J. S. Soule

AS AN experienced tree builder, the writer here gives a few fundamental facts and offers a few thoughts on one of the most vital questions confronting the orange growers.

The object in pruning a fruit tree is to put it in proper physical form and healthy condition for the purpose of securing the best quality and most profitable crop of fruit and to prolong the fruit bearing life of the tree.

Of all the fruit trees the orange seems to be able to stand the most neglect during the first few years and still produce abundantly, but such treatment is to the detriment of the tree and at the expense of the owner in after years.

Train up a tree in the way it should grow, and when it is old it will not depart from its fruitfulness—if carefully looked after by an experienced tree builder. But you must have healthy nursery stock to build on. You can no more make a good tree out of inferior stock than you can a thoroughbred horse out of a common, half starved scrub colt. Begin right, and then keep right.

To do the work intelligently it is of the utmost importance that the tree builder understand the construction of the tree and what its different parts are to perform. For instance, it is well to know that the stem or trunk is composed of five distinct divisions, viz.: heart wood, sap wood, cambium, new bark, and old (outside) bark. There is scarcely any life in the heartwood; it is simply the bone, so to speak, and adds strength and rigidity to the tree. The sap wood is that through which the water, absorbed by the roots, by capillary attraction passes upward and outward to the leaves of the tree. This water carries the minerals taken up from the soil and is mostly evaporated and passes off into the atmosphere. The minerals carried into the leaves are there converted into plant food for the nourishment, growth and fruitage of the tree. Now an important fact the writer wishes to here emphasize is that sunlight and air are absolutely necessary for the manufacture of this plant food. The healthy leaves of the tree contain millions of microscopic particles, called chlorophyll bodies, which when the sunlight and air acts upon them produce a chemical action that changes the minerals into plant food. This plant food, composed mostly of starch and sugar, then passes down through the cambium wood to the various parts of the tree where it is assimilated by the healthy tissues. Therefore the writer will again call attention to the very significant fact that the conversion of minerals into plant food cannot successfully take place in the dense shade of a tree.

Away from its nativity, and under artificial methods of culture as grown in Southern California, the orange tree has a habit of sending upward a growth of rank shoots. These are generally called "suckers" for the reason that they will absorb and rob surrounding sister branches of much of the life giving elements that belong to them. If permitted to grow these lusty "suckers" will produce a dense, shady inner portion of the tree, shutting out necessary sunlight. Then follows decline and death to many of the robbed and smothered branches. To still further aggravate this condition, each annual growth, with its weight of fruit, bears heavily down upon and covers up that of the year before. Thus generation after generation the outside branches overlap the dead and the dying. Neglect of feeding and cultivation will increase this deterioration; but no amount of feeding and cultivation will ever bring back to life the dead and the dying.

Now in view of these fundamentals the logical conclusion of the intelligent orchardist must necessarily be that the knowledge and skill of the experienced tree builder is indispensable.

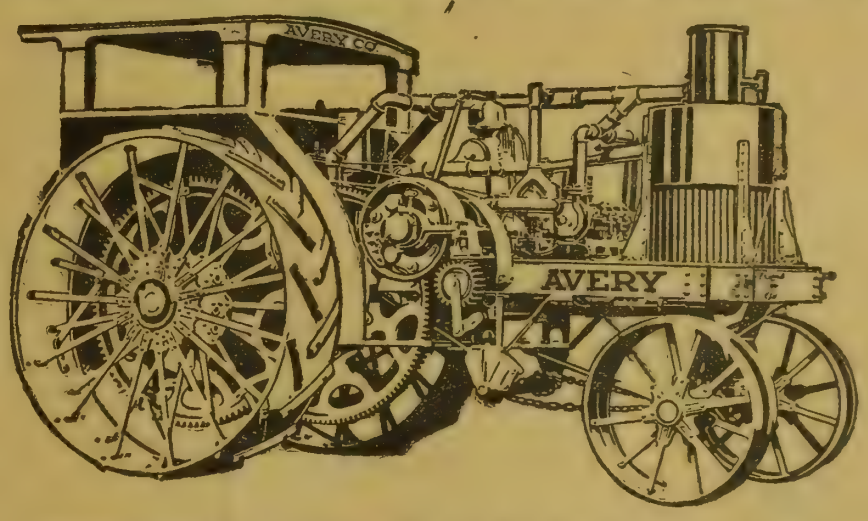
To those who are setting out young orange trees we will repeat: begin right, and then keep right.

Orchardists who have not the time or qualifications to do the work themselves should secure the services of an experienced tree builder to look after the setting of the young trees in the ground and then stay with them for a few years at least. Where a single orchard is not large enough to require all the time of the tree builder, two or more owners can club together for this purpose. Then good, healthy nursery stock should be selected, budded from the best of fruit bearing trees. At planting is the time to begin to direct the tree aright by a proper arrangement of its main structural branches. These branches should be selected at equal distances around the main stem and a few inches from one another along the central axis of the tree. These structural branches should consist of from three to five of about equal size. A head thus formed is almost proof against splitting. The experienced tree builder will direct the formation of the tree by skillful disbudding and pinching. At the beginning of the second season the main body branches should be permitted to grow not to exceed three lateral branches and always several inches apart. This should be followed from year to year, only that the number of laterals should be reduced annually. Where a tree is thus judiciously built up there will be but little use for the knife or shears, and but few wounds to heal, and it will come into fruit bearing in good form, and the cost of the tree building will be many times paid for.

But how about the older orchards that have not been properly attended to and are in all stages of decline? This is a problem that is greatly troubling hundreds of orange growers in Southern California. Mistakes of the past are now costing them dearly, and the work now becomes corrective as much as possible. In this attempt much "butchering" has been done, making the last condition worse than the first. Large limbs have been roughly sawed off, leaving stubs to rot and carry decay into the heart of the tree. Limbs have been stubbed back regardless of where the cut should have been made; cut back in the middle of the space between buds or small branches, causing the end of the stub to tassel or die back to the bud or limb. In many cases the center of the tree has been cut out, fruit bearing wood and all, leaving it in a vase or cup shape, and the remaining branches in an overlapping, matted, shady condition, permitting but two narrow fruit zones, consisting of the extreme outer and inner sides of the cup shaped tree. The work of the intelligent, experienced tree builder greatly differs from this. He works with the object of retaining the health of the tree and making every branch throughout its entirety fruit bearing. This is accomplished by forming all of the tree into both a semi-sunlight and semi-shade condition; thus avoiding sun scald and supplying sufficient air circulation and sunlight to all the leaves to enable them to perform their natural function in chemically changing the minerals into plant and fruit food. Such a tree builder will always make smooth, short cuts, and he will not leave stubs to finally carry decay into the vitals of the tree. A tree thus formed will have its fruit

What Avery Tractors

Did at the Sacramento Demonstration



Avery 40-80 H.P. Tractor, the Tractor that Pulled the Giant 4-Bottom Killefer Sub-soil Plow

	Price
The 5-10 H.P. Pulled 2-10-in. Disc Plows (The Special Orchard Tractor)	$ 775
The 8-16 H.P. Pulled 2-14-in Mold Board Plows	950
The 12-25 H.P. Pulled 3-14-in. Mold Board Plows	1350
The 14-28 H.P. Pulled 6-10-in. Disc Plows	1980
The 18-36 H.P. Pulled 4-14-in. Mold Boards	2750
The 25-50 H.P. Pulled 10-10-in. Disc Plows	3700
The 40-80 H.P. Pulled 12-12-in. Mold Boards	4500

The Avery Six Cylinder Motor Cultivator

Which is the machine with which you can complete the motorization of your entire ranch, won united approval and a large number of sales, on account of the ease with which it plants and cultivates all row crops.

It Cultivates

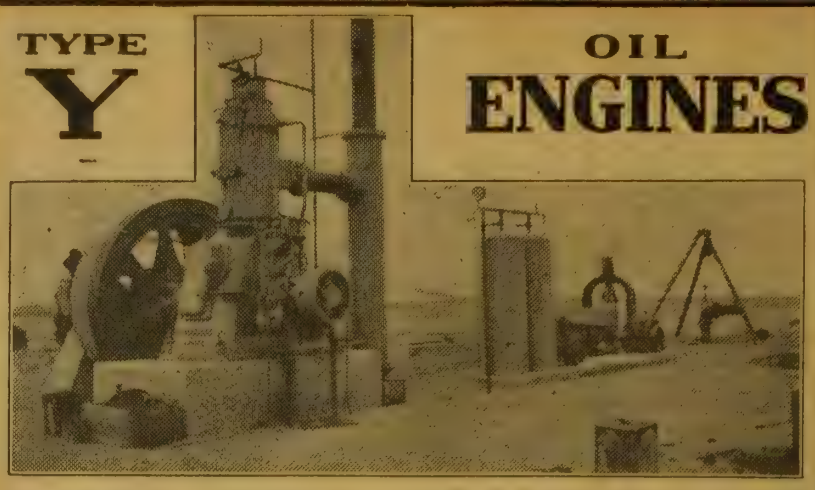
2 Rows Cotton *2 Rows Corn* *4 Rows Beans* *8 Rows Beets*

Note the Big Reduction in Prices on Avery Tractors

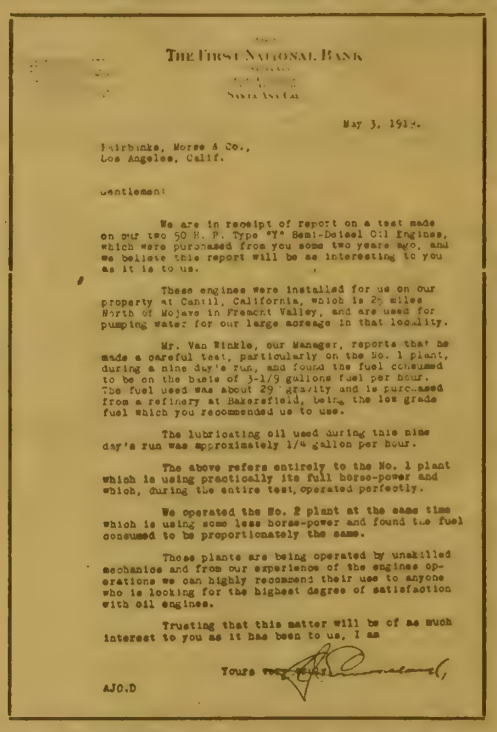
Avery Company of the Pacific Coast

67-69 Beale Street, San Francisco 237 South Los Angeles St., Los Angeles

TYPE Y OIL ENGINES



MAKING WASTE LAND PRODUCTIVE



THE FIRST NATIONAL BANK
SANTA ANA, CAL.

May 3, 1919.

Fairbanks, Morse & Co.,
Los Angeles, Calif.

Gentlemen:

We are in receipt of report on a test made on our two 50 H. P. Type "Y" Semi-Deisel Oil Engines, which were purchased from you some two years ago, and we believe this report will be as interesting to you as it is to us.

These engines were installed for us on our property at Cantil, California, which is 25 miles North of Mojave in Fremont Valley, and are used for pumping water for our large acreage in that locality.

Mr. Van Winkle, our Manager, reports that he made a careful test, particularly on the No. 1 plant, during a nine day's run, and found the fuel consumed to be on the basis of 3-1/9 gallons fuel per hour. The fuel used was about 29 gravity and is purchased from a refinery at Bakersfield, being the low grade fuel which you recommended us to use.

The lubricating oil used during this nine day's run was approximately 1/4 gallon per hour.

The above refers entirely to the No. 1 plant which is using practically its full horse-power and which, during the entire test, operated perfectly.

We operated the No. 2 plant at the same time which is using some less horse-power and found the fuel consumed to be proportionately the same.

These plants are being operated by unskilled mechanics and from our experience of the engines operations we can highly recommend their use to anyone who is looking for the highest degree of satisfaction with oil engines.

Trusting that this matter will be of as much interest to you as it has been to us, I am

Yours very truly,

AJO:D

One of Two 50 H.P. "Y" Engines pumping water on the Crookshank Ranch, Cantil, California

Conclusive Proof of the Economical Operation of Type "Y" Oil Engines for Irrigation Purposes

FAIRBANKS, MORSE & CO.
Los Angeles San Francisco Portland Seattle Spokane



American Horizontal Pump. Can also be furnished direct-connected to motor or engine.



American Vertical Pump. All lubricating done from surface. For deep well work.

American Centrifugal Pumps

—have easy flowlines, split casings so that interior of pump is readily accessible, improved hydraulic thrust balance, minimum of wearing parts, and many other advantages. A type and size for every pumping requirement.

Write For Catalog

It illustrates and describes the entire line of American Centrifugal Pumps and gives valuable information for the irrigator.

We have some open territory for live dealers

American Pump Co.,
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Citrus Trees

Owing to cancellation, we have to offer Two Thousand Valencia, One Thousand Eureka Lemons and Five Hundred Grape Fruit to caliper three-fourths of an inch and up.

The bud-wood of this stock has been very carefully selected.

We have also Two Thousand Valencia and One Thousand Eureka Lemons, caliper one-half an inch and up from California Fruit Growers Exchange buds.

Walker-Hubbard Nursery Company
First National Bank Building San Fernando, California

evenly distributed throughout its branches, inside and out, and carry a larger amount of fruit, and will not have to be supported by the usual expensive method of propping.

JUNE DROP

At a recent meeting of the Los Angeles center of the county farm bureau Dr. J. Eliot Coit, farm adviser, discussed from practically all standpoints the matter of Washington Navel June drop. This abnormal dropping of oranges, and sometimes prunes and other fruits, was so serious as to cause loss of many millions of dollars to growers of California in 1913. It is a trouble which affects Washington Navel orchards in all sections, especially in the hotter dryer valleys. Nearer coast sections have never been so seriously affected. The trees may blossom heavily, may set fruit which grows to size of peas or even hickory nuts, when suddently they begin to lose their luster, turn yellow, and drop. Formerly the trouble was alleged to have been caused by the usual June hot wave, and the dropping, which may occur four or five days after such extreme heat which sometimes comes after a long cool spring, is definite proof that the heat and aridity have large place in the cause of this trouble. However, the trouble has been investigated from other standpoints, and Dean Hunt of the agricultural college detailed Professor Coit and Mr. Hodgson to make investigation. A detailed and valuable publication has been issued by the university press giving of their findings. Dr. Coit in his address referred to three things which doubtless have to do with the trouble. First, the weather conditions, which have been referred to; second, to a smaller extent, lack of irrigation, or moisture at the roots; and lastly a fungus known as Alernaria citri. In this last mentioned trouble the fungus is the same as that which causes the black navel or navel rot which sometimes does not appear until the fall or toward ripening time. The effect of the fungus trouble does not cause a premature drop but results in the navel rot instead. It is not known to affect any other orange than the Washington Navel. There is no spray which will in any way save the fruit from this fungus, although several experiments have been made in this respect. About the only remedy suggested for handling this trouble is to give best of cultural conditions, optimum moisture in soil, with culture to give proper growing conditions so that tree can readily gather needed moisture when extreme heat wave increases transpiration through leaves. During the last couple of years it has also been suggested that material aid might be given the trees through a strong growth of cover crop either of buckwheat, cow peas or other summer legume, thus shading or keeping soil in better condition. The cover crop must, however, not be used unless there is sufficient water for both trees and cover crop. Pruning is another remedy suggested. Where the tree is carrying a mass of needless foliage the additional leaf surface makes vastly greater evaporation, hence much greater demand on the roots for more moisture. If the hot wave may be anticipated by a few days in this pruning it is probable much fruit may be saved. Another condition which aids in preventing the trouble is an abundance of vegetable mater in the soil or at least sufficient nitrogen for the use of the trees.

FLOUR PASTE AS A SPREADER

O. E. Bremner, horticultural commissioner for Sonoma County, furnishes through the News Letter directions for the use of flour paste for more effective spraying for many fruit pests. He gives the detailed directions for the preparation of flour paste as follows:

The object of the flour paste is to form a body for the spray materials which do not spread easily or which have a tendency to settle in the tank or run after being placed on the foliage or fruit. We find that the flour paste prevents all of these. It causes lime-sulphur or Black Leaf "40" to spread readily; it increases the covering and sticking quality of arsenate of lead and sulphur pastes. In fact, we advise it in all these cases. Care must be taken, however, not to use it too strong as it is apt to cake on the foliage and may, in damp climates, produce mould. For that reason we advise the commercial flour paste, using from six to eight pounds to the hundred gallons. This commercial flour paste is a jelly-like substance and is handled by most paint stores. It is used principally by bill posters and paper hangers. It is cheaper to buy it in this form than it is to make your own. (Costs from two to three cents per pound.)

If the commercial product is not available, flour paste may be made as follows: Carefully sift three pounds of wheat flour and mix into a thin batter with cold water; boil for at least ten minutes or until clear, being careful not to allow it to stick. This should be strained into the spray tank and is sufficient for 100 gallons of water or is equal to six pounds of the commercial paste.

A little better quality of paste may be made by adding one ounce of nitric acid to the water with which you mix the flour. It will be found that the paste will not stick so badly in cooking but will require longer (about 20 minutes) to cook. We sometimes add a bar of ivory soap to the flour paste, especially when it is used as a thrips spray. We have found that the flour paste as given above in conjunction with one-half pint of Black Leaf "40" to each 100 gallons gives perfect success in cleaning up both the adult and larva of the thrips.

CALIFORNIA NURSERYMEN

The association of California nurserymen will hold its eighth annual meeting at Riverside next Monday and Tuesday, May 26 and 27. In addition there will probably be business sessions during other days of the week, for presumably the nurserymen will remain during the great convention week.

President Max J. Crow will preside and make annual report as to the transactions of the association Monday afternoon at 1:30. There will be addresses by A. D. Shamel, "Bud Selection"; Prof. W. L. Howard

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Commercial Fertilizers

of our own manufacture, under the following brands:

"Banner" Brand
(Guaranteed Analysis)
Nitrogen, 4.00 per cent; Phosphoric Acid, 7.00 per cent; Potash, 1.00 per cent.

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We respectfully solicit inquiries and will be pleased to mail booklet upon request.

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Lemons---Oranges---Grapefruit

I have on hand for immediate delivery:
25,000 Eureka Lemons.
1,000 Lisbon Lemons.
25,000 Valencia Late Oranges.
10,000 Washington Naval Oranges.

All carefully selected buds from record producing trees. Unexcelled root system. One inch and up.

W. B. Ames, Nurseryman
San Dimas, California
Los Angeles Address, 529 Grosse Bldg. Phone 12893

"Root Stocks"; Prof. E. J. Wickson, "California Nurserymen" (historical); F. O. Popenoe, "Avocados and Sub-Tropicals."

Monday evening, 7:30, Dr. C. L. Marlatt, "Federal Quarantine"; A. W. Morrill, "Grounds for the Rejection of Nursery Products"; Commissioner Hecke, "Cooperation and Common Sense."

Tuesday morning, 9:00, A. L. Wisker, "Real Cooperation: Is It Possible?"; Wm. T. Kirkman, "Nursery Craft and Profession"; J. E. Bergtholt, "New Varieties, What Old Ones Discard?"

Tuesday afternoon, 1:30, visit to the Citrus Experiment Station.

THE ACTION OF HUMUS IN THE SOIL

By R. R. Snowden

AT the present state of agricultural knowledge it must seem superfluous to extol the virtues of humus as a soil amendment, yet this might prove interesting in its detail and perhaps instructive to some.

Its addition to all but humus soils improves the same in many ways.

Not only are the plant foods in humus easily made available for plant use, but it also renders those of the soil itself available; therefore, adequate addition of humus to soils already containing these is in a measure the equivalent of adding a complete fertilizer.

Soils rich in humus are warmer, other things being equal, than other soils, and this is an important fact to the fruit and vegetable grower since it advances maturity of the crops.

In the arid regions perhaps the greatest usefulness of humus is in increasing the power of the soil to hold water, which it does in a remarkable degree. For instance, while a sandy loam will normally retain 10 to 15 per cent of its weight of water and a clay 25 to 35 per cent, humus will retain 200 to 300 per cent of the same. Now, where water is rapidly removed by evaporation the value of this property is beyond dispute.

It increases capillary action by improving the structure of the soil, and hence, moisture efficiency, facilitating the movement of water and plant foods toward the feeding roots, replenishing these when removed by absorption in to the plant body.

In Southern California conditions the maintenance of adequate supplies of humus and humus forming materials in the soil is of the first importance as this increases the efficiency of all fertilizer materials and keeps the soil in the best condition for the operation of every agency favoring production.

A relatively large amount of organic matter is required to produce a given amount of humus; therefore as a matter of fact a given amount of humus represents a much larger amount of ordinary organic matter.

TO CONVENE AT RIVERSIDE

Among those who will take an active part in the Riverside conventions, the following list of interstate visitors is noted: C. L. Marlatt, chairman, federal horticultural board, Washington, D.C.; E. P. Meinecke, pathologist, forest service, United States department of agriculture, San Francisco; A. W. Morrill, state entomologist, Phoenix, Arizona; Charles A. Park, president, Oregon state board of horticulture, Salem; A. L. Strausz, state horticulturist, Missoula, Montana; W. T. Swingle, pathologist, United States department of agriculture; S. C. Mason, pathologist, United States department of agriculture; A. D. Shamel, United States department of agriculture, Citrus Experiment Station, Riverside; E. J. Taylor, director of extension, Tucson, Arizona; O. M. Morris, head of horticultural department, State College, Pullman, Washington; E. Cantu, governor, Lower California, Mexico; E. R. Bennett, field horticulturist, Boise, Idaho; R. A. Cooley, state entomologist, Bozeman, Montana; M. L. Dean, chief division of horticulture, Olympia, Washington; S. B. Doten, director, agricultural experiment station, Reno, Nevada; Geo. M. List, chief deputy state entomologist, Fort Collins, Colorado; Harold R. Hagan, state inspector, Utah state crop and pest commission, Salt Lake City; W. H. Lane, inspector of imported fruits and nursery stock, Vancouver, B. C.; W. W. Mackie, state leader, cereal smut eradication campaign, University of California, Berkeley; De Lore Nichols, county agricultural agent, Flagstaff, Arizona; M. B. McKay, department of botany and plant pathology, Oregon Agricultural College, Corvallis; W. W. Henderson, Utah crops and pests commission, Logan; E. E. Kaufman, field agent, bureau of crop estimates, United States department of agriculture, San Francisco; Samuel Fortier, chief of irrigation division, United States department of agriculture, Berkeley; Harris Weinstock, state market director, San Francisco.



The Tractor to Buy

ARE you one of the many farmers who need more power to handle the farm work properly? Do you have to work with less help than you need?

If so, you need an International kerosene tractor. The size that gives you power for your heaviest load will handle all the work. Internationals use only as much fuel as the load requires. They are made to work with farm machines—the kind you are now using—and special hitches are provided for all kinds of field and road work. Their belt pulleys are large enough to prevent slippage, run at correct speed, and are set high enough to keep the belt off the ground. They all use kerosene or other low-grade fuels which means a big saving in operating expense.

The Company to Buy From

You know that we have supplied farmers with high-grade machines for nearly 88 years. You know that our tractors have furnished satisfactory farm power for more than 12 years. We have far too much at stake to market machines of any but the highest standards of quality. We expect to come back some day and sell you some other machines in the long list you see in this advertisement. In every sale we try to build for the future.

Tractor Service Whenever Needed

In line with this policy, we have developed a service organization which now consists of 89 branch houses and many thousands of loyal local dealers, wide awake and attentive to the needs of their customers. Service is a very essential part of any tractor sale. When you buy an International kerosene tractor you buy with it the assistance of an organization that brings a well stocked branch house or a live, local dealer within telephone call, fully equipped to keep your tractor working steadily.

International Tractor Sizes

International tractors, all using kerosene for fuel, are made in 8-16, 10-20, and 15-30 H. P. sizes. A line to the address below will bring you full information about all our tractors and about any other machines you mention in the list shown in this advertisement.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines
Binders, Push Binders, Headers, Rice Binders, Harvester-Threshers, Reapers, Shockers, Threshers

Tillage Implements
Disk Harrows, Cultivators, Tractor Harrows, Spring-Tooth Harrows, Peg-Tooth Harrows, Orchard Harrows

Planting & Seeding Machines
Corn Planters, Corn Drills, Grain Drills, Broadcast Seeders, Alfalfa & Grass Seed Drills, Fertilizer & Lime Sowers

Haying Machines
Mowers, Tedders, Side Delivery Rakes, Loaders (All Types), Rakes, Combination Side Rakes and Tedders, Sweep Rakes, Stackers, Combination Sweep Rakes and Stackers, Baling Presses, Bunchers

Belt Machines
Ensilage Cutters, Huskers and Shredders, Corn Shellers, Threshers, Hay Presses, Stone Burr Mills

Belt Machines—Cont.
Cream Separators, Feed Grinders

Power Machines
Kerosene Engines, Gasoline Engines, Kerosene Tractors, Motor Trucks, Motor Cultivators

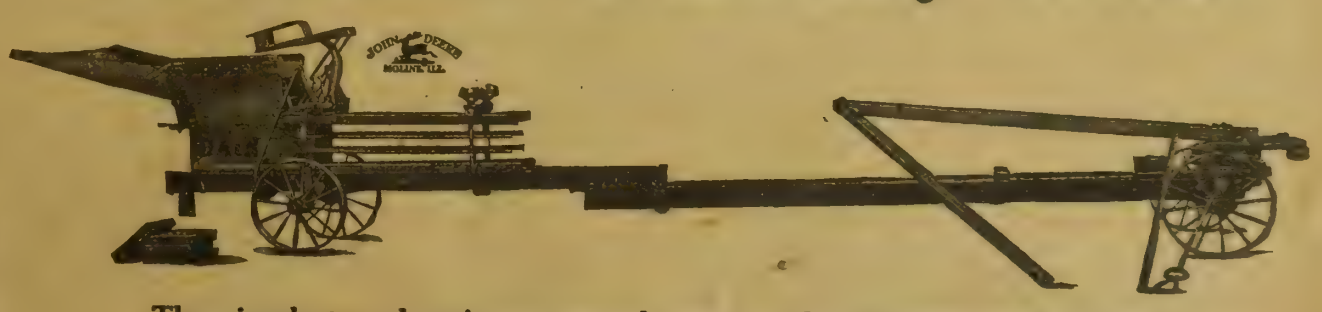
Corn Machines
Planters, Drills, Cultivators, Motor Cultivators, Binders, Pickers, Ensilage Cutters, Shellers, Huskers and Shredders

Dairy Equipment
Cream Separators (Hand), Cream Separators (Belted), Kerosene Engines, Gasoline Engines, Motor Trucks

Other Farm Equipment
Manure Spreaders, Straw Spreading Attach., Farm Wagons, Farm Trucks, Stalk Cutters, Knife Grinders, Tractor Hitches, Binder Twine

International Harvester Company of America
(Incorporated)
CHICAGO U S A

John Deere-Dain Hay Press



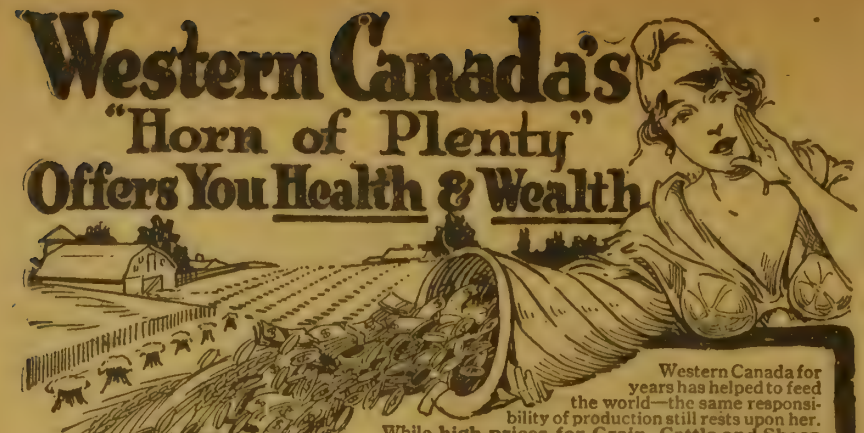
The simplest and easiest operated press on the market, sure self feed

Three men can operate. See them

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Western Canada's "Horn of Plenty" Offers You Health & Wealth



Western Canada for years has helped to feed the world—the same responsibility of production still rests upon her. While **high prices for Grain, Cattle and Sheep** are sure to remain, price of land is much below its value.

Land capable of yielding 20 to 45 bushels of wheat to the acre can be had on easy terms at from $15 to $30 per acre—good grazing land at much less.

Many farms **paid for from a single year's crop.** Raising cattle, sheep and hogs brings equal success. The Government **encourages farming and stock raising.** Railway and Land Co's. offer **unusual inducements to Home Seekers. Farms may be stocked** by loans at moderate interest. Western Canada offers low taxation, good markets and shipping; free schools, churches and healthful climate.

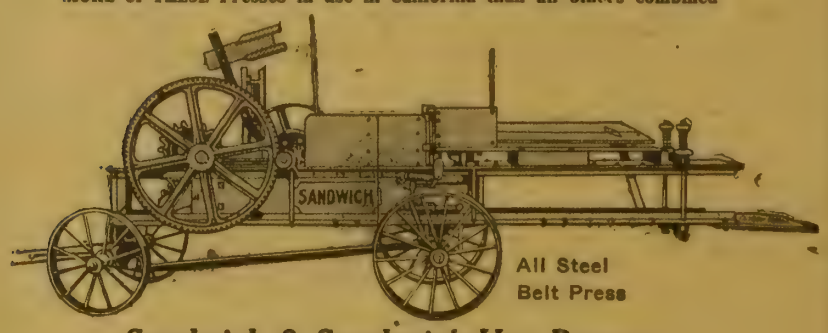
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Federal Farm Loans

Long Term **Low Rate**

All loans made on an amortization plan whereby the borrower repays the principal gradually with each interest payment.
Over three thousand satisfied borrowers in this district.
It will pay you to investigate.
For information apply to the nearest NATIONAL FARM LOAN ASSOCIATION or write direct to

Federal Land Bank of Berkeley
California

SURFACE IRRIGATION

12 FOOT 6 INCHES LONG — DOUBLE LOCK SEAM — ONE PIECE BODY

MANUFACTURERS OF
Well Casing, Tanks, Riveted Water Pipe and Supplies
AMERICAN STEEL PIPE & TANK CO.
P. E. Building, Los Angeles, Cal. Branch at Fresno

CORRUGATED AND PLAIN TANKS

LA CROSSE TRACTORS --- IMPLEMENTS

Knapp Tractor and Machinery Co.,

416 Central Building - - - - - Los Angeles, Cal.

The New Agricultural Poison
Dow's Powdered Magnesium Arsenate
used pound for pound same as Dow's Powdered Lead Arsenate.
Both in stock. Los Angeles delivery.
C. W. Coburn & Co.
417 Market St. San Francisco

When writing advertisers, mention The Cultivator.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Gas

How is a gas bag made and what kind of gas is lighter than air? How long will a gas bag stay up in the air without refilling?—Subscriber, Phoenix.

Our gas bag editor is on a vacation so we are unable to give very definite answer on the subject of lighter than air machines. We may say in a word, however, that hydrogen is the lightest of all gases, having specific gravity compared with air of 0.0695. Common illuminating gas made from coal or from oil is much lighter than air and is often used in balloon work. Length of time a gas bag will stay up in the air depends upon the construction and the material used. This material is usually silk which is treated with rubber or some solution which makes it practically gas tight.

Soldier Settlement Plan

Where can I obtain information concerning land open for homesteading by discharged soldiers? Is the land of sufficient value to make it worth while for an able bodied young man, with sufficient capital to tide him over the first year, to take it up? What would be the probable cost?—Subscriber, Berkeley.

We doubt not the inquirer refers to Secretary Lane's soldier settlement plan regarding which it would be best to write to Secretary of the Interior, Washington, D. C. It is said there are already 35,000 applications and they are now coming in at the rate of 600 daily.

Indian Runner Duck Eggs

Is there any limit to the market for Indian Runner duck eggs or is there any market for them at all?—Subscriber, Porterville.

Considered by their weight, Indian Runner duck eggs should command a market price above hen eggs. They have a fine flavor and weigh much heavier but as a rule the retail trade discredits and sells them much lower. However, there are consumers who maintain that they are not as nicely flavored as the hen eggs and until this feeling is changed on the part of the consumer these eggs will be handicapped.

Aphis—Mildew

My rose bushes are covered with some green insects and the bushes are badly blighted. Could you give some information as to how to destroy these pests?—Subscriber, Reedley.

This is a case of plant lice or, more correctly, aphis which may be controlled by spraying with tobacco extract which may be purchased of any seed house with directions as to amount of water in a working mixture. Also kerosene emulsion or strong soap suds will destroy the pests. The "badly blighted" condition is probably due to mildew which is best controlled by scattering dry sulphur on the bush when the leaves are somewhat moist.

Whippets

A subscriber of the Cultivator is anxious to learn as to whether there are kennels in the state of California devoted to breeding of whippets.

Swelling on Turkey

One of my turkeys has a swelling larger than a turkey egg back of the hip. It has a scab on it—another turkey has a swelling as large as a walnut on its jaw. Can you tell me what these are and what to do for them?—Subscriber, San Dimas.

The swelling on the hip is probably due to a bruise or some other injury. You can tell by its looks whether it contains pus or not. If it does, it should be opened and washed out with witch-hazel or a bichloride solution (one table bichloride to one-half pint of water). Then paint around the incision, taking care not to touch the inside of the sore, with tincture of iodine. If the swelling does not contain pus painting with iodine twice a day will probably reduce it.

The swelling on the jaw may come from an injury and may be due to swellhead or roup. If there is pus, open, and wash the cavity with peroxide of hydrogen or spray twice a day with this solution: four tablespoons witch-hazel, three drops liquid carbolic acid, two tablespoons water. Instead of the liquid you might use campho-phenique antiseptic powder, which may be bought at any drug store, but it is more expensive. If there is no pus, but merely a swelling, in sympathy with roupy symptoms in the nostrils, you might try the potassium permanganate treatment, which has often been described in this column. Dissolve a few permanganate crystals in a lard pail of warmish water, and dip the head of the bird in it for a few seconds. This washes out the nasal passages, and often effects a cure. The solution should be prepared fresh each time it is used and used twice a day.—J. A. K.

Turks Overfed

Occasionally I have trouble with my turkeys. Their craws puff up and seem full of air. I first notice they do not eat and seem languid. Even the small turks, not over a month or so old, are sometimes afflicted, while the majority of the flock will be all right. They have range, skimmed milk—soured—but fresh each day, grain, etc. They usually die after three or four days.—Subscriber, Willows.

It is the old story of turkeys that have been overfed or wrongly fed for weeks or months, suddenly dropping off with blackhead, euphemistically called "liver trouble". It is the little turks from three to six weeks old that most frequently die in this way, but sometimes a turkey will be apparently healthy till it is five or six months old and then begin to show symptoms. As soon as a single turkey refuses to eat or ceases to act hungry, stop feeding anything but cottage cheese or sour milk and green feed either chopped or on range. There is nothing else to be done, for the sick ones are already past help, but a cutting down of the ration may save the rest. We shall never be able to raise our turkeys successfully till we learn how very little they must have from the beginning. Turkeys should not have hard grain till they are about three months old, but they may have rolled oats from about the end of the first month, possibly earlier. For poults that are on good range a diet of sour milk and cottage cheese exclusively, in addition to what they get on range is a safer ration than one containing grain.—J. A. K.

Shavings For Mulch

I have a city lot all set to fruit trees and other plants. The ground lacks humus and dries out very hard after it is watered. I am not financially able now to put on enough manure

to help it much. I have thought of putting a large quantity of planing mill shavings around each tree, extending out several feet. Then when I water them I could simply throw the hose down to the tree and let the water run slowly enough to soak in and not run outside of the shavings, and the shavings would prevent the ground from dying out with a hard crust. I can get the shavings without any expense. What do you think of the plan? Of course I understand there is practically no fertilizer value in the shavings; they are simply to keep the ground from drying out. Would they have any bad effect on the trees? I have heard that redwood shavings should not be used. If so, why not? How do they differ from pine?—Subscriber, Long Beach.

Shavings are excellent as mulch, if of the right kind, but as suggested they carry no fertility to the soil, at least not for years. In any case avoid redwood shavings because of the tannin they contain "poisoning" the soil. That is the case at least if they are put on fresh from the mill. Where they have been exposed to the sun and rain and air for months they sometimes lose their objectionable qualities and may be used. Pine, cedar and other shavings do not have this objectionable feature but if they are going to be worked into the soil care must be used not to apply too heavily or they will give a physical condition to the soil which induces it to dry out much more quickly than a mulch which more readily decays. In this case we would use lawn clippings, leaves, weeds, wild oats which may be mowed from adjoining lots, or any other vegetable matter which can be thrown into a heap, wet down and composted with small quantity of dirt so as to make a fine application for the garden or around plants.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Property Disposal

Husband and wife purchase property partly from earnings of wife prior to marriage and partly from joint earnings. The title stands in the name of both husband and wife. The wife dies leaving five children, the husband remarries and dies leaving no will. There is no property other than the above mentioned home, the title to which is in the same condition as above stated. What of the rights as to the succession to the property?—Subscriber, Watsonville.

The code provides that in case of a conveyance to a married woman and her husband, the presumption is that the married woman takes the part conveyed to her as tenant in common. If such was the case the first wife would have an undivided one-half interest in the whole of the property. Upon her death as she died prior to the husband, leaving five children, her one-half interest would be distributed: one-third to the estate of the husband and two-thirds to be divided equally into fifths among the five children. The estate of the husband would therefore have an undivided one-half interest plus an undivided one-sixth interest. Upon death of the husband, that estate being his separate property having been acquired prior to marriage with his second wife, would descend one-third of the one-half, plus one-sixth to the second wife and the two-thirds of the one-half plus one-sixth to be divided into fifths equally among the five children, assuming that there are no children by the second wife.

Homestead Title

A homesteads 160 acres of land several years ago. A long time since he has given B to understand that he would leave it to B when he died. B takes care of A for a number of years, redeems his property from taxes and generaly looks after it. A executes a deed to B and also gives B his patent. A dies and B has his deed recorded. Six weeks later there is a deed recorded in the name of C to the same land. It is difficult to state the date of C's deed. Who was entitled to the land, B or C?—Subscriber, Oregon House.

B having first recorded his deed to the land, is legally entitled thereto. It is quite apparent that he is entitled not only by virtue of a deed of gift, but also by reason of a contract for services.

Cattle Trespassing

A number of us have taken up land in San Diego County, around which there is no fence. A non-resident cattleman runs his cows on our land. Can we collect for pasturage? Can we make him keep his cattle off our land? What course shall we pursue?—Subscriber, Verdugo.

As your land is unfenced, you apparently have only the right to take up the stray animals and impound them with the county pound keeper, filing and recording notice thereof, as several times heretofore outlined under the proceedings of the estray act.

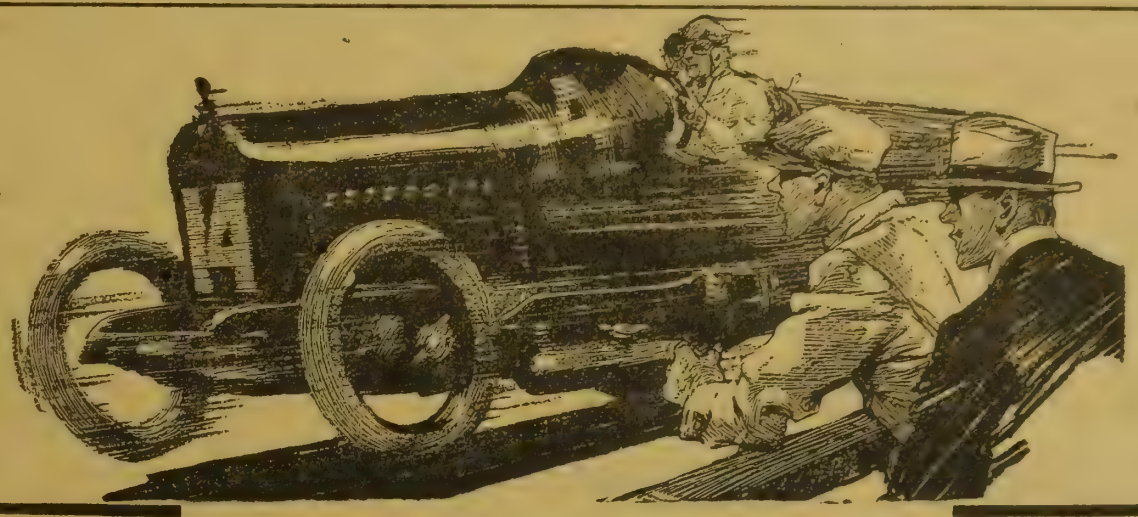
First Mortgage

A sold property to B and permitted a first mortgage to be placed upon the land for $2500 for improvements which B was to place thereon. This mortgage was for three years. A took a trust deed for the purchase value of the land for six years. The title has changed hands twice. A portion of the land has been sold to C. The three years expired and A consented to an extension for three years of the mortgage. C now contends that A by this extension may forfeit his lien under the trust deed, and demands that A declared default for non-payment of first mortgage. Is it the fact that A forfeits any right by this extension of the first mortgage? What will happen if C starts proceedings? Can the loan company be compelled to pay off the first mortgage?—Subscriber, Lancaster.

Where a first mortgage grants to the mortgagor an extension of the time for payment on the mortgage but without any actual discharge of the mortgage or taking a new one and without any fraudulent intent as regards the second mortgage the latter cannot claim to be preferred to the first mortgage merely on the ground of such extension. Under this statement of the law it does not appear that A would in any wise forfeit his right, nor after he has made the extension could he compel the loan company to pay off their mortgage. It is difficult to see what proceedings C could start.

HOLSTEIN-FRIESIAN ANNUAL

The thirty-fourth annual of the Holstein-Friesian Association of America will be held in Philadelphia June 4 There will be election of officers, transaction of general business of the association, and voting upon various amendments to the by-laws. The secretary is F. L. Houghton, Brattleboro, Vermont.



Who Shall Find the Limit of Hudson Endurance?

We Have Tried By Most Gruelling Tests—
60,000 Hudson Owners Continue the Search

There must be some point at which a piece of machinery is taxed beyond its power of endurance.

But that point has not yet been found in the Hudson Super-Six.

Why We Tried the Speedway

It was in search of that point, rather than to demonstrate speed, that the Super-Six has won more records and made faster time under the gruelling strain of long sustained effort than any stock car ever built. Calling for superlative endurance under the stress and pressure of tremendous speed, by their very violence, these contests crowd scores of miles into one. They impose a strain that could be equalled under ordinary condition only by years of driving.

How Hudson Made Its Records

We decided to test Super-Six endurance on the speedway. We drove at highest possible speed for an hour—and beat the world's best time. We tried 100 miles without even approaching the limit. Then we tried 150 and 200 miles, setting new records. Next the Super-Six made 250 miles at the rate of 101 miles an hour. Such speed even for a single mile would send many stock cars to the junk pile. But at the finish the Super-Six has the same rhythmic pulsing purr as when it started.

The Final Test—60,000 Owners

Those records of endurance were shown by the same Super-Six motor that is in the cars of more than 60,000 Hudson owners. Theirs is the final test—the test of satisfactory service under all conditions; the test of contented ownership. Each one of those 60,000 knows he has a car that holds more worth-while records than any automobile ever built—and proves its right to them by its everyday service.

Hudson Makes Motor Mode

And in addition to these proofs of endurance Hudson makes a line of body types, the distinction and beauty of which is acknowledged by everyone. What greater evidence can there be of Hudson leadership? And need one ask for more assurance in deciding what car will best meet his requirements?

Hudson production has always been under the demand. This year shows a repetition of the shortage of former years. Even now immediate deliveries for the most part are out of the question. So to get a Hudson at all this year calls for early decision.

HUDSON SUPER SIX

Hudson Motor Car Company

Detroit, Michigan

(1065)

Cooperation in Dairying

Point One — Everyone should eat more milk and butter, ice cream and cheese; city people especially, but they don't know it.

Point Two — The dairyman should advertise his product same as other producers advertise theirs.

Point Three — He will sell more and at better prices and will then have more money with which he will get better cows that will give more milk per cow, that will supply the increased demand caused by his advertising that will give him more money to get more cows and so on.

Point Four — For every advertisement for butter substitutes there ought to be one for milk or butter or ice cream or cheese.

Point Five — Not an advertisement for some one's Brand but a truth telling advertisement about the product itself.

Point Six — You say you are too busy to attend to it yourself; then combine with others in the same line and who are also too busy.

Point Seven — Subscribe a small sum of money, have someone on the job for you ALL THE TIME, telling the truth to the public, contradicting erroneous and false statements putting up YOUR side of the case and all under your own control.

Point Eight — The National Dairy Council and several State Dairy Councils are doing this.

Point Nine — California Dairy Council will be ready to do it too as soon as its membership and income are large enough.

Point Ten — Write NOW. Say you want to join and ask what YOU are expected to pay.

California Dairy Council

2311 Fairfield Avenue, Hollywood, Los Angeles and 268 Market Street (Room 242) San Francisco

Lookingbill's Combination

PUBLIC AUCTION

DAIRY COWS, BEEF CATTLE, HOGS, HORSES, MULES, FARM MACHINERY, GRAIN AND REAL ESTATE AND LUMBER

Tuesday, May 27th, at 10 a.m., Sharp

At the Lookingbill Sale Yards, on Magnolia Avenue,

Riverside, Cal.

112 head of cattle. 50 head of CHOICE HOLSTEIN and JERSEY DAIRY COWS, EVERY ONE of which has been tubercular tested. This is an EXCELLENT bunch of cows, a number of which are 7- and 8-gallon cows. Some choice family cows. Good cows do not sell as high at RIVERSIDE as at other places—a mighty good place to buy. Six head of grade Angus heifers, with 8 little calves, 11 head of 2-year-old steers, 5 head of 2-year-old Holstein heifers, 30 head of yearlings, grade Angus, mostly steers, 6 little calves, 8 to 10 weeks old, 2 grade Angus bulls, 3 PURE BRED Holstein bulls, some pure Holstein cows and heifers being consigned.

41 head of HOGS, 1 pure bred Poland-China gilt, 3 grade Poland-China brood sows, 18 head of feeding hogs, 18 pigs, 10 weeks old, 1 Duroc boar, other hogs consigned, (possibly one car fat hogs).

There will be some good horses and mules consigned.

Ranch machinery, such as hay baler, wagons, harness, light wagon and tools.

200 bushels of good white Indian corn, in quantities to suit buyers.

REAL ESTATE AND LUMBER

Will offer the 1½ acres, with the privilege of 5 acres, where the sale yards are now located, at intersection of L. A. & S. L. R. R. with the P. E. R. R. at Magnolia Signal Station, all building materials that have been used in the construction of yards. Also OUR HOME, at 350 Jurupa Avenue.

TERMS: $100.00 and under, cash; sums over $100.00 one-third cash, one-third in three months, one-third in six months, on approved notes at 8 per cent. Two per cent discount for cash.

Good Free Lunch at Noon

COL. W. C. LOOKINGBILL

R. H. Williamson, Clerk — **Prop. and Auctioneer**



Wakeen Herd Polands

Wakeen—the stamp of quality—Our big type Poland-Chinas are true to type. Get a son of the famous King's Big Bone Leader to head your herd.

Les McCracken — **Ripon, Calif.**



Raise Your Hogs and Cattle at a Profit

Assist Nature by Feeding

Economy Stock Powder

A general conditioner, a worm expeller and a disease preventive.

Send for FREE SAMPLE and our BOOK on LIVE STOCK.

Save Your Hogs

ECONOMY HOG & CATTLE POWDER CO.
Hearst Bldg. San Francisco, Cal.

The Need of a Live Stock Show at Los Angeles

By R. P. Royce

FOR a number of years the live stock interests of this state have been making strenuous efforts to establish one or more live stock shows aside from the state fair. Last year San Francisco and Los Angeles scheduled shows. The history of those shows is too recent to recount. Whether or not both cities will undertake to back a show this year is not, at this time, certain; but it is quite certain that San Francisco will have a show. Plans are being worked out now looking to the establishment of a permanent show for San Francisco. As yet nothing definite has been announced from Los Angeles. Whether or not Los Angeles' experience last year is too recent to forget remains to be seen. We hope that Los Angeles will decide to hold a show. As a matter of fact we feel quite certain that Los Angeles cannot afford to let the opportunity go by.

California is destined to be numbered among the leading live stock states of the union and this being true it is inevitable that live stock shows will come to occupy an important place among the established institutions of the state. Note that the word "institutions" is used. It is used advisedly, for a great live stock show is an institution.

The idea that such shows are run for the sole benefit of the exhibitors and that they simply serve to provide a meeting place where breeders can forgather, compete with each other and divide the premium money on the basis of the merit of their exhibits must be discarded. Likewise the view entertained by many business firms that a live stock show is a good thing for a city because it attracts a good crowd of buyers for the things that the city man has to offer must be discarded before a real show can be developed. Live stock shows serve a vastly different purpose and should be regarded as having an important function in the upbuilding of the resources of a community rather than being just an attraction to bring visitors to the city.

The prosperity of any community is directly dependent upon the prosperity of the tributary territory and such being the case it is quite obvious that any factor affecting the general prosperity of a section will in time reach the city. Therein lies the value of a properly located and managed show. Fairs and shows are of really great educational value. Go into any community where successful shows have been established for a period of years and inquire as to the value the community attaches to these annual exhibitions and it will be found that they are regarded as genuine assets.

The educational value of a show consists in the assembling of the highest type of the representative breeds, thus making it possible for the established breeder or the man about to enter the business to carefully study the merits of the various breeds, and at the same time to hold out an inspiration to all to produce a more efficient class of live stock.

The value of the improved breeds of live stock is generally recognized and there is slight need for an argument on their behalf, but the lamentable fact is that with the great majority of producers the propaganda must be carried to them and the show is the best medium for accomplishing this end.

California, as stated, has a great future as a live stock center. In this state, because of the superior natural conditions, it is admitted by all that the very highest type of live stock can be produced—and produced much cheaper than in any other state, but as a matter of fact California stands far down the list of the important stock producing states. The general average of our cattle and hogs, particularly, is such that it is cause for comment from Eastern men. Such a condition sould not be permitted to exist for the reason that the continuance of such a condition affects the prosperity of the entire state. Any factor that holds a possibility of improvement should be developed, and it is a proven fact that live stock shows and fairs are the most effective means of working such improvement.

Take the case of Oregon, for instance. For a number of years there has been a live stock show held at Portland, and today Oregon is counted as perhaps the leading live stock state of the West—this is certainly true so far as beef cattle are concerned, and the general average of Oregon stock is above that of California. We do not mean to convey the idea that Oregon has better individual herds than can be found here, but there are more of them. That the annual Portland show is given large credit for the improvement is evidenced by the fact that Oregon and Washington breeders and the business interests of Portland have raised a fund of $250,000 to provide a permanent home for the Portland show. Denver has had the same experience, likewise, Wichita, Tulsa, Fort Worth and Dallas—not to mention other cities, including Kansas City and Chicago, homes of the two greatest shows in America, and, in the case of Chicago, the greatest show of the world. There is not a city, now the home of a successful show that would consider abandoning these events. Furthermore the influence of these shows on the general average of live stock tributary to them is most marked. Consequently the producers in those sections are more prosperous than in sections with poorer quality of stock.

Geographically, California is so situated that one show, in addition to the splendid state fair, can not serve the entire state. There is a vast territory tributary to both San Francisco and Los Angeles that is essentially and distinctly the "property" of each city, therefore each city is a logical point for a show. Another point that is important is that a show at each city, one to follow the other closely, will help the other for the reason that exhibitors are attracted to a circuit and in the event that Los Angeles, San Francisco and Portland would arrange their shows so that one would follow the other it is certain that many of the best herds and flocks of the Middle West could be induced to come West.

Los Angeles is particularly fortunate in having an established fair plant to begin with. Exposition Park can, with moderate expense, be developed into a highly satisfactory home for a live stock show and with such a plant to start with a successful show can be conducted far cheaper than in other coast cities. If Portland can raise a quarter of a million dollars and San Francisco the necessary money, Los Angeles should experience little difficulty in financing a show.

The value such an exhibition would be to the territory tributary to Los Angeles can in no way be estimated. Almost immediately there would be developed a quickened interest among live stock producers, and with each succeeding year the influence of the show would be increasingly noticeable in the quality of the cattle, hogs and sheep reaching that market. Better stock insures a profit to the producer and if the producer is prosperous the community is prosperous.

If Los Angeles plans a fall show, definite action should be taken as early as possible in order that the exhibitors may order their operations accordingly. So far as the Cultivator has been able to learn there is a genuine sentiment among live stock interests for a permanent show at Los Angeles, and the majority of the breeders are anxiously awaiting an announcement that Los Angeles will stage a real show along with San Francisco and Portland.

HAD HIM THERE

"Deacon Simms 'low he doan' approve o' churches advertisin'," remarked Shinbone; "but when A ast him, in dat case, wuffo' he ring the church bell fo' service, he jes' had nuffin' to say."

Commercial Improvement of Dairy Herds

From Address by Dean H. E. Van Norman, University Farm, at Western Dairy Products Show.

AS I SEE IT the great problem is to make a cow owner aware of the fact that some or many of his cows are actually producing only 150 to 200 pounds of butterfat per cow per year, and that even at the present good prices of milk this amount hardly pays for the food eaten and the labor of caring for the cow; that, while this is true, the farmer might, by the use of the facilities within his reach, have cows that are producing from 250 to 300 pounds of butter fat a year and be getting $1.50 to $2.50 worth of milk for every dollar's worth of feed consumed.

The experience of most of us is that when a farmer is once actually convinced that a cow or several cows in his herd are kept at a loss and that other cows are making a good profit, he doesn't need to be told what to do with that unprofitable cow, and our problem is to convince him that there are these differences between his cows.

I can only urge that leaders use their ingenuity to bring this aspect of the problem before the attention of the farmer. One of the most effective means of doing this that I have seen is the work of the federal government representatives at the National Dairy Show, where with the cooperation of the show, a dozen cows with known records were exhibited, representing the three types; unproductive and yet of dairy conformation, highly productive and lacking in dairy conformation, and highly productive and having dairy conformation. The spectators were asked to look these over and pick out the highest producing four or five. Behind each cow on a double card so that the figures were not in plain sight was each cow's record. After the visitor had made his list, he was invited to separate the cards and see the record. This was usually very effective in arousing the genuine interest of the farmer who thought he could judge a cow by her appearance, as in selecting cows for this work attention was given to picking cows that were deceptive in appearance just for the purpose of teaching this lesson, as the greatest need in the commercial improvement is to jar the supreme faith that the average owner of unprofitable cows has in the correctness of his own judgment. Once we have done this, he is on the high road to improvement.

In the matter of the future of the dairy industry I have no fears, especially for that great rank and file of cow owners who are growing the bulk of their own feed and furnishing most of their own labor and who will keep good cows. There is an assurance of a steady market, and I believe personally at remunerative prices.

Half of the babies born in the United States would not live six months if it were not for the milk they get from the dairy cow—sometimes called "the foster mother of half the human race."

Scientific investigations show that all children should have milk, a quart a day at least, from the time they can walk till fully grown. Bow-legs in growing children are due to lack of milk, not to walking too young or too much, said the professor quoting eminent authorities.

Need we fear for the future of an industry so vital to human welfare as the dairy industry? Particularly with the public's growing appreciation of its importance. In an irrigated country where five to eight tons of alfalfa can be produced annually, the dairyman who feeds it to cows that produce 300 to 400 pounds of fat per year need not worry over the future. When war and reconstruction discouragements are driving out the unprofitable cow and the incompetent cow owner, there is a better chance than ever for the aggressive, resourceful dairyman who has good cows, a pure-bred bull of proven ancestry, and is growing most of his own feed and not wholly dependent on hired help and purchased feed.

With a world's shortage of butter and a great reduction in selling price, I anticipate an increase in demand that will maintain remunerative prices for the rank and file of successful cow owners and those dependent on her product for their business.

SECOND BERKSHIRE PROMOTION SALE

The second promotion sale backed by the Western Berkshire Congress was held at Dixon, May 17, and resulted in a general average of $43 on 30 head of boars and gilts. While the average indicates most conservative values a large number in the offering were young pigs.

A number of exceptional bargains went through the ring. C. Harold Hopkins, manager of the Conoway Ranch, Woodland made a particularly good buy when he secured the April junior yearling boar, Winona Champion Rival, for $70. This boar, sired by Winona Champion 13th, and consigned by R. J. Merrill and Son, Morgan Hill, is one of the best boars sent through a public sale during the past year. Hopkins also secured five of the choice gilts.

The consignors to the sale were: R. C. Gruhlke, Dixon; J. Francis O'Connor, Santa Rosa; A. L. Stephenson, Los Molinos; A. B. Humphrey, Escalon; Geo. M. York, Modesto; E. H. Whiting, Ukiah; R. J. Merrill and Son, Morgan Hill; Sandercock Land Company, Sacramento; Geo. A. Murphy, Perkins; Geo. P. Upham, Martinez; Frank B. Anderson, Sacramento; Anchorage Farm, Orland.

The sale was managed by W. F. Sandercock and Frank B. Anderson. Col. Ord L. Leachman was the auctioneer.

The next sale will be held at Santa Rosa, June 7.

VERMONT IS STRICT

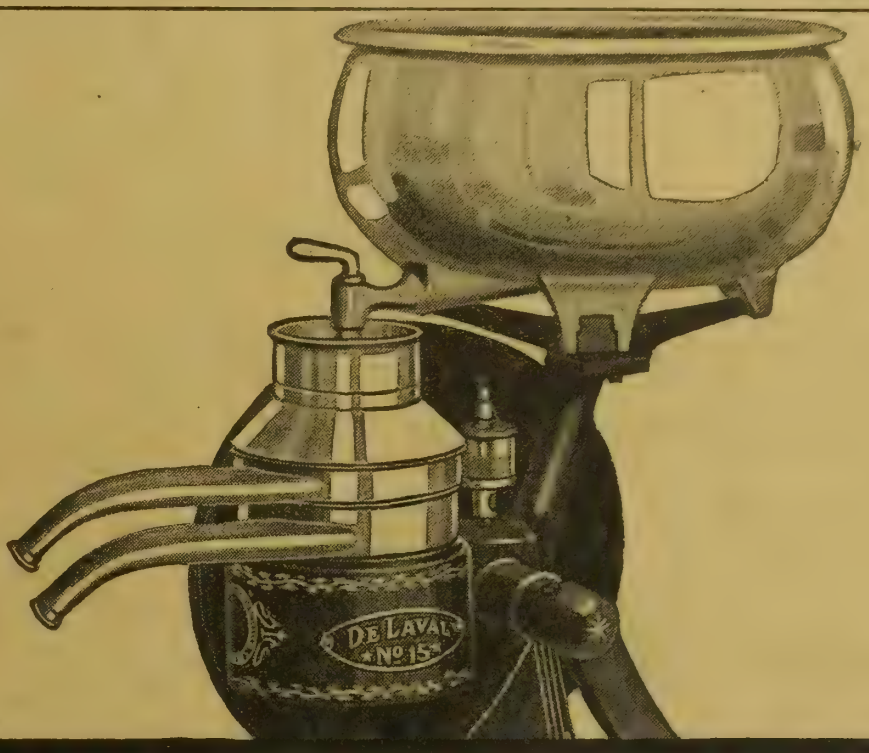
The commissioner of agriculture of Vermont is very rigid as to his rulings on importation of cattle into that state. All cattle imported into Vermont except for purposes of exhibition, public sale, pasturage or immediate slaughter shall be held in quarantine under the direction of the commissioner of agriculture for an official tuberculin test to be applied at the expense of the owner, not less than sixty days after arrival. Cattle admitted for public sale shall be subject to the above requirements if they are sold to remain in the state of Vermont.

This order shall not apply to cattle which have originated in federal or state officially accredited herds, and shall in no wise invalidate rules and regulations regarding imports already in effect.

A Salt River Valley, Arizona, farmer has suggested a plan for naming the roads of the country and numbering the farms in a manner similar to the system of numbering the houses and streets in the city. This plan has been approved by the Phoenix chamber of commerce and a committee appointed to put it into effect.

A big rodeo has started in Harqua Hala Mountains, Arizona, under the direction of Range Inspector A. C. DeWitt. This will cover the Agua Caliente country and work up along the Gila River into the White Tank Mountains of the Estrella Range. The county sheriff's force and the state live stock sanitary board will assist.

Arizona Field Agent L. M. Harrison of the United States bureau of crop estimates, states that the condition of this year's crop of wheat on April 1 was 97 per cent of normal.



The cream of cream separator prosperity goes to De Laval users

There was never greater need than right now for the best separator, skimming cleanest, having greatest capacity, turning easiest, requiring least care, and producing the most perfect product. In all these respects the De Laval has no equal. Take nothing for granted, simply let it be demonstrated to you. See the local De Laval agent or address the nearest general office.

DE LAVAL DAIRY SUPPLY COMPANY

EVERYTHING FOR THE DAIRY

61 BEALE STREET SAN FRANCISCO



Richly Bred Jerseys

at Public Auction

State Fair Grounds, Sacramento, Calif.

Tuesday, May 27, 1919

A complete dispersal, without reserve or limit, of the famous producing and show ring winning herd of registered Jerseys owned by Clifford F. Reid, Portland, Oregon.

50 Registered Jersey Cows, Heifers and Bulls 50

As President of the Northwestern Trust Company and other large commercial institutions Mr. Reid finds his time and energy too strongly drawn upon to permit the personal attention to which he believes his great Jersey herd to be entitled, hence his decision to sell.

The herd has been the feature of the show circuit wherever shown, and has to its credit production records up to world's records. There is only one cow over seven years of age in the herd and she produced a world's record daughter and is now only just past nine years old.

GOLDIE'S NEHALEM BEAUTY, the highest record Jersey cow ever sold at public auction, is of course conceded to be the star of the sale, and with her will be sold her dam, two sisters, one daughter, two sons, fourteen granddaughters, and six grandsons. Who will be the lucky owner of this great cow on the evening of May 27th?

EIGHTEEN COWS AND HEIFERS IN THIS SALE are bred to the two sons of Goldie's Nehalem Beauty, a wonderful opportunity for the buyer of high class foundation stock.

THE TWO SONS OF GOLDIE'S NEHALEM BEAUTY will make a fortune for their owners if given an opportunity in good herds. If they stay in California they will bear the distinction of being the two highest record Jersey bulls in service in the state.

There are fourteen beautiful young granddaughters of Goldie's Nehalem Beauty in the sale, good enough to go into any herd. Every breeder can own one of these with profit to himself, for granddaughters of world's record cows are not often offered for sale.

AND IF YOU WANT A REAL QUALITY YOUNG BULL just come to the sale and select one from among the six young grandsons of Goldie's Nehalem Beauty that will be offered.

REMEMBER—That this herd has long been under Federal supervision for health, and that not a single suspicious animal was found on the last Federal test.

SALE BEGINS PROMPTLY AT 10 A. M.

Management

California Breeders Sales and Pedigree Company

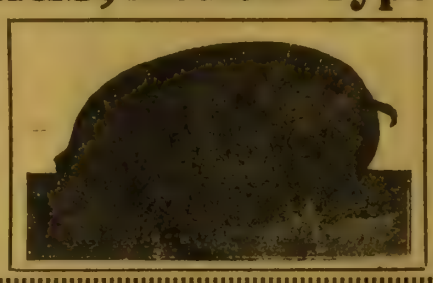
J. M. Henderson, Jr., President C. L. Hughes, Sales Manager

Sacramento, California.

Auctioneer—Col. Ben A. Rhoades, Los Angeles.

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



M. Bassett

Hanford, Kings County, Cal.



Young Boar Pigs

We are ready to carefully select for you a young boar pig containing the blood of the world's famous Berkshire sire

Star Leader

Grow him out on your own farm. You can secure one of these at a very reasonable price and solve your future herd sire problems.

Anchorage Farm Berkshires have size and mature rapidly. Write for full particulars.

Anchorage Farm, Orland Cal.

Greenwood Durocs

We know our sows are prolific and true Duroc-Jersey type. We know we have one of the best young boars in California. We know our sales are satisfactory. We guarantee this. Write

H. C. Witherow, Mgr., Live Oaks, Calif.

4 Good Young Boars --- Excellent Prospects.

—from California's leading herd of Duroc-Jerseys. They are sired by Orion's Golden Col. and Uneeda Western Hero. Priced reasonable but they have the quality. Write for full particulars.

Some corking good weanling boars.



ALLEN THOMPSON, Tulare, Cal.

Hauser's Digester Tankage

GIVES GREATEST VALUE FOR LEAST MONEY
IT MAKES THEM FAT

Hauser Packing Co. **Los Angeles**

When writing advertisers, mention The Cultivator.

Live Stock in Imperial

By A. N. Nelson

DOWN in Imperial Valley, where superlatives never surprise, there is under way a live stock movement to Eastern markets which is declared the greatest of its kind in Pacific Coast traffic history.

During May and June, 1600 carloads of sheep and steers, valued at more than $3,500,000, will be shipped from this one producing district to Kansas City. Were the cars spotted on one track they would cover a distance of 12 miles, or a distance about equal to that between Los Angeles and Mt. Lowe. A census of the cars would show about 90,000 spring lambs, 60,000 ewes and wethers and 9000 prime steers. These are the number of animals which the Imperial Valley Cattlemen's Association and the Imperial Valley Sheep and Wool Growers' Association have assigned for immediate and early shipment to Kansas City.

The movement follows trial shipments to the Kansas City market covering a period of a year and a half, which have demonstrated, say the valley stockmen, that the Imperial, with its climatic advantages and green feed all year round, can ship its sheep and cattle a distance of over 2000 miles and successfully compete with the Middle West stockmen who can lay their stuff down in the big stock yards adjacent by short hauls.

The live stock industry of the valley, whose development was threatened a few years ago by great increases in cotton acreage, is now being widely extended. The valley with its 100,000 acres in alfalfa has always ranked as the first alfalfa county in the country but this year the acreage is greatly increased. According to the statistics of the county horticultural commissioner, alfalfa seed sufficient to plant 30,333 acres has been brought in to the valley since September. The estimates of cotton planting on the American side of the valley range from 30,000 to 40,000 acres, approximately half of last year's acreage.

During the last year when milkers were scarce, feed high and good prices prevailing for beef, many dairy cows of the genus "boarder" were sent to the block. The valley's butter production as elsewhere in the state, fell slightly, but the dairymen say the herds now are of a much higher standard. The demand for dairy cows in the valley is heavy and herds are being increased. The importance of the dairy industry in the valley is shown by a comparison of the valley's 1918 production of 5,154,808 pounds against the 358,478 of the other Southern California counties combined.

The newest development in live stock is the large number of ranchers who are turning to sheep husbandry. It is not altogether surprising in view of the figures which the sheepmen quote. One plan is to buy up on the outside flocks of ewes, bucked to lamb in November and December. The sheepmen ship them into the valley, run them on barley and alfalfa pasture and by April have a milk lamb weighing between 60 and 70 pounds which has been bringing prices around $15. The ewe, bought for $8.00 or $10, brings about $14 and a wool clip of eight pounds at 40 cents brings in $3.20 additional.

The Drovers Telegram, the Kansas City stock paper, the other day took notice of the valley, in an interview with a Calipatria grower, as follows:

"'A. D. Mackenzie of Calipatria, California, who sold a large string of clipped lambs at Kansas City this week, told of how these lambs are handled and what a great advantage the mild climate of the Imperial Valley is in this industry.

"'When a lone lamb, which will shear over four pounds of wool in December, weighs 82 pounds early in April and brings $12.70 a head, without having had a bit of grain, sheep husbandry is profitable,' Mr. MacKenzie said. 'That is just what our lambs did. These lambs are run on barley and alfalfa pasture. They grow fast and fatten at the same time and make choice mutton. Figuring the wool at 50 cents a pound these lambs bring close to $15 each at less than ten months old.'"

There are now 230,000 sheep in Imperial Valley, according to the estimate of I. T. Sparks, commercial agent for the railroad administration, the man who is directing the traffic end of the big movement, with its multitude of details. It is part of his job to keep contact with the live stock industry.

"Within a few years there will be 800,000 head of sheep in the valley" Sparks predicts. "That is based on the rate of growth of the last few years and the fact that big sheep operators from all over the West have been here to look over the country, of which they have been hearing so much. They are coming in because there is no winter feeding place like the valley in America."

The beef cattle going to Kansas City are steers weighing around 1200 pounds. There are 44,000 head in the valley. At a recent meeting of the valley cattlemen's association were listed 9000 head as being ready to meet the demands of the Kansas City market and be shipped within the next six weeks. The local Coast markets are being supplied with grass fed cattle which are bringing from eight to ten cents while the Kansas City market, for such steers as the valley is sending, is running 15½ to 17 cents.

Starting a Dairy Herd with Calves

Young calves from good dairy cows are a satisfactory foundation for starting a dairy herd. Ordinarily the method advocated is to grade up common cows with a pure bred bull, requiring a number of years of patient selection and breeding, a period sometimes discouraging to energetic dairymen. Frequently this causes farmers, who want results too quickly, to change breeds.

It is expensive to buy mature dairy cows that are free from disease, that have good breeding and show desirable productive ability. Often, especially in new dairy sections, a farmer buys mature stock without being properly prepared to care for it, and many discouragements follow. To a great extent most of this difficulty can be avoided by buying good grade heifer calves from herds of well established milk production. In some dairy regions it is a common practice to sell the heifer calves for veal. These calves, while only grades, are usually from good producing ancestors and carry a productive ability much greater than common cows.

The buying of such calves to start dairy herds has been tried in several states with excellent results. Of course the cost of small calves is much less than mature animals, and the danger of disease is also greatly lessened. In general, shipping is simpler. Calves may be shipped by express at from two to four weeks of age, depending upon the distance, with good results if they are properly cared for upon arrival.

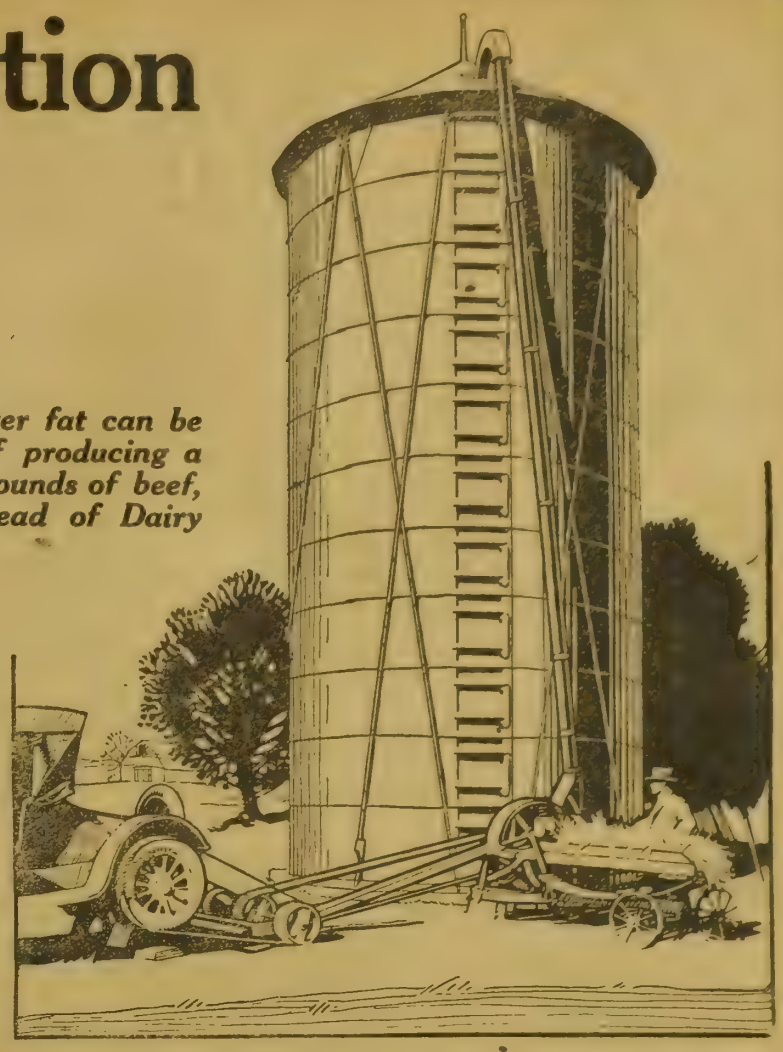
In buying it is important to deal only with dairymen. Do not buy from men who purchase calves at stock yards to ship back to the farmers, because it is not always possible to determine the breeding of the calves; and calves that are physically unfit may be shipped.

In some cases shipments are made c. o. d. which enables the buyer to see the calves before paying for them. A man who sells calves in this way makes a special effort to please his customers. It seems desirable, especially in sparsely settled sections, that more attention be given to perfecting a satisfactory system of distributing dairy calves to farmers.

Advantages in buying small calves as a foundation for a dairy herd are summarized as follows:

Small investment; better breeding; greater freedom from disease; in case of accident loss is smaller; raising calves stimulates interest and in consequence causes better care of live stock; a satisfactory herd can be established more rapidly than by grading up common cows.

Increase Production Reduce Costs With Silage



"It is safe to say that with silage, the cost of butter fat can be reduced six to twelve cents per pound and the cost of producing a hundred pounds of milk thirty to fifty cents, a hundred pounds of beef, a dollar to two dollars."—A. L. Haecker, formerly head of Dairy Dept., University of Nebraska.

Prof. Haecker further states:

"The silo should be considered a part of the necessary equipment for a dairy or stock farm, for it has to do with the success of the business.

"The largest item of expense in keeping a herd is the feed bill. Labor comes next but the feed bill is generally twice that of labor and the silo strikes directly at the overhead, making a big saving in the cost of feeding.

"It also produces better young stock and increases production.

Record Yield Due to Silage

"Practically all of the great milk and butter records of the country are held by cows that have been fed silage.

"Large, growthy, vigorous young stock are easily and cheaply obtained by the liberal use of silage.
"It is surprising to find on our best stock farms not one but five or six silos.

"It is difficult to determine accurately the saving made by the silo, when cost of ration is considered, for so many conditions enter in which make a variation in the result, but it is safe to assume that from ten to twenty-five dollars can be saved in the cost of feeding a cow one year by the use of silage.

One Man Feeds 40 Cows in 30 Minutes

"By properly arranging the silo and barn, it is possible for one man to feed forty cows in thirty minutes. The work can be done with ease and without the use of horse or wagon.

"The silo is the most economical equipment for storing forage. Eight times more feed can be kept in a silo than a haymow.

"There is less deterioration in holding over silage than in holding dry fodder.

"I have seen excellent silage that was six years old and this same silage was fed successfully to cattle, who seemed to relish it more than new silage.

Silo Insures Your Feed Crop

"The silo stands ever as insurance against forage failures, especially damage by frost or drought.

"Any kind of feed that can be grown can be saved in the silo though it might not mature a grain crop.
"It makes farming more secure and warrants a cheap and excellent forage for all kinds of stock in both winter and summer.

"Six times more feed can be furnished on pasture ground, if it is put in the form of corn and siloed.
"It is not uncommon to see corn fodder produce as many as twenty tons of silage per acre.

"The pasturage of land worth a hundred dollars and up per acre is questionable, especially in sections where summer droughts are frequent.
"The summer silo in many sections is needed more than the winter silo.

"The silo will lower the cost of digestible carbohydrates, it will make your acres earn more, your work easier, your storage greater, the production of your cows higher, your farm richer."

The Simplex Silo
(One-piece, unspliced staves)
The Papec Cutter
are indispensable adjuncts
to the successful dairy and stock raiser.

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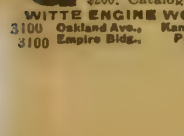
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Shorthorn Cattle

ever offered in the West. Practically the entire lot will represent the choicest of Scotch breeding. Watch for future announcements.

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Live Oaks Cal.



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Berkshires---Both Sexes

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Live Stock News Notes

Holstein Records at Tulare

At the Sturgeon stock ranch at Tulare last week some interesting official records were made by Holstein-Friesians under the inspection of experts from the state university, the results showing in the character of dairy stock which is being bred to a great extent in the Tulare section.

Clothilde Beauty Pontiac Veeman, a granddaughter of the great sire Sir Veeman Hengerveld, freshened on her third birthday and was put on test, making 20.83 pounds of butter from 492.7 pounds of milk, her 30 day record showing being 83.33 pounds of butter from 2251.9 pounds of milk. A bright future is predicted for the heifer.

Princess Hengerveld Arizaba, freshening at six years, made 23.66 pounds of butter from 605.3 pounds of milk, giving as high as 90 pounds of milk in one day. The cow was in poor flesh for the test and is expected to greatly exceed her record by next year.

Lady Legathend, a three year old, made 18.78 pounds of butter from 513.6 pounds of milk. The Sturgeon ranch has received the first of the calves from their new herd sire Segis Pontiac Abbekerk, bought at Sacramento last June for $3200, and they are a uniform and well marked bunch. Six of the first seven were heifers and it is remarkable that three of the cows brought heifer calves last year.

Lookingbill's Combination

Col. W. C. Lookingbill is offering at public auction at his sales yards in Riverside, May 27, 112 head of dairy and beef cattle, also hogs, horses, mules, farm machinery, etc. He will offer 50 choice Holstein and Jersey cows, every one tuberculin tested. He also has a fine bunch of feeder and pure bred hogs.

Rough's Pure Breds

Mr. Rough, owner of Rough's Pure Bred Stock Farm, Arlington, states that he is now placing on test a number of his Jerseys, 32 of which are now in milk. At the head of his herd is Merry Maiden's Conquest, son of Merry Maiden, the grand champion cow at the St. Louis World's Fair, and grand son of Financial King, the $50,000 bull in the Van Pelt herd.

Fine Hampshires

Hampshire swine are being developed on Fairbanks Ranch, Redlands, and A. E. Harvey, manager, states that in developing this herd he is paying particular attention to size and bone. The herd now consists of 15 sows and about 25 young gilts, headed by the boar, Harvey's Choice, out of the grand champion sow at the Panama Pacific Exposition. The show herd this year will be made up of young animals unless some mature stock is added to the herd a little later.

Some Jersey

J. E. Wherrell, breeder of Jerseys, Riverside, announces the finishing of test of Verde of Willowood, making 591 pounds fat as junior three year old, which, he states, is the record for the state. Recent sales were two heifers for shipment to Hawaiian Islands.

Gatton Gone East

Walter R. Gatton, manager of the swine department at Diamond Bar Ranch, is in the East purchasing several cars of Duroc-Jerseys. It is Mr. Gatton's intention to select several boars and sows of show caliber as additions to the present show herd now being fitted on the ranch.

Buying Guernseys

Alex Bengestorb, manager Hollow Hill Farm, breeders of Guernseys, is in the East selecting a number of Guernseys to add to the 94 now on the farm. Eight cows are now on official test with others to follow soon.

Home Again

B. H. Wilkinson, manager swine department of Falfadale Farm, has returned from the army and is again in active charge of the Duroc-Jerseys. Owing to his absence the litters are coming late so he will have no young animals for the shows this year but states he will probably make a few shows with his aged herd.

Offers Special Prizes at County Fairs

In addition to the generous support given the state fair and the larger live stock shows of the state, the American Shorthorn Breeders' Association, will offer a special prize for the champion Shorthorn bull shown at the Riverside, Kings and Butte Counties' fairs.

Governor Signs Pure Feed Bill

The live stock owners of the state will be glad to know that the pure feed bill passed by both branches of the legislature has been signed by Governor Stephens and therefore becomes a law.

For the first time buyers of mixed feeds will have a method of knowing just what they are paying for and will no longer be at the mercy of unscrupulous feed dealers.

The passage of this law marks a big gain for the live stock industry and is a concrete example of what can be accomplished through organized effort. Properly organized, the live stock interests can secure much needed legislation.

Will Buy Eastern Durocs

Bert Manly, who has been associated with the Conjeo Ranch, Newbury Park, for a number of years, has been visiting the Duroc breeders of the Sacramento Valley. Manly recently brought out a large shipment of Durocs and Hampshires and expects to make another trip through the Middle West in June for the purpose of buying more Durocs.

Blackhawk Ranch Establishing Shorthorn Herd

Easton and Ward, owners of the Blackhawk Ranch, Diablo, are laying the foundation for a high class herd of Shorthorns. Manager E. Lovell who is now in the East making selections from some of the top herds, has purchased 35 choice cows and expects to buy at least 12 more heifers before he returns.

The Blackhawk Shires have been attractions at Western shows for a number of years and it is expected that the Blackhawk Shorthorns will become equally famous.

Average Sale Prices for Guernseys

The American Guernsey Cattle Club has issued a report covering 32 public sales held in 1918. The report shows that 1318 Guernseys sold for $444,940, an average of $330 per head.

Poland-China Futurity Nominations

The following Poland-China breeders have made nominations for the futurity classes to be shown at the 1919 California state fair:

W. A. Young, Lodi; A. L. Bassett, Hanford; M. Bassett, Hanford; Geo. V. Beckman & Sons, Lodi; John M. Bernstein, Hanford; W. Bernstein, Hanford; A. Buckland & Son, Fresno; J. H. Cook, Paradise; J. A. Crawshaw, Hanford; W. T Dice, Hanford; Chas. Gatewood, Fresno; Fred Gatewood, Fresno; W. L. Haag & Son, Hanford; N. Hauck, Alton; N. K. Horan, Lockeford; J. F. Lehman, Lodi; McCarty & Starkweather, Modesto; Les McCracken, Ripon; H. I. Marsh, Modesto; Eugene Miner, Lodi; Fred D. Ross, Hanford; Hugh C. Shinn, Tulare; C. A. Vaughn, Hanford; J. W. Wakefield, Acampo; R. J. Yates, Orland.

New Ayrshire Herds in El Dorado County

E. B. McFarland, San Mateo, owner of the Steybrae herd of Ayrshires, writes that he will go to Canada in June for the purpose of selecting a shipment of cattle. Included in the lot will be a carload for the newly established Ayrshire breeding plant, Penobscot Farm, Cool, El Dorado County.

McFarland states that there is much interest in Ayrshires in El Dorado County and that he has recently sold

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Anoakia Breeding Farm

Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion and Don Castano, five gaited saddle stallion, winner in many prominent shows.

Mammoth Jacks

We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

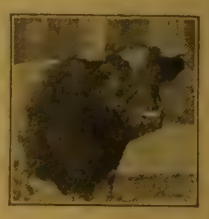
Poland China and Berkshire Boars

Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited

Anita M. Baldwin
Santa Anita Calif.
W. H. Taylor, Supt.

What is a Shorthorn Bull Worth?



If a registered Shorthorn bull during his life sires 100 calves worth $50 more per head than calves from the same dams by a scrub bull he is worth $500. If they sell for $10 more he is worth $1,000. If $20 more, he is worth $2,000.

But suppose they sell for $50 more—what is he worth? He is actually worth $5,000 in gold.

It will pay you to use a high class Shorthorn bull. He will cost much less than his value.

You get paid for quality and pounds both at the beef markets. Many a 1,600 pound Shorthorn cow yields from 7,000 to 10,000 pounds of milk per year.

AMERICAN SHORTHORN BREEDERS' ASSO'N.
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Grand Champion Berkshire

Introduce this blood into your herd by the purchase of young pigs—a sow or daughter of

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the grand champion of the state. We breed for pork and prolificacy. — We sell at reasonable prices and guarantee satisfaction.

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Booking orders for spring pigs sired by Long Jumbo and Yates' Big Orphan and out of prize winning sows. Strictly big type at reasonable prices. Complete satisfaction guaranteed.

R. J. Yates, Orland, Cal.



ABSORBINE *STOPS LAMENESS*

from a Bone Spavin, Ring Bone, Splint, Curb, Side Bone, or similar troubles and gets horse going sound. It acts mildly but quickly and good results are lasting. Does not blister or remove the hair and horse can be worked. Page 17 in pamphlet with each bottle tells how. $2.50 a bottle delivered. Horse Book 9 R Free.
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Prize Winning Berkshires

Two High Class Jr. Boars, choice $65.00. Six Fall Boars, choice $50.00.
Sired by Ames Rival.

F. P. Hall Perris, Cal.

Some of the finest
GUERNSEYS
in the West are at
Hollow-Hill Farm
Colton, Cal.
Only Bull Calves For Sale

two cows, Ravendale Rebecca and May Manning of Rockbridge Farm, to The Hill Farm. The Penobscot Farm has purchased a young bull, by Willowmoor Robinhood 32d, from McFarland.

To Develop Pure Bred Live Stock

The Board of Trade of Yolo County recently called a meeting of the leading live stock men of the county for the purpose of working out a plan to make Yolo one of the leading live stock counties of the West. Some of the oldest and most widely known herds and flocks are located in that county and it is hoped that through organization and cooperation the number will be greatly increased. A committee consisting of Frank Morris, Henry Eakle, W. J. Bemmerly, Edward Bullard and C. H. Hopkins, was appointed to work out a plan of action.

Choice Durocs

H. P. Slocum & Son, Willows, have recently sold five choice Duroc gilts and a boar to the Elliott-Brant Rancho, Los Angeles. It will be recalled that last fall the Elliott-Brant Rancho purchased a boar from the same firm, and afterwards sold him to an Eastern buyer for $1000.

Will Sell Shorthorns October 16

Dr. H. M. Elberg has claimed October 16, as the date on which he will hold a public sale of Shorthorns from the Roselawn herd. The forthcoming sale will be made in order to close up a partnership arrangement existing between Dr. Elberg and the Gibson estate.

A feature of the sale will be the offering of the splendid bull Crescent Dale. This bull is one of the top bulls of the West. He is not only an excellent individual, combining unusual thickness and mellowness of flesh with rare smoothness and quality, but he has demonstrated his ability as a sire.

All the females to sell will be bred to him or to the younger bull, Roselawn Champion, junior champion at the 1918 state fair. The sale will be held at Roselawn Farm, adjoining Woodland.

More Good Herefords

The Conejo Ranch, Newbury Park, recently purchased 16 choice Anxiety-bred heifers from J. H. Tschudy of Kansas City. Bert Manley selected the cattle.

Cebrian Shorthorns to Sacramento

Edward Cebrian of San Francisco who purchased the entire herd of Shorthorns formerly maintained by J. K. Macomber at his Paicines Ranch now has them installed at his ranch just west of Sacramento. The herd consists of 450 head of all ages and included in the lot are many of the choicest bred females owned in the West. The herd as it stands at present represents three famous herds, namely, the Howard, Macomber and Elmdorf collections, and constitutes a highly valuable foundation from which to produce breeding stock that exert large influence on the cattle of the state.

$332,100 for 173 Herefords

Eastern advices state that on May 6 and 7 O. Harris and Sons of Harris, Missouri, sold 173 head of Hereford bulls and females at public auction for a total of $332,100, an average of $1919 per head. Twenty bulls brought $129,100, an average of $6455, and 123 females sold for $203,000, an average of $1601.

Among the chief sensations of the sale was the selling of the four-year-old bull, Repeater's Model, to J. R. Smith of Fayetteville, Tennessee, for $35,000. This bull, counted by many to be the greatest bull the Harris' ever offered, was sired by Repeater and out of a Disturber dam. Repeater 191st, the undefeated senior calf of last year, sired by Repeater and out of a Beau Donald 5th. dam, was sold to Jos. J. Rezac and Sons, Tabor, South Dakota, for $26,000. Repeater 134th, a two-year-old son of Repeater, sold to O. G. Lee of Kansas City for $20,000, and the senior yearling, Repeater 194th, was taken by William Galloway of Waterloo, Iowa, and Dr. Wilbert Shellinberger of Chicago for $19,000. Two two-year-old heifers sold for $5,700 each.

Shorthorns to South America

The American Shorthorns Breeders' Association has assembled a collection of Shorthorns for shipment to South America. The cattle were secured from Illinois, Wisconsin and Minnesota breeders and cost from $1500 to $6500 per head.

VALUES IN THE HORSE

An Ohio farmer who is very enthusiastic over good and dependable draft horses, especially Percherons, gives the following information regarding six big mares with which he started some year ago.

The fact that the horse must be a part of every farmstead is undisputed, and now that we have been shown how we can economically utilize this power to do all our work, heavy or light, without additional expenditure, we are indeed in a fortunate position. The flexibility of the multiple hitch to suit any size field or any size farm is a great item.

When the idea was first broached to me, I was as skeptical as any doubter, but after seeing just what this hitch will do and using it as I have done on my own farm, I am thoroughly convinced as to its practicability, flexibility and economical usage in our everyday farming by everyday farmers.

The other day I stood watching one of my teams in the field, and when I noted the ease with which those six big Percheron mares pulled that two bottom "14" gang plow, breaking a heavy clover sod, the thought came to my mind as to just what those six mares meant to me in a financial way, to say nothing of the pleasure of seeing and owning those good old brood mares, so I took out my pencil and jotted down a few figures that I can vouch for as being accurate.

The six mares that happened to be hooked that day had an average age of 11½ years, had been owned by me an average of 6 years, and their initial cost to me represented the sum of $3,317.50, or an average of $570 each. During my ownership of them they have produced offspring that have sold either for cash, or I have been offered cash for same, and have retained them for my stud, to the amount of $8,685.00, or an average sale of produce of $1,470.83 per mare. I know that if I offered the six for sale tomorrow morning for $3,000 I would not have one left by nightfall, and I know that these faithful workers have more than earned their keep by their daily toil in the fields, to say nothing of the tons of manure they have produced to fertilize the soil of my farm.

The interest on my investment of $3,317.50 for these six matrons, at six per cent for six years amounts to $1,196.30. Deducting this from the $8,685.00 realized from the sale of their offspring, still shows a net profit of $7,489.70 or over $850 more than double the original cost of the mares. This does not take into account the show yard winnings of these mares or their produce, which amounts to several hundred dollars.

GRANGE ON COMING LEGISLATION

Commenting upon any action which congress may take in the special session just called, the national headquarters of the Grange at Washington writes:

It is a foregone conclusion that the work of the special session will be a queer jumble of the things which must be done to continue the functioning of government and the things which can not be avoided to meet the demands of business. Agricultural interests must enter into the hurly-burly of such a contest as this all implies; what it means as to success and the means of achieving success is only too plain.

The great interest of the general public in the farmer is everywhere evident, but it is equally evident that for the most part this interest centers in what and how much the farmer may be induced to produce, not in how well the farmer may be recompensed for his labor. The wave of farmer organization sweeping over the country is also noted in every quarter. A principle based on history and human nature has been set down in these words: "No reform has ever gone far or accomplished permanent results unless it has developed its leaders from the ranks of those most affected. There is an inherent danger in the progress of any reform movement unless it is directed by those who know of their own knowledge every feature and every turn of the currents of life and thought and occupation of the class most affected by the change and which is the party of the first interest."

The Grange fully appreciates the depleted larder of the world and urges its members to produce as largely as possible of the needed foods and textiles; but the Grange stands also on this principle:

"A prosperous and progressive agriculture, with an independent, self-respecting citizenship in the open country is the surest guarantee of an enduring national life. Farming must be made as profitable as any other occupation involving the same amount of investment, business ability and hard work, or our democracy must fail and our people go hungry."

Col. W. C. Lookingbill
Auctioneer
"Specialist" in Pure Bred Stock, Dairy Cattle and Real Estate
Will Appreciate Your Work
Address: Riverside, Calif.
P.S. - Will buy any good Dairy Herd or Beef Cattle

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Pyramid Pumps
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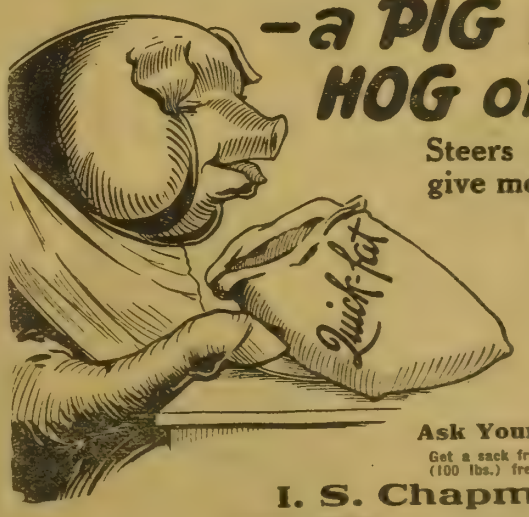
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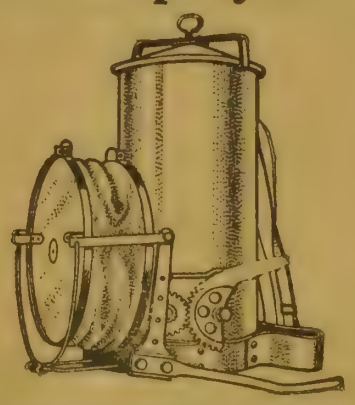
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Garden Pests

By E. Ralph de Ong

IT is so common to give in millions or other inconceivable figures the number of dollars of loss which comes from various pests that it has become trite and perhaps of little force, but the gardener who finds his crop withering and dying because of the exasperating pests has a much better opportunity to "visualize" the real loss which they occasion. Likewise, when he pays good "long green" for appliances and chemicals for controlling the pest he has other proof of the cost of these pests. But the wisdom of this expenditure to save a greater loss is not contested. We are glad to give here a few hints by Mr. de Ong:

Aphids or Plant Lice

Spray the plants at the first sign of infestation with the following preparation:

	Large amount	Small amount
Nicotine sulphate (40 per cent)	6 oz.	2 teaspoons
Fish oil soap or laundry soap (dissolved)	2 lbs.	1 inch cube
Water	50 gals.	1 gal.

The amount of soap varies with the hardness of the water. Use sufficient, however, to make the water sudsy. Apply the spray with an angle nozzle so that both sides of the leaves will be wet, care being taken to cover every insect as only those hit by the liquid will be killed. This spray requires several hours to reach its full effectiveness.

Strong soap solutions, one pound to six or eight gallons of water are also effective, but are more dangerous to the plant.

Thrips

These insects feed similarly to the aphids, but are more inclined to cause the leaves to turn pale and dry up. Keep the plants in a thrifty condition and if necessary spray with the same formula as for aphids. The illustration shows a typical case of bean thrips injury to foliage, the black excrement on the upper leaf being typical of the work of the nymphs. The dark spots on the lower leaves are the adults shown in natural size.

Squash Bug

A mid-summer pest of pumpkin, squash and to a less degree, of melons. No spray will kill the insect which will not also injure the host plant hence trap cropping and hand picking must be resorted to. Melons may be protected to a certain extent by interplanting with squash as a trap crop and when the latter is attacked spray it with pure kerosene; this application of course will injure the squash. Hand picking of the adults, nymphs and eggs when first found in the garden will hold them in check. The bugs usually gather in sheltered places in trash or under boards lying on the ground where they may be taken quite easily.

Diabrotica

A green beetle with black spots.



Looks Bad, Smells Bad, Is Bad

A serious pest wherever cucumbers and other garden truck crops are grown. An enlarged view of a squash bug. Also note at left eggs showing same enlargement.



Not Large Enough to See but Effects are Visible

The bean thrips which cause the ruin of these leaves are not very plainly seen in the engraving but the destructive nature of the pest's work is plainly shown. The technical name of the beast is Heliothrips fasciatus.

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The cucumber beetle is similar to this insect but is slightly smaller and with three black stripes on the back. They feed on the principal garden crops, alfalfa and many decorative plants. For the latter hand picking is the chief dependence. Vegetables may be sprayed with arsenate of lead (the neutral or basic type being the safer), four pounds to 50 gallons of water. Apply carefully on both upper and under sides of leaves. The long, slender antenna distinguishes this insect from the beneficial coccinellids, or ladybirds, the latter having a very short, knobbed antenna often concealed beneath the head.

Cabbage Worm

This insect attacks cabbage, cauliflower, brussels sprouts, nasturiums and other plants. Spray the plants up to the time they are half grown with arsenate of lead, three pounds per 50 gallons of water, combined with two pounds of dissolved fish oil soap or resin soap to cause the liquid to spread over the leaves. Hand picking may be resorted to in small gardens.

Cut Worms

Fat, greasy, naked caterpillars which feed on the stalks of young tender plants. These worms work at night and through the day are found buried an inch or two in the ground just at the base of the last plant fed upon. By scraping away the soil the worm can usually be found and killed. Poisoned bran bait is most effective when they are abundant. For small areas mix four pounds of wheat bran, three ounces of white arsenic, one pint of strong molasses and about three quarts of water or enough to form a crumbly mass. This bait may be scattered around the plants where the cut worms have been feeding, or better still, broadcasted over the plot before planting. Dried lumps of the bait should be gathered and destroyed as this is dangerous to poultry and other animals. Fresh, green alfalfa dipped in a solution of arsenic, one ounce to five gallons of water, has given good results when scatterel about the garden after night. Finely sliced raw potato dipped in the powdered arsenic is also of value.

Tuber Moth

The larva of the moth burrows in potatoes, and also feeds on the leaves and stems of the potato plant. Use clean seed, plant deep and hill up well. Keep wilting tops away from the tubers when the latter are being dug. Do not leave the potatoes exposed at harvest time, especially during the afternoon and night, where the moths will have access to them. Clean up all the small and broken potatoes left in the field and use them for stock feed. Infested marketable stock should be fumigated before being stored for the moth breeds freely in the storage room.

Slugs and Snails

Scatter hydrated or air slaked lime freely over the ground about an hour after dark. These animals are feeding at this time and thus a better opportunity is given of covering their bodies with the lime. Choice plants may be protected by a border of lime, three or four inches wide, spread entirely around the plot.

Gophers

The cheapest method of control is by poisoning, which should be supplemented by trapping, flooding and fumigating with carbon disulphide.

Poisoning. The following formula has proved the most successful:

Sweet potatoes, parsnips or carrots	8 quarts
Strychnine alkaloid, powd.	¼ ounce
Flour paste	½ pint
Saccharine	1-16 ounce

Chop the vegetables, or cut them with a knife, into one-half inch cubes. Make a thin paste of flour and water and boil for a few minutes. Stir the strychnine and saccharine into one-half pint of the cooked paste and pour it over the chopped vegetables, stirring until each piece is coated. Two or three of these cubes are to be dropped into each runway. Locate the main runs by means of a steel prod, drop in the poisoned bait and close the opening. Poisoning is most successful in the late fall, before green feed starts and after the first heavy rains.

Carbor disulphide may be applied by means of a ball of waste saturated in the liquid and dropped into the run, or the gas may be pumped into the burrow with any of the special machines which are on the market for this purpose. In either case the opening into the run should be closed immediately after charging. Carbon disulphide is an explosive material and should be kept away from fire.

GRAIN ELEVATOR IN ALAMEDA COUNTY

H. T. MOHR, who is a progressive farmer in the Amador Valley with a thousand acre ranch near Pleasanton in Alameda County is one of the first California wheat growers in the central part of the state who has grown thoroughly tired of throwing away thousands of dollars annually for wheat sacks and unnecessary labor in handling them and recently completed a 40,000 bushel storage and shipping elevator to handle his crop in bulk in time for the next season.

This Amador Valley farmer is a native son born in Alameda County 61 years ago. He has studied farming from all its angles and is analyzing his job from the point of view of getting the greatest degree of efficiency in every phase of his business. "Progressive" spelled in capital letters is the adjective describing Mr. Mohr.

There are 14 storage bins in the Amador Valley Farmer Elevator as it is called, four of these bins are 10 x 10, four are 5 x 10, and there are six overhead bins in addition. The capacities of the overhead bins range from six to eight hundred bushels, and from 2100 to 4200 bushels for those on the lower level. The eight larger bins are all hoppered, and with the overhead bins all feed by gravity into the elevator boot, permitting the handling of the stored grain in the most economical method possible.



A Farmer's Elevator

Elevator built by Mr. Mohr of Amador Valley. A familiar sight in the East but one of the first in California. Bulk storage of grain is growing.

This elevator cost $15,000 and is built of wood in the typical style of grain elevators in the Pacific Northwest, and Eastern and Middle Western states. It is equipped with the latest type of elevator, automatic scales, automatic dumping machinery and motive power. Its foundation is a concrete slab 18 inches thick. The building is 33 x 30 feet and 52 feet high. The elevator and the automatic scales handle 1500 bushels of wheat per hour, and Mr. Mohr has several grain tight wagons with end gates that may be removed to control the delivery of wheat into the receiving pit under the floor of the structure.

While the builder is well satisfied with the bulk handling equipment he is frank to say that had he known about the designs prepared for several cooperative farm organizations for grain elevators and loading stations in which the fireproof, metal grain storage bins are incorporated, he would have installed such a structure instead of the wooden elevator he now has because of the reduction in the fire risk, the absolute protection against rats, mice, and other vermin, and the increased storage capacity obtainable for the same investment of time and money.



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Fertilizer and materials mixed to balance every soil. Bureau of testing and advice free on all horticultural and agricultural subjects. 1022 Washington Bldg., Los Angeles. Phone 62907; res. 16116.

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THE MISSION HATCHERY
Can now supply for May and June delivery,
WHITE, BROWN, BUFF, LEGHORNS
Baby chicks of quality breeding, hatched right, and priced right, and shipped to arrive safely. Express or parcel post. Large or small lots. Also booking orders for June delivery. Barred and White Rocks; Black and White Minorcas, R. I. Reds.
Circular and prices for the asking.
The Mission Hatchery, Box 27, Campbell, California.

Baby Chicks For Sale—250,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock. 25, $3.50; 50, $7.00; 100, $12.50. Special prices, 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Shipped safely anywhere West of Rockies. Finest hatchery in the world. Established 1898. Must Hatch Incubator Company, 438 Seventh Street, Petaluma, California.

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns, CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

It's like groping in the dark to attempt raising poultry successfully without some knowledge of the business. Poultry for Profit tells you how to house, feed and raise chickens, ducks and turkeys successfully in California. It contains 225 pages with 18 pages of illustrations and bound in cloth $1.00 postpaid. Cultivator Publishing Co., 115 N. Broadway, Los Angeles, California.

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It's our business to improve egg production for you. We have the stock planned for your success. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for 20 years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

S. C. White Leghorn Chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockerel at Pacific Coast Land Show. We advise placing orders early for spring delivery. A. O. and P. M. Forster, 2916 Otis Street, Berkeley, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs, $2.50 per 15 eggs. Chicks 30c each; 7 pullets May hatch, laid 12 dozen December, 10 dozen January. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California.

Baby Chicks from my thoroughbred, heavy-laying strain of S. C. White Leghorns. Am booking orders now for May and June delivery at $11.00 per 100, $100.00 per 1000. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

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Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

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White Leghorn Baby Chicks every week, good strong youngsters from fine layers. Also other varieties. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

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Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo Schmitt, Box 263 Corcoran, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARMS, San Leandro, California.

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White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGAINZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

FARM LANDS FOR SALE

British Columbia—Choice of three mixed farming ranches in Central British Columbia, partly improved. GOOD ARABLE LAND. (1) 160 acre, including two buildings and one-fifth acre in town, 2 miles away. IDEAL DAIRY RANCH. Ry. & STEAMBOAT. (2) 330 ACRES, will grow ALFALFA, TIMOTHY, on lake. Plenty RANGE SURROUNDING. Ry. and steamboat. (3) 524 ACRES. Small house and barn, on lake front. 48 ACRES MEADOW, IDEAL STOCK RANCH. 30 miles from Grand Trunk Ry. Big game and best fishing. Plenty grass and extra cattle range from B. C. Government at low rental or for purchase. Owner is experienced British Columbia Land Surveyor in delicate health. He will, in each case, give two years option to purchase at $110. Semi annual rental, in advance, after examination. OWNER WILL PAY TAXES. State in first letter, whether interested in CATTLE, HOGS, SHEEP, Dairy Stock, GRAIN, or a mixture. Also please state your resources. J. H. Brownlee, CANADIAN LAND SURVEYOR, 403 Peoples Saving Bank Building, Sacramento, California.

Owner Has For Sale Two Excellent Ranches; near Orange Cove, Fresno Co., 140 acres of fig, grape, citrus, olive or garden land. Suriace water, 7 to 10 ft., lift for irrigation 50 ft., two miles to railway station and market. Fast growing section. Worth double what I am asking; $150 per acre, one-third down; or $175 per acre in twenties. IN FOOTHILLS, in southwestern part Tuolumne Co., 976 ACRES covered with oak, enough to pay for the land; cabin of five rooms, sheds, corrals, 100 acres under the plow, 140 acres hogtight fenced pasture, 720 acres cattletight pasture, fine rich grazing for cattle and hogs. Rounded hills, rich soil; prime for grapes, olives and figs. School house near, R. F. D. on Yosemite Highway, 7 miles to railway. $16 per acre, one-third down. C. P. Metcalf, 326 W. Ave. 54, Los Angeles.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator. Box B. A. J.

Mountain Ranch—334 Acres, 90 acres under cultivation, 30 acres Bearing Orchard, balance in Timber, Oak and Pine. Free Water, deep, rich soil, eight-room house, 100 tons hay, barn and out buildings. Will subdivide. Price $7500. Terms. Address, Paradise Ranchita, P. O. Box 123, Paradise, Butte County, California.

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For Sale — Imperial Valley's finest fruit and alfalfa farm for sale at a bargain. 160 acres. Earliest grapes and apricots in the United States. C. A. Myers, 1119 Haas Building, Los Angeles.

For Sale—120 Acres, one mile from Coachella, suitable for DATES, grapes, alfalfa. Partly improved. THIS IS A SNAP. INVESTIGATE. Bargain. Box 624, Coachella, California.

Profitable 387 Acre Grain Ranch. Fine farm home, Stockton, three miles; bargain for real farmer, $35,000. C. A. BODWELL, Lakeville, California. No agents.

For Sale—90 Acres well improved alfalfa ranch. Best located in San Jacinto Valley. If interested address B. R. Gehart, San Jacinto, California.

100-Acre stock or dairy ranch. Situated north border of town of Lathrop, on highway; suitable for subdivision. Mrs. S. G. Reyner, LATHROP, California.

For Sale—10 Acres, deep well, pit cabin, chicken house, few trees, berry vines, two acres barley, $1050. At your terms. Geo. Moody, Acampo, California.

WANTED

Wanted — Every rancher to know about the National Back Rest for tractor and implement seats. Quickly attached and detached without tools. Lots of comfort, spring and strength. Just what you have been looking for. Price $3.00 delivered. A few good agencies open. Carl G. Jorn, 57 Plaza Square, Orange, California.

Wanted—Place as foreman. Advertiser is thorough in all lines of farming, fruit growing and the care of live stock. Experienced in working all kinds of labor, both tenant and wage systems. Address, Box 22, Care of Cultivator.

We Want Good Men with Small Capital to act as our representatives, open branch stores and sell our line: Teas, Coffees and spices direct to consumers. Don't delay. Write today. Best Coffee Co., 605 Crocker Street, Los Angeles, California.

Agricultural Efficiency Expert desires to give his service for managing ranches on efficiency basis. Herman Kumetat, P. O. Box 750 or call 842 Orange Street, Chico, California.

Wanted to Hear from owner of good farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minnesota.

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

Feeder Hogs Wanted. R. B. & N. Ranch, Waukena, Tulare Co., California.

CATTLE

BUTTE CITY RANCH
SHORTHORN CATTLE, SHROPSHIRE SHEEP, BERKSHIRE HOGS, SHETLAND PONIES. Stock for sale at all times. Second Farm Sale—all breeds—August 2, 1919. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale—35 Head high grade Holstein cows fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch. Hannon Bros., Third Street, Lankershim. Care of Chas. Irwin.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery Street, San Francisco, California.

For Sale—20 Registered Holstein Cows and Heifers. G. U. Clark, Hanford, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—Registered Guernsey bull and heifer. P. J. Weisel, Santa Fe Springs, California.

Registered Holstein Bulls from high producing dams for sale at reasonable prices. Also a few choice females. McAlister Sons, Chino, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced, California.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Ayrshires — Pure bred bull calves ready for service. Redwoods Ayrshire Farm, La Honda.

RABBITS

For Sale — Rabbits, New Zealand and Flemish Giants, young stock, Paul Kruger, Watsonville, California.

For Sale — Thoroughbred rabbits, all breeds. G. O. Tetley, 190 Edgewood Place, Riverside.

GOATS

For Sale:—Milch Goats. R. S. Payne, 229 North Los Angeles Street, Los Angeles. Telephone Main 7533; Home 13651.

DUCKS

Mammoth Pekin Duck Eggs for hatching $1.00 per dozen, $7.00 per hundred. August Surtman, Merced.

STATE HONEY PRODUCERS' EXCHANGE

The honey producers of California are anticipating a great year, and a large number of them have shown wisdom in organizing to cooperate in marketing the coming crop. The association organized is the California Honey Producers' Cooperative Exchange. The general manager is Charles B. Justice, who has been elected as general manager for 15 months from January 1, 1919. The board of directors comprises State Market Director Harris Weinstock; William Gunterman, Calexico; Willis F. Lynch, president, who is elected from the northern part of the state; Herman F. Mellen, Los Angeles; Charles G. Orr, secretary and treasurer; E. W. Horne, Riverside; Fred K. Howard, formerly Kings County horticultural commissioner, now manager of the Southern Valley Honey Producers' Cooperative Exchange. The executive committee consists of Messrs. Orr, Horne and Weinstock. The membership now numbers over 800 honey producers owning in excess of 100,000 colonies. The supplies for the present year have been contracted for, Manager Justice reportporting that there has been a saving of approximately $20,000 to members because of this cooperative purchasing. The trade will appreciate the new style packages which have been adopted by this exchange as a standard, and the exchange proposes to put up a standardized or uniformly graded pack which will win new customers.

TULARE DISTRICT INCREASES PLANTING

Increased acreage in the district around Tulare, to be put under cultivation this year for the first time, will amount to thousands and thousands of acres, according to ranchers coming to Tulare. They say that there is at least 50 per cent more new ground being broken up this year than ever before in the history of the county and that great increases in production will be the result. The new land is being devoted to a variety of crops, with alfalfa as the chief one and with large sections put into raisin grapes, which heretofore have been grown more extensively in the counties to the north of Tulare. Rice, which has been grown only in the lake region in the extreme western part of the county, is being grown this year on lands to the east, where alfalfa and figs are also being grown. Cotton acreage is extensive and promises to be much larger next year, as parties from the Imperial Valley are planning the erection of a gin in Tulare to handle this year's crop and offer a market for future production.

INTERNATIONAL BUYS P. & O.

The International Harvester Company, the largest manufacturer of implement and machinery lines in the world has just completed its line by adding plows, which heretofore it has not manufactured. This has been done through the purchase of the Parlin and Orendorff Company of Canton, Illinois, "largest and oldest permanently established plow factory on earth."

Under the terms of the purchase, the Harvester Company takes possession of the Parlin and Orendorff manufacturing plant and of the various branch houses and inventories on July 1, 1919. It will take over the business as a going concern and the Parlin and Orendorff organization will on that date become part of the Harvester organization and the business will thereafter be conducted by it and in its name.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Fistulous Withers

Please tell me through the Cultivator what to do for a mare that has a running sore on each side of her withers. They are high up and one is nearly on top. First noticed it about six months ago. The mare was never worked, is four years old and has a mule colt a week old. Have washed it and greased it but it will not heal.—Subscriber, Elsinore.

Fistulous withers are caused by a bruise from bumping against a low beam, a limb on a tree or when rolling on the hard ground. Any bump received on those parts is liable to start an abscess. There is very little circulation of blood to those parts so the healing is very slow. Also the cavity that contains the pus is below the opening so it can not drain well. The openings should be made larger so the cavity could be washed once a day by syringing an antiseptic solution to the very bottom. The modern scientific way of treating such cases is to make an anti-toxin of some of the pus and inject it into the flesh in some other part of the body. That treatment you would not understand unless you have kept pace with the modern surgical methods. You had better call the nearest veterinarian to see it once and show you how to handle it.

Pigs Ailing

I am having trouble with pigs. They are born with small teeth above and below where tusks are in grown hogs. They look well until about ten days old when they begin to droop and soon die. In shedding those teeth an abscess forms and the mouth becomes very sore. Now I am nipping them off with pliers and painting the place with iodine but save only a very small per cent of them. Have lost at least 200 pigs. Please advise me what to do and if there is any vaccine that will stop the trouble.—Subscriber, Calexico.

There must be something more wrong than sore teeth. If the sows are all right it is not cholera and I am inclined to think there is something wrong in the surroundings or in the soil. They may be getting it from dirt on the sow's udder. Wash the next sow all over just before or right after farrowing and put her in a clean place and keep her there until the pigs are at least four weeks old. Use plenty of lime about the place and use a good ship dip in the water when washing the sow.

AHEAD FOR ONCE

"Well, we've switched back to winter time."

"Yep."

"Did you turn your clock back the night before the change was due?"

"No, I waited until the alarm rang the next morning, and then I turned it back an hour. First time I ever beat the pesky clock."—Louisville Courier Journal.



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Farm for profit. Nitrogen increases the yields, hence the profits. ARCADIAN Sulphate of Ammonia supplies nitrogen at a low cost.

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For information as to application, write

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Household Department

SONG OF DEBORAH—VICTORY AND PEACE

Beat ye the cymbals and let the trumpets blow!
Said Moses to old Pharaoh; "Let my people go."
So sang Deborah and so sang Barak;
"Praise the God of Israel who brings my people back,
Those who went forth with will and those who tend the gate,
Those who sit in judgment and those who ride in state,
Those who ride the war horse and those who draw the sword,
Ye mighty men of valor, praise ye the Lord."

Gather ye, my children, arise, my soul, arise.
Heaven fought with us; the stars fought in the skies.
Gather ye, my children, from the river of Kishon,
Even that ancient river, the river of Kishon,
From Ephraim's mountain height unto the Jordan's shore.
Call Dan from his ships and Ashur from the moor,
Zebulon with his pen, and Issachar—even Issacher come back."
So sang Deborah and so sang Barak.
—Marian F. Thompson.

I WAS A LAND-ARMY FARMERETTE

By Marguerite Wilkinson in Farmer's Wife

LAST year, in American fields and gardens, many women not trained for such work filled the places of men going to war. And this year, because food will still be greatly needed and labor scarce, farmerettes, as we are sometimes called, will be needed to serve again. Perhaps my personal experience may be of interest to the real farm women.

In obedience to the regulations of The Woman's Land Army of America, I was examined by their physician, a woman, who found and duly certified that my general health was good and that my lungs, heart, spine and feet were sound enough for service. Then on a bright summer afternoon, I drove to Union County Farm Camp at Summit, New Jersey.

It was the largest camp of Land Army women in the state and there were normally about seventy-five women in the unit. It was, moreover, reputed to be one of the most efficient units in the country.

The farmettes lived in a large house at the top of a beautiful hill. I dismissed the taxi which had transported me, and stood, for a moment, looking down a long green slope, across a loveable valley to rolling country and overlapping hills beyond. The hills were many leagues away but I realized that I was looking at a very small part of Uncle Sam's front yard. On a tall flagstaff, in the foreground, I saw the small green and white flag of the Land Army and, above it, Old Glory. With many thoughts urging for notice, I turned and went into the large house, feeling something as a new girl feels at boarding school!

A charming little girl in overalls picked up my heavy suitcase and carried it for me with astonishing ease. She led me to the office of Miss Mabel Denton, the supervisor, to whose ability the girls owe comfort, well being and most of their efficiency.

Miss Denton took me to the dormitory which I was to share with seven other young women. It was a large, airy, well-lighted room. I pushed my suitcase under my bed and sat down on the edge of it waiting to see what would happen next.

All sorts of things happened. A young woman in knee-breeches brought me a pair of overalls and a blue working shirt.

"Did you find your cubby-hole?" said she. "No," I replied, wondering what it might be! It was simply a locker for our hats, coats, gloves, and other superfluous articles. This is only one of numerous "feminine" phrases current in the Land Army. A girl who is working the hand cultivator, for example, is said to be "pushing the baby carriage."

The hands of the clock worked themselves around to five and a great car with honking horn came rolling up the drive with a load of singing girls. They were coming home from the day's work in the fields. I had yet to learn how much vitality, even courage, a girl must have to come home singing. In quick succession, car followed car, until the whole house reechoed to the flat, heavy-booted tread of young women in overalls, who preserved in spite of dusty faces, grimy hands and a masculine costume far from immaculate, the indefinable air of being what they were—girls, not men. A certain spirit of strong, sweet womanliness shines through dust and disguise, showing them for what they truly are.

For an hour there was much running to and fro in the house, clamorous calling out for the use of baths and a heavy demand on the water supply. Then the girls gathered again, quite transfigured, wearing white ducks or fresh ginghams or cool middy blouses and bloomers, with prettily arranged hair and glowing faces. The metamorphosis was so complete that it was startling!

A bell rang and we went to dinner. The seventy-five young women seated at the long tables might well have been students at a boarding school or college save for two slight differences: they looked healthier and they ate their dinner with more energy and enthusiasm.

The dinner was excellent—meat, delicious fresh vegetables, bread and butter, salad and dessert. I was very thankful for I have a stubborn prejudice against poor food. And I had feared that the preverse feminine habit of excessive self-denial might lead these women patriots to limit menus rather too strictly. I heard of one unit in which the girls decided for reasons of patriotism and economy, doubtless, to purchase little fresh fruit and to use meat only once a week. This seems to me to be a mistake. Unpalatable or unsuitable food makes inefficient, slow spiritless workers and reacts on the health. The girls of the Land Army and all girls, are to be wives and mothers in our nation. If anything, these special workers need more food than they are accustomed to in their own homes, rather than less, for they are doing the work of manual laborers, the work of full grown men. Therefore, the fact that the food at Union County Farm Camp is both plentiful and good is one of the most practical and praiseworthy things that can be told about the place. The girls with whom I ate that day were not lean and haggard. They were rosy and well filled out. They laughed and sang from early in the morning until late at night; and their work was real and heavy.

After dinner, each girl spent the evening as she pleased. Working clothes were laundered to be ready for the next day; thermos bottles, which hold he daily ration of milk, were washed and aired; some sang; others read, others told fortunes, others sat and "visited."

At nine o'clock we were all in bed, "Good night, Peggy!" said one of my new fellow laborers. Surnames were not even mentioned among us and diminutives were considered in better taste than real names of three syllables.

"Good night, Polly!" I replied and by ten everybody was asleep.

As soon as I fell asleep, it seemed to me, I was awakened by the jangling of a wretched bell to discover that it was half past five and time for all good farmerettes to don overalls. With a clumsy effort I climbed into the long, stiff folds of my bifurcated khaki garment.

On my way down to breakfast I passed a large mirror and was obliged to admit to myself that not all farmerettes look beautiful in overalls but I soon learned every possible reason for their use. Overalls are because we cannot do without them. Any other costume would be plain foolish.

I was assigned to duty in the home vegetable garden of the camp, and I promptly fortified myself by eating a large breakfast of fruit, cereal, coffee, bread and butter, and eggs. Then I went out to meet the squad leader who was to put the new girls through their paces.

This squad leader is a girl chosen for her competence, to direct the work of the squad. She is not, in any sense, a "boss." She does the hardest or most disagreeable tasks herself, sparing the newer and less competent girls as much as possible; she plans the work so as to make it easy as possible for the rest; she helps the backward

time; she listens to complaints or criticisms or requests that a farmer may have to make, reporting them in the evening to the supervisor of the camp, she sees that enough luncheon is provided for her squad.

It is also the squad leader's duty to hurry any girl who seems lazy or wilfully slow. Owing to the patriotic spirit of the girl, this is seldom necessary. Sometimes the squad takes upon itself this disagreeable duty, by singing in no faint tones such a suggestive song as this:

Get a wiggle on, get a wiggle on,
Don't stand there with a giggle on,
Get a wiggle on, get a wiggle on,
Don't stand there all day!

At seven o'clock the squad leader called us, and we went to the barn for tools. Down the hill we followed her, taking with us hoes, rakes, spading forks, a barrow and cultivator. There were about eight of us in the squad, most of us new. We were set to weeding a large patch of ground covered with a heavy growth of grass. Down on our hands and knees we pulled and pulled. At the end of half an hour I was sure it must be nearly lunch time! We kept on pulling. Our hands were cut and blistered. Our backs ached but we kept still about them. No one wanted to be less of a sport than her neighbor. No one was willing to be the first to groan.

When we thought that we simply could do no more, we were told to hoe the smaller weeds out and rake them into piles. This was a change of position and did very well for a while.

Every time I hoed a weed I seemed to catch a stone, also, on the blade of the hoe! And when I raked, the stones followed the weeds.

Next I was directed to get the wheelbarrow, collect the piles of weeds and carry them to a big rubbish pile at one end of the garden. The stones followed the weeds on to the spading fork and went into the wheelbarrow. They made the load very heavy and when I trundled the big barrow across the lumpy ground I wondered whether it was worth while to maintain an ideal of stoneless well-pulverized soil! How much I had to learn. My admiration for farm people shot up.

I trundled my heavy loads until the squad leader called a halt.

"Is it noon?" I asked. She laughed. "About ten o'clock," she answered. "A good many girls are new today, and we'll all eat a sandwich and get a drink of water and rest five minutes." I felt extraordinarily humble.

Work began again and continued without intermission until noon. Frequent changes were made with the idea of resting our still soft muscles. We dug, we planted, we fertilized, we pushed the cultivator, we weeded on our hands and knees, we learned how to use the tools with force and precision. At noon, there was an ample lunch and a long hour and a half rest. I took it flat on my back.

When I went back to work I felt like a cripple but I kept the pace until half past four, when we tramped slowly up the hill again, very much wiser girls than we had been in the morning, and very weary but not a whit cross or discouraged. I took a bath and went to bed until dinner time. At dinner time I hobbled into the dining room with very rebellious muscles and after eating, at once hobbled upstairs to bed. I stayed there until the dreadful bell announced another morning—and a good morning.

(Continued next week.)

HOUSEHOLD QUERIES

Soft Soap

Can you publish recipe for soft soap using lye made from wood ashes?—Subscriber, El Cajon.

Of course you might use the recipe given on the cans of commercial lye, substituting the lye made from wood ashes instead, but here are some directions given in "Farm Questions Answered," published by the Cultivator.

"Ashes are placed in a barrel on an inclined waterproof bottom with strips nailed or channels gouged in it to conduct the water which leaches through the ashes to a big kettle or crock set under its edge. The bottom of the barrel should be covered with clean new straw and barrel nearly filled with ashes and the water poured on top. As it leaches through it comes out a straw color and its strength was tested in our grandmother's day by the use of a fresh egg. If the egg floated, good; if not, the lye was poured back through the ashes again. The quantity of lye and soap greases, so far as we remember, was entirely a matter of experience. After boiling in a big cauldron the surplus lye and the bones settled to the bottom, and if the soap was too thin and watery it was thickened by adding water. We recall that this soft soap was rather caustic or had an excess of lye."

Kumquat Preserves

Will you please publish a good recipe for kumquat preserves?—Subscriber, Upland.

We have had no experience in making kumquat preserves and are unable to find any recipe. We do, however, find recipes for canned and candied kumquats, which we give below, and these may have suggestions that will be useful. It doesn't strike us that the canning recipe would make very palatable fruit as the kumquat rind is so strong, and would suggest that for preserves it would be better to treat the fruit first as in first paragraph of the candied recipe, then follow ordinary procedure for making fruit preserves.

We will be glad to have readers who have had experience help us out.

Canned Kumquats—Wash and pack in jar. Make a syrup from half pound sugar and pint water, fill this in the jar, cap and clamp, and boil one hour.

Candied Kumquats—Boil kumquats in slightly salted water one minute. Cool, drain and then boil in fresh water one minute. Throw off that water and boil again in fresh water five minutes. Drain.

Measure and add a little less sugar than fruit, enough water to make a syrup to cover. Simmer two or three hours, when they should be clear. Remove and when slightly dry roll in sugar.

Book Review

HOUSEWIFERY

"Housewifery," a manual and text book of practical housekeeping by Lydia Ray Balderston, instructor in housewifery and laundering, Teachers College, Columbia University, published by Lippincott Co., Philadelphia, at $2.00 net.

"The poetry of life always has a practical side to it, and most practical affairs rightly worked out are full of poetry."

"This handbook of practical housekeeping is offered to women in the hope that it may show in some measure how to reduce tasks in the home and how to save time, money, and energy. This book will be of direct help to the many women who do their own work or supervise household employes and who are seeking guidance by consulting reference books as other professional workers do. The book is the outgrowth of many years of experience in housekeeping and in teaching housewifery to groups of practical housekeepers, with emphasis upon the technical processes of the home. It is designed to help not only the individual home woman but to serve as a test for study groups of rural extension and other clubwomen and in the housekeepers' courses given by schools and colleges. Any further study of the sciences, directly or indirectly connected with housewifery, may be carried on by means of the references suggested throughout the book."

The above is from the preface of the book and indicates the general line of its contents. There are, however, 13 chapters touching upon housewifery as a business, plumbing, heating and lighting, two chapters given up to equipment and labor saving devices, supplies, furnishings, storage, cleaning and care, renovation, disinfectants and fumigants, household pests, etc. While this book is intended as a text book to a certain extent, it is so filled with practical hints that every housewife will revel in its contents.

"The hired laborer labors on his own account today and will hire others to labor for him tomorrow."—(Lincoln.) Buy W. S. S. They will help in 1924 to give the children an education; to buy a home; provide insurance, etc.

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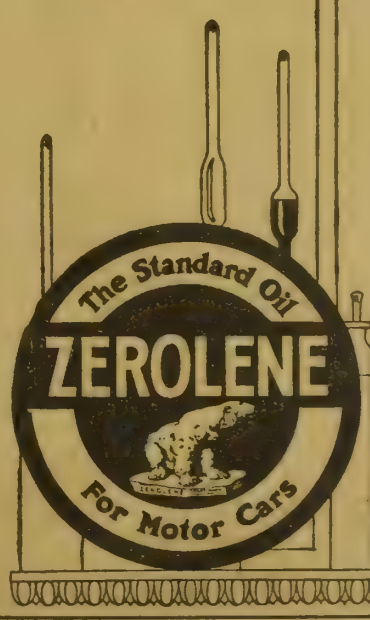
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If interested in Rhubarb or Berries, write for special prices, J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Cal.

Los Angeles Market

Los Angeles, May 21, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 60, lb.; prices to retail merchants in 1-lb. squares, 60-61.

Dairy exchange prices last week on extras:

May '19 ...	14 57	15 57	16 58	17 58	19 58	20 60

CHEESE

Brokers' prices:
California fresh, lb., 30; price to retail merchants, 32-33.

EGGS

Fresh extras, Produce Exchange closing price; 51 doz.; price to retail merchants, 54 doz.; case count, Produce Exchange closing price, 50 doz.; price to retail merchants, 52 doz.; pullets, Produce Exchange closing price, 49 doz., price to retail merchants, 51.

Dairy exchange prices last week on extras:

May '19 ...	14 50	15 51	16 51	17 51	19 51	20 51

POULTRY

Prices to producers: Hens, 35; broilers, 30@31; fryers, 30; roasters, 37; old roosters, 14 capons, 42; ducks, 27; ducklings, 33@34; geese, 25; turkeys, 35@40; squabs, 45.
Belgian hares 14.

LIVE STOCK

The following prices represent those paid by local killers f. o. b. Los Angeles. County point prices are usually $1.00 to $1.50 less than these figures, dependent upon the distance from the city:

Beginning about April 21 the local market for beef cattle made the first decline in price of this season and since that date each subsequent market day has recorded either a weakened condition or a further decline. The present weak market does not seem to be the bottom that will be reached according to local killers. The available supply of cattle ready for market exceeds the local outlet for dressed beef.

It is true that many trainloads of California cattle have been shipped to Eastern markets and many more will be shipped but this movement has not had the expected stimulating effect locally. The receipts here consist largely of culls from the feed lots that are shipped Eastward and the outlet for this grade is limited.

Cattle on the large Eastern markets also has shown a steady decline since the first of May.

The receipts of hogs in Los Angeles continue very light and prices are firm at the high level existing for the past month. Local killers only buy hogs when they are needed to fill orders on hand and do not welcome any increased business while the live hog prices are high.

Liberal receipts of spring lambs with no increase in the demand for the dressed product is the factor that causes this market to continue weak and lower. The best quality lambs are being shipped to Kansas City and Omaha and quite a lot of culls from these shipments are received in this city.

Wethers and ewes in sympathy with lambs are also weak.

Cattle:
Good steers .....11.00@11.50
Medium steers .....10.00@10.50
Common steers .....8.50@9.00
Good cows .....9.00@10.00
Medium cows .....7.50@8.00
Common cows .....5.00@6.50
Hogs No. 1, 175-225 lbs.....19.00@19.50
Hogs No. 2, all other weights..17.00@18.00
Sheep:
Lambs No. 1, 55 to 75 lbs.....14.00@15.00
Lambs No. 2 65 to 80 lbs.....12.50@13.50
Wethers .....10.00@11.00
Ewes No. 1 .....8.00@9.50

POTATOES AND ONIONS

These are the actual prices obtained May 20 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Potatoes: Demand and movement slow. Market dull. Stockton, Burbanks, quality generally good, sacked per 100 pounds, extra fancy 3.00@3.25; Idaho Russets, quality and condition fair, 2.10@2.25; rurals, 2.10@2.20; Oregon, Burbanks, fancy 2.40@2.50; new stock, homegrown, Red Rose and White Rose, 1.65@1.85 per lug box.

Sweet potatoes: Lug box best 1.40@1.50; sacked 4.25@4.50 per cwt.

Onions: Demand and movement moderate, wide range in prices. Old crop, Stockton, sacked per 100 lbs., Browns, best from cold storage 4.25@5.00; new crop, homegrown onions 30 per dozen bunches, Imperial Valley and Coachella Valley, Wax, standard crates, best 3.00@3.50, poorer 2.25 up. Yellow Bermudas, best 3.00@3.50, poorer 2.25.

Carloads: Coachella district f. o. b. usual terms—hauling moderate. Demand active, market firm, no change in prices. Yellow Bermudas, standard crates 3.25@3.40, mostly 3.25@3.35, Crystal Whites, standard crates—present shipments are from previous sales.

VEGETABLES

These are the actual prices obtained May 20, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz., 25@75.
Asparagus: Northern, green, local fancy, 12@14; fancy, 11@12.
Beans: Local Wax 10@11 lb.; Kentucky Wonder, best 11@12.
Beets, doz. bunches, 25@30.
Cabbage: Sales to retailers, best, cr. 3.00; poorer, 2 50.

Carloads f. o. b. usual terms, demand and movement slow, market unsettled, prices slightly lower. Early Winningstadt, California crates, best 40.00@45.00, few 50.00.

Carrots, doz., 35@40.
Cucumbers, bx .of 2½ doz., 175@1.90.
Corn, sweet, per doz., 1.25.
Lettuce: Sales to retailers, best lettuce in cabbage crates, 65@75

Carloads f. o. b. usual terms—demand good for good stock—quality and condition improving. Market steady, prices slightly higher, Iceberg, California crates, best 1.75@2.00, mostly 1.75. California Iceberg stock was higher at shipping points ranging 1.60@1.75 per crate and was firm in terminal markets at 3.50@4.50.

Parsley, doz., 15.
Peas: Local (San Pedro) best, 9@10.
Radishes: Round Red 20 per dozen bunches. Long White, 35 per dozen bunches. Long Red 25 per dozen bunches.
Rhubarb: Local Giant Cherry, 1.25@1.50 per packed box. Strawberry, fancy 1.25@1.50 per apple box.
Spinach, doz., 20.
Squash: Imperial, per 4 basket crate, 75@85.
Tomatoes: Quality and condition generally good; Mexico, best 4.00@4.25 lug box; Imperial, 4 basket crates, 3 25@3.50, small 3.00.
Turnips, doz., 45@50.

FRUITS

These are the actual prices obtained May 20, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtons, fy. medium size, 3.50; loose, 8@9 lb. Oak Glen, Rome Beauties and Pearmains, 3.75@4.00;
Apricots: four basket cr., 1.50@2.00.
Cherries: Black Tartarians, 20@22½ lb.; Governor Wood, 15@17 lb.
Gooseberries: 15 lb.
Raspberries: Local, 25@27 per basket.
Pineapple, lb., 18@20.
Strawberries, 3.50@4.25 per 30 basket crate.
Lemons: Fy. packed, 4.25@4.50; local pack, 3.00@3.50; loose, some tree ripe, 1.75@2.00.
Oranges: Navels, medium and large size, fy., 5.00@5.75; local packed, 2.25@3.00; Tangerines, 6½@7½ lb.
Grapefruit: Local fy., 2.25@2.75 bx; poorer, 1.75@2.25.

BEANS

Demand and movement moderate, market firm, little change in prices. Carloads f. o. b. usual terms—pool prices, sacked per 100 lbs., choice, recleaned basis, Limas 8.00, Henderson Bush 7.00. Warehouse cash to growers, best, choice recleaned basis, Small Whites 6.25@6.30, Large Whites 5.75@6.00, Blackeyes, sacked per 100 lbs., 3.25@3.40, Tepary, 2.25@2.50.

HONEY

Carloads f. o. b. usual terms—practically no demand. No sales reported. Old crop practically cleaned up. Light supplies of new stock just arriving but too few sales to establish market. Beeswax, l. c. l. 38 per pound.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots, handling and commission must be added to obtain retail prices:

Tame Oat .....16.00@22.00
Barley .....15.00@18.00
Alfalfa .....15.00@18.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy 26.00
Standard alfalfa .....19.00@20.00
Stock alfalfa .....17.00@18.00
Standard dairy .....22.00@23.00

GRAIN

Prices on local Grain Exchange:

Egyptian corn 3.10
Eastern Kafir 3.25
Wheat, mixed feed .....43.00@43.50
Milo Maize .....2.65@2.75
Barley .....2.53@2.53¾
Corn, sacked, No. 2 yellow.....3.45
No. 3 yellow 3.40
No. 3 white 3.35

San Francisco Markets

San Francisco, May 20, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extras 61½
Prime Firsts 58½

Prices extras past week and year ago:

May '19 ...	13 59½	14 60	15 60	16 60½	17 61½	19 61½
'18 ...	40½	40½	41½	41½	..	..

Rcts. wk. ending May 19, 555,000 lbs.

CHEESE

Dairy Exchange quotations:

Cal. Flats .....30@31½
Cal. Y. A. fy. 34
Ore. Triplets 38
Jack, full cream .....25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras 53½
Firsts 50½
Extra Pullets 50½

Prices extras past week and year ago;

May '19 ...	13 52½	14 52½	15 52	16 52½	17 52½	19 53½
'18 ...	38½	38½	38	38½	..	..

Rcts. wk. ending May 19, 16,574 cases.

POULTRY

Hens, 36@40; roosters young, 45@50; old roosters, 20@24; broilers, 34@38; fryers, 40@42; ducks, 35@38; geese, 36@38; squabs, 60@65.

Belgian hares, live, 15@16; Jackrabbits, doz., 3.50@4.00.

LIVE STOCK

Cattle—On foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. alive, 11@11½; 1200 to 1400 lbs., 11@11¼; second quality, 11@11½; thin steers, 7@9.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 5@6.

Calves — Light weight, per lb., 12½@13; medium, 11@12; heavy, 8½@10½.

Lambs, yearling, 11@11½; milk, 13@13½; sheep, wethers, 10½@11; do, ewes, 8½@9.

Hogs—Hard grain fed, 100 to 150 lbs., 18¾; do, 150 to 250 lbs., 19¼; do 250 to 300 lbs., 18¾; do, 300 to 400 lbs., 18¼.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers—Choice, 1000 to 1200 lbs., 11½@12; medium to good, 950 and over 9½@10; good grass steers, 1000 and over, 9½@10. Cows: Medium to good, 9@9½; canners, 5@6. Good bulls, 6½@8. Calves, 10@12.

Hogs—175 to 250 lbs., 19; 150 to 175 lbs., 18½; 250 to 300 lbs., 18½; over 300 lbs., 18; under 150 lbs., 17¾.

POTATOES

Price to wholesalers:

Oregon Burbanks, 2.00@2.25; Gems, 2.10@2.35; sweet, per 100 lbs., 5.00@6.50; new potatoes, 4.00@4.50; Garnets, 5.00@6.00.

ONIONS

Demand and movement good, market prices higher. Street sales: Australian Browns, sacked per 100 pounds, fancy, 4.25@4.50. New stock: Crystal Whites, standard crates, No. 1, 3.75@4.00; Yellow Bermudas, standard crates, No. 1, 3.75; Stockton Reds, sacked per 100 pounds, 4.50.

Garlic, 50@75.

VEGETABLES

Wholesale selling price:

Artichokes, doz., 25@50; asparagus, lb. 5@10.
Beans, String, 10@12½; Kentucky Wonders, 13@15; wax, 12@13.
Beets, 1.00@1.50.
Cabbage, Early Flat Dutch, cwt., 2.00@2.75.
Carrots, sack, 4.00@4.50.
Celery, crate, 1.50@5.00.
Cauliflower, dozen, 50@1.00.
Cucumbers, hothouse, box of 30, 3.75@4.00.
Eggplant, southern, 25@30.
Lettuce: Supplies moderate. Demand and movement moderate, market steady, little change in prices. Street sales: Head lettuce, California crates, 1.00@1.25.
Ochra, green, pound, 25@30.
Peppers, Bell, lb., 15@30; Chili, 20@25.
Peas, lb., 5@8.
Rhubarb, Strawberry, box, 1.50@2.15.
Spinach, 75@1.25.
Squash: Summer, 90@1.10; Italian, box, 1.00@1.25.
Tomatoes, Mexican, crate, 2.50@4.25; Imperial, 3.00@3.50; Southern California, 2.50@3.00.
Turnips, yellow, 1.50@1.75; white 1.00@

CITRUS

Per box: Lemons, 3.50@4.00; lemonettes, 2.00@2.50; grapefruit, 3.00@4.00; mandarins, half orange box, 3.50@4.00; tangerines, half orange box, 3.50@4.00; navel oranges, 4.00@4.75; Valencias, 4.50 @ 5.25.

FRESH FRUITS

Wholesale selling price:
Apples: California Newtown Pippins, 4-tier, 3.25@4.00; Winesaps, 4.25@4.50.
Apricots, 2.75@3.25.
Bananas, 7@8.
Blackberries: Southern, 2.50 crate.
Cantaloupes: Crate, 13.50; flats, 7.50.
Cherries: Purple Guigne type and Tartarians, 1.50@1.75 per tray and drawer; Governor Wood, 1.25; bulk, black, 15@17; do, white, 12¼@15.
Figs, 2.50@3.00.
Gooseberries, 12½@15.
Loquats, 6@8.
Pears: Winter Nellis, 3.00@4.00.
Strawberries: Chests, 10.00@12.00; Longworth, 14.00@15.00; crates, 2.25@2.50.

GRAIN AND FEEDS

Barley: Feed, 2.57½@2.62½ per cental; shipping, 2.65@2.75 f. o. b. country.
Oats: Red feed, 2.20@2.40 per cental.
Corn: California yellow, 3.15@3.40 per cental. Egyptian, 2.75@3.25; Milo maize, 2.50@3.05.
Rye: 3.65@3.85.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.66 1-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58 1-3
No .3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 1-3

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran 43.00@44.00; mill run, 43.00. Rolled barley, 52.00@54.00. Linseed oil cake meal, nominal; cocoanut cake or meal, 20 tons, 41.00 per ton; 10 tons, 41; 5 tons 41.50; less quantity, 42.00; smaller lots higher proportionately.

HAY

Under date of May 17, Scott, Magner & Miller says:

Receipts past week 1587 tons. The market throughout is dull and very little interest is shown among dealers, hay being moved from the tracks with difficulty, with very few track sales.

Considerable first cutting alfalfa has arrived, some of very good quality and free from foxtail, grasses, etc., while othar cars are heavily charged with foxtail and foreign grasses, and some of it has been baled prematurely which has resulted in the hay heating in the bale.

Alfalfa arriving in order has been sold at prevailing prices, although the demand has been quite light; but the hay that has arrived in bad condition has been most difficult to place and dealers receiving same are laboring under adverse conditions in disposing of it as such hay cannot be piled in warehouses.

This causes a heavy loss to shippers and we feel we must again caution farmers not to bale their hay before they are sure it is thoroughly cured and to take no chance whatever in this regard as it will be very costly to them in the prices obtained should the hay arrive in bad order.

A few cars of new volunteer oat hay arrived during the week and sold on a basis of $9.00 to $11.00 per ton to the farmer at shipping point. This hay was of excellent quality with the exception of some carrying considerable burr clover and this sold at the lower figures.

Very little is going on in the country districts and few if any sales were made during the week. Most dealers are holding enough old hay to carry them along for some time and prefer to wait its disposition before beginning on the new crop.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market—for prices to consumers' charges of cartage, commission and handling expenses must be added according to conditions.

Fancy Wheat Hay
(light 5 wire bales).....19.00@21.00
No. 1 Wheat or Wheat and Oat Hay .....16.00@18.00
No. 2 Wheat or Wheat and Oat Hay .....12.00@15.00
Choice Tame Oat Hay.....17.00@19.00
Other Tame Oat Hay.....12.00@15.00
Wild Oat Hay.....11.00@14.00
Barley Hay .....11.00@14.00
Alfalfa Hay .....15.00@19.00
Stock Hay .....11.00@13.00
New first cutting Alfalfa, in order .....10.00@13.00
No. 1 Barley straw, bale.....50@80

Citrus Markets

Los Angeles, May 21, 1919.

After six months of successful marketing the navel season closes with prices if anything rather above the average. During a portion of the time abnormally high prices have prevailed. Seedlings, St.

Sulphur



It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards SIX times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100 per cent pure, in double sacks, for Dry Dusting and making Paste—(Atomic Sulphur).

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food, drill into the soil 100 to 400 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR, 100 per cent pure. This has increased various crops up to 500 per cent.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dry Bordeaux, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 DEGREES BE., Sulphur Paste, Nicotine, Blackleaf 40, etc. Fungicides and Insecticides.

Carried in stock and mixed to order.

San Francisco Sulphur Co.

624 California St. San Francisco, Calif.

We are equipped to make immediate shipments. Send for "ILLUSTRATED BOOKLET," also booklet "NEW USES FOR SULPHUR", Price-list, and Samples.

Please state for what purpose you use the sulphur, quantity needed, and date of shipment preferred. Telephone Kearny 871.

WE WANT

Hay, Grain, Potatoes
Cheese, Butter, Eggs
Poultry, Wool, Beans, Honey
and other Farm Produce
Let Us Handle Your Shipments
Quick Sales Prompt Remittance

W. C. Price & Co. 244 Clay St., San Francisco

Mikes., Sweets and other fruits supplying the market during the end of the navel season have all commanded good prices, and for the first time California grapefruit may feel satisfied with its general treatment. Valencias are beginning to take the market with prices which occasionally reach above the $6.00 mark, the greater number of sales, however, running around $5.00.

Lemons are not commanding such high prices but a very satisfactory condition permits regular movement of fruit at fair prices.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 21,060 cars, lemons 5059, total 26,219. To same date last season; oranges 9350, lemons 2698, total 12,048. Central California this season; oranges 3804, lemons 354, total 4158. Last season to same date; oranges 2482, lemons 115, total 2597. Northern California; oranges 244, lem. 2, last year same date 202.

AT THE AUCTIONS

May 14

New York 31 or., 6 lem. Nav. 3.30-6.40, Val. 4.00-6.90, Bloods. 3.85-5.15, Seeds. 4.40-5.05, Sweets. 3.75-4.60, lem. 3.25-4.65.

Cleveland: 9 or, 2 lem. Nav. 4.60-6.05, Val. 4.10-5.55, Sweets. 3.95-4.70, Seeds. 4.25-5.05, Grapefruit 4.20-4.95, lem. 3.15-4.65.

St. Louis: 8 or., 1 lem. Val. 2.45-5.15, Sweets. 3.80-4.00, Seeds. 2.45-2.75, Grapefruit 3.20, lem. 4.30.

Pittsburg: 9 or., 2 lem. Val. 3.80-5.00, Sweets. 3.55-4.75, Seeds. 2.2.95-4.20, Nav. 3.65-4.75, Mikes. 2.05-2.80, lem. 2.55-4.00.

Boston: 11 or., 2 lem. Nav. 4.10-5.70, Val. 4.45-5.80, Seeds. 3.60-4.30, Bloods. 4.45, Grapefruit 5.70-6.50, lem. 3.05-4.75.

May 15

New York: 32 or., 8 lem. Nav. 3.45-6.75, Val. 4.25-6.25, Sweets. 3.90-5.20, Grapefruit 3.00-4.90, Seeds. 4.30-5.20, Mikes halves 2.15-2.75, Bloods. 2.40-2.75, lem. 3.65-4.70.

Boston: 11 or., 2 lem. Nav. 4.10-5.95, Sweets. 3.95, Seeds. 3.85-4.60, Mikes. 5.00-5.60, lem. 2.90-3.60.

May 16

New York: 27 or., 6 lem. Nav. 3.60-6.35, Val. 4.75-6.70, Mikes. 4.75-5.40, Bloods. 4.40-5.25, Sweets. 4.75-5.20, Seeds. 3.10-5.45, lem. 2.60-5.20.

Boston: 9 or., 2 lem. Nav. 4.05-5.65, Sweets. 4.20-5.90, Seeds. 4.50-5.60, lem. 3.15-4.05.

St. Louis: 4 or., 2 lem. Nav. 3.90, Val. 4.30-5.25, lem. 3.30-3.85.

Cleveland: 7 or., 2 lem. Nav. 3.70-5.55, Val. 4.10-6.00, Sweets, 3.95-5.10, Seeds. 3.50-4.65, lem. 2.15-4.65.

Philadelphia: 11 or., 2 lem. Nav. 4.00-5.10, Val. 2.90-6.40, Seeds. 2.25-4.50, Sweets. 3.10-5.25, Bloods. 2.00-4.45, Grapefruit halves 3.00, lem. 3.85-4.80.

May 20

New York: 35 or., 1 grapefruit, 8 lem. Higher. Nav. 3.95-6.35, Val. 4.25-6.30, Mikes. 3.05-6.10, Sweets. 4.30-5.15, Seeds. 5.00-5.65, Bloods. 4.75-5.25, Grapefruit 4.85-5.45, lem. 2.95-4.30.

Philadelphia: 13 or., 4 lem. Nav. 3.35-5.80, Val. 4.55-5.80, Sweets. 2.95-4.55, Bloods. 3.20-4.75, Seeds. 3.15-3.85, Mikes. 4.35-5.90, Grapefruit 3.30-5.05, lem. 3.05-4.25.

Pittsburg: 5 or., 1 lem. Nav. 4.15-5.25, Val. 4.60-5.20, Mikes. halves 2.25-2.75, lem. 4.40-4.60.

Boston: 18 or., 4 lem. Nav. 4.25-6.60, Val. 4.80-7.15, Sweets, 4.35-4.75, Jaffas, 4.25-4.70, Seeds, 4.55, lem. 2.90-4.30.

MARKET NOTES

The onion harvest in the Coachella Valley is about half over. Prices received compensate for short crop. Growers blame shortage on onion thrips.

Alameda County is furnishing about the only stocks of green peas; growers are getting around $4.00 per 70 pound sack.

Colma district of San Mateo County has nearly cleaned out its potatoes. Garnets are now going by straight carloads.

Strawberries: Crop Fresno County 80 per cent of normal, yield 240 crates of 20 pints each. Few straight cars being shipped this year. Condition crop Placer County reported excellent. Three hundred crates per acre being expected. Coast counties crop producing heavily and ripening rapidly. Canners have already begun taking supplies. Deliveries to canners general the ensuing week. About 11,000,000 pints expected from this district this year; 35 per cent to canners.

Carlot shipments of tomatoes are expected to start from the Merced district about June 10; 220 acres are planted this year, slightly over 1918's acreage. In San Francisco district planting of tomatoes is progressing favorably in all directions but many growers are still up in the air as to quantity they intend to put out. Canneries are declining to make contracts claiming evidently that enormous quantities of canned stock are being carried over from last season on account of changed war conditions. Growers will not plant freely without cannery contracts and lacking these, acreage may be decreased materially.

A shipment of cattle for export to Belgium was in the Jersey City stock yards recently. The shipment was bought partly at Chicago, Buffalo and Jersey City and consisted of 147 bulls and 23 steers.

One of the large producers and feeders of cattle in California estimates that more than 20,000 cattle will be shipped Eastward from California this season as compared to approximately 15,000 shipped in 1918.

Shipping of surplus fat cattle from the Imperial Valley has begun. Fifteen trains of stock will be shipped to eastern points between now and July 1, according to reports from the Imperial Valley Live Stock Association. This, it is said, will relieve the congestion and also enable live stock growers to realize good returns for their product. A train of 25 cars of fat cattle left Brawley April 28 for the Kansas City market and 47 cars, made up in Los Angeles County, left here April 19 also for the same market.

Potato growers are holding for high prices for the clean up while buyers are moving cautiously and shipping considerably less stock than during the previous month. The heavy movement up to two weeks ago has largely been put into storage in California which is taken as an indication that supplies will be so plentiful that extravagant prices will not prevail on the Pacific Coast.

Late cabbage in Fullerton district is yielding better than was at first expected. There are but a few seeders and heads are of good size. The county shipped 30 cars the first week of May. The quality in general is fine.

Late estimates show 16,000 acres planted to cantaloupes this season in the Brawley district, with 10,000 acres in the San Joaquin Valley.

Imperial Valley has shipped over 1000 cars of lettuce this year.

Cabbage shipped by the Orange County Produce Growers Association is now netting to growers about $80 per ton.

Carload shipments of onions from Thermal district well started.

Strawberries are being shipped East from Los Angeles at the rate of three or four cars per day.

There is a large acreage of Stone tomatoes in the Fullerton district of Orange County.

AVOCADO GROWERS MEET

The California Avocado Association met in Pasadena May 9-10 and elected directors and discussed matters of interest to 350 avocado growers. The attendance was even larger than anticipated, over 140 being at the banquet at Hotel Maryland. The three years' directors elected were: Y. F. Yaggy, Santa Barbara; G. T. Stewart, and W. L. Hardin, Los Angeles. The name of 26 new members were placed on the roll. These new members represented 17 different communities of Southern California. The membership now aggregates over 200. The exhibit of avocados showed something like a dozen varieties, many of them new, some specimens tipping the scales at two and one-half pounds. The secretary of the association is W. L. Hardin, 623 South San Pedro Street, Los Angeles.

A NEW BLAST TORCH FOR SNAIL ERADICATION

The blast torches for use in the campaign against the snail, Helix pisana, to be conducted by the state commissioner of horticulture and the county horticultural commissioner of San Diego, have arrived and been given a preliminary tryout by D. B. Mackie, the southern field deputy of the state office.

The apparatus is a modification of the vaporizing type of foundry torch and was constructed especially for this work from specifications furnished by Mr. Mackie who has been working upon the development of a torch suitable for this purpose. The flame produced gives off a heat of 2900 degrees Fahrenheit. This flame can be regulated to suit the needs of the operator. The apparatus is equipped with a steel pressure tank and two lines of hose feeding the burners and operates under 70 to 100 pounds pressure. Kerosene is utilized for fuel. It may not be generally known, but kerosene has 116,000 thermic units per gallon against 83,870 for gasoline or distillate. In the present work, which will be under the immediate supervision of Commissioner Gorton, it is planned absolutely to follow, insofar as possible, every foot of ground that shows the presence of the pest. Periodic inspections will be made and the operations repeated from time to time as the needs of the occasion demand. It is believed that it will take a pretty thrifty snail to live through this campaign.

PIONEER IN LEATHER

Over 19 years of success as manufacturers and distributors of leather goods and other articles is marked by the removal of the Los Angeles wholesale department of Lichtenberger Ferguson Company to new quarters at Third and Los Angeles Streets, Los Angeles. The wholesale department now occupies the entire building on the northeast corner.

The company was established in 1900 under the name of Los Angeles Saddlery & Finding Company. The principals at the head of the organization today were associated with the company in the beginning, and include Louis Lichtenberger, president; Clarence Ferguson, vice president, and George W. Lichtenberger, secretary. These men enjoy a wide acquaintance among ranchers.

At the present time, Louis Lichtenberger is on an Eastern trip and is spending several weeks at the Norwalk Tire & Tube factory.

WEATHER CONDITIONS

San Francisco, California, May 17, 1919.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.42	39.63	43.95	58	47
Red Bluff	.02	26.18	24.15	88	52
Sacramento	.01	17.20	19.67	86	48
San Francisco	.00	25.84	21.82	70	49
San Jose	.01	18.87	16.43	82	38
Fresno	.00	6.80	8.39	90	48
San Luis Obispo	.00	17.90	20.00	82	44
Los Angeles	.00	8.40	15.43	74	54
San Diego	.00	8.43	9.84	66	54

WEATHER CONDITIONS

San Francisco, California, May 10, 1919.

Stations	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.03	38.21	43.41	58	44
Red Bluff	.00	26.16	23.85	86	52
Sacramento	.00	17.19	19.49	84	44
San Francisco	.00	25.64	21.64	66	49
San Jose	.00	18.86	16.24	76	42
Fresno	.00	6.80	9.25	86	48
San Luis Obispo	.00	17.90	19.91	68	42
Los Angeles	.00	8.40	15.36	68	52
San Diego	.03	8.43	9.75	66	54

What Samson Tire users say:

"Eminently satisfactory"

"Have proven their worth"

"Glad to recommend Samson"

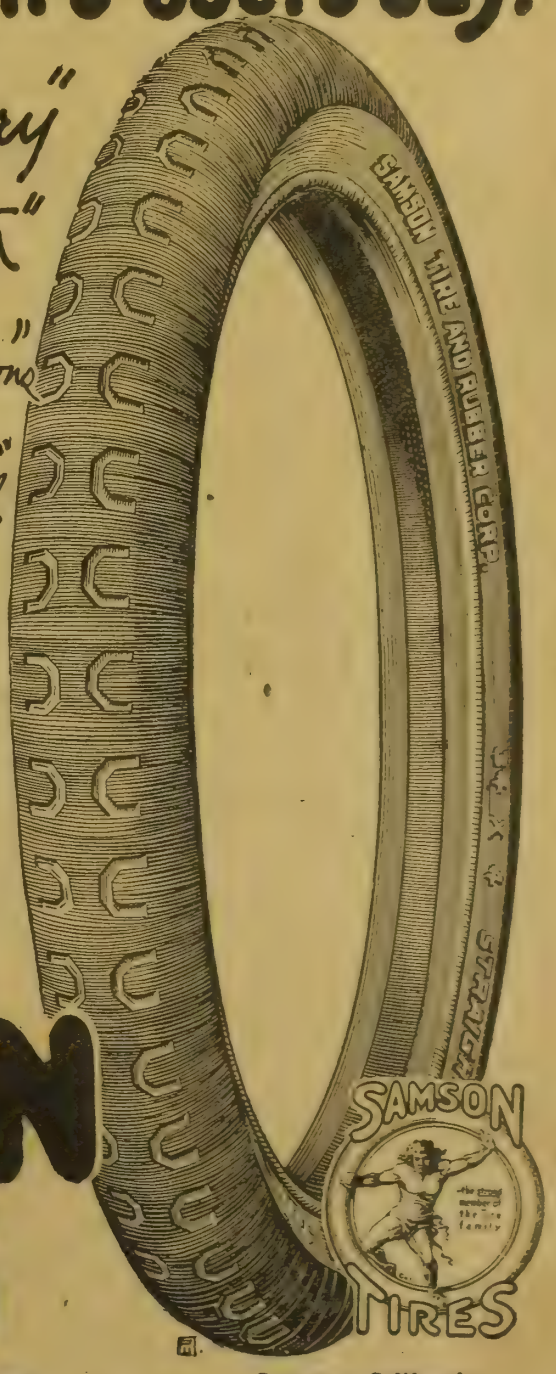
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"Have extra long life"

"Wonderful service"

"Real thoroughbreds"



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FOR

Your Poultry Products

200,000 More Broilers Wanted

(Ten Reasons Why the National Poultry Co., Inc. Should Receive Your Poultry Products

First: The National Poultry Company has set a standard and established a reputation which must be maintained. It will be maintained, because the same principles that have given character to our establishment since we were doing business in a 25 foot, one-story building are maintained in our modern plant.

Second: The National Poultry Company's reputation is built on fair dealings, honest weights, and quick remittances, covering a period of ten years. Ask your own banker about us.

Third: This explains why the National Poultry Company's methods stand out so strongly, why we were unanimously chosen by the Poultry Producers' Association of Southern California, a body of 530 leading poultry men, to exclusively handle 100,000 of their broilers.

Fourth: This is why thousands of California, Arizona, New Mexico and Nevada producers ship us regularly every season.

Fifth: Because we are the largest exclusive wholesale poultry plant on the Pacific Coast. Our capacity is 32,000 live broilers on feed at one time. We have our own cold storage plant on our premises. The only poultry firm in Los Angeles having trackage to the door for handling carload lots.

Sixth: It has been our conviction that in the poultry business, as elsewhere, patronage will always go where it is best treated.

Seventh: It has been our conviction also that the more the producer gets out of his shipment, the better showing we can make for ourselves in increased sales. The new business method is the increased volume of business on a small margin of profit.

Eighth: The National Poultry Company realizes its obligations to continue this same method with increasing usefulness to producers.

Ninth: It is unthinkable now that we should imperil our position by abandoning the policy that has made us.

Tenth: The above methods have always been the standard which J. Will Blackman, president of the National Poultry Company, has applied in building up this business.

Write Us For Quotations

National Poultry Company, Inc.

609 E. Third St. **J. Will Blackman, President** **Los Angeles**

"Ask any man who has shipped to us"

Muscle Doesn't Make Money

Man muscles or horse muscles are no longer profitable on a farm. Farm with power and brains—not with plodding and brawn.

Let us tell you how to invest the cost of a laborer in modern power implements which will make you independent of labor for the rest of your life.

There's a great engine in your automobile that can do a lot of your farm work if you harness it. Lay Porta Power is the harness. It lifts the rear axle so the tires rest against two pulleys mounted on a shaft with a belt pulley in the middle. There's almost literally no wear on tires.

You can move the power where the work is; down to the wood lot to run a Lay Porta Saw; out to the dairy to operate a Lay Milking Machine, a separator or a churn; up to the well to drive a Lay Porta Pump; then back to the house to charge the electric batteries of your Lay Farm Light outfit. Release two levers and the car's ready for family enjoyment.

You can buy the whole Lay equipment for only a little more than the price of one stationary engine —Lay Porta Power; Lay Porta Saw; Lay Porta Pump; Lay Concrete Mixer and Lay Farm Light. Each machine is sold separately. All are guaranteed to satisfy.

Don't guess this or that—write for the facts.

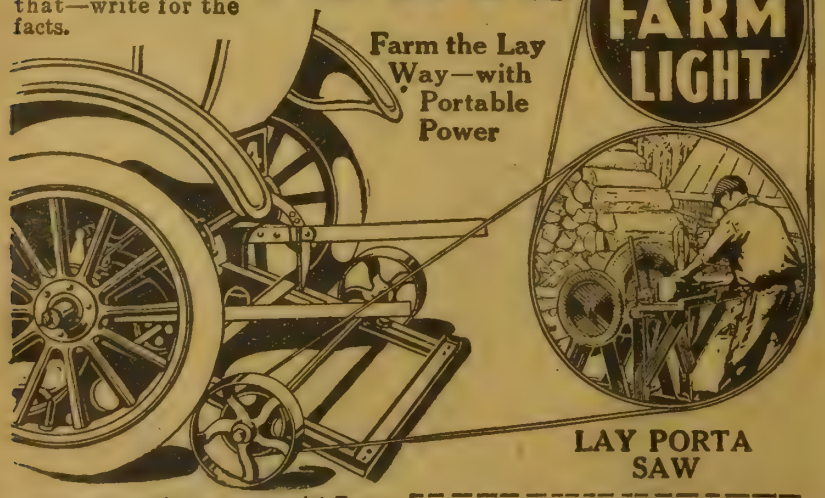
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In some counties we can appoint Farmer Agents. A real opportunity for a man who likes to be outdoors and call on his neighbors. Please tell us about your farm power needs.

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Send full particulars about Lay Porta Power.

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Helpful Hints from Rancho del Martino

By Jean A. Koethen

EVERYBODY knows the Rancho Del Martino at Downey and its hospitable owners, and every White Leghorn breeder and egg farmer knows Mrs. Martin's Leghorns. I have often wondered myself what was the secret of Mrs. Martin's sucess as a breeder. On a recent visit to the ranch I discovered it. Breeders are born, not made, and Mrs. Martin is a born breeder. She has loved animals and birds all her life. " I never saw a horse I couldn't ride", she told me. She calls all her birds by name, knows every little characteristic and idiosyncrasy. As you might recognize the son of one of your school friends of 25 years ago by a dimple or an inflection, Mrs. Martin recognizes birds of various blood lines by the curl of a feather—or something else. I couldn't learn to do it in a hundred years. She knows how without learning. She says that when she first began to breed Leghorns she used to sit in the different runs hours at a time just studying the birds—birds that looked exactly alike to most of us. She could see that they were different, and that is the way she learned to breed for points.

The new cockerel house at the ranch is a beauty. Imagine a long building with an alley running down the middle and 18 little pens on each side, pens just large enough for two or three birds. Most of them contain only two, a male and a female, for here is where Mrs. Martin tries out her matings. She doesn't guess. When a cockerel has proved that he can throw show birds she never lets him go, but he has to prove it first.



Solid Comfort
These chicks have perfect shelter from wind and rain as well as unlimited range.

A Model Brood Coop

Most of the equipment of the Rancho del Martino is of a special character and would not be suitable for use on a farm, but the chick coop is one that could be used anywhere for chicks brooded by hens. It is two feet deep, three feet long, two and a half feet high in front and two feet at the back, and is built of matched lumber that does not admit of a crack anywhere. The floor is tight and smooth and covered with straw, and the slats in front are just the right distance apart to give the chicks liberty and keep the hen where she is most useful. The roof is of shakes and a little board platform before each coop keeps food and water off the ground.

Wire coops 2 x 3 x 2 fit the front of every coop and can be used when required, but this year the coops, some 30 or 40 of them, are set in a row facing the south and just outside the fence which separates the driveway from the big lawn. With the soft straw to cuddle on inside their box of mash and fountain of sour milk at the door, and a chance to run on the lawn, these chicks are literally in clover. Practically all the chicks on the ranch are raised by hens. Hen brooding may not be practicable everywhere, and on commercial ranches satisfactory results are attained by brooding a thousand chicks at once under the same hover, but the finest chicks, Mrs. Martin believes, are raised by hen mothers.



Proper Equipment Pays
Breeding Yards at Rancho del Martino.

Two Good Mashes

Naturally, Mrs. Martin does not tell how she feeds her chicks. She did give me, however, two good mashes which she has tried out and found excellent for egg production. The first is one especially adapted to the era of high prices and limited variety we have just been passing through: Wheat bran, 600 pounds; shorts, 500 pounds; ground oats, 300 pounds; ground barley, 350 pounds; Meatine, 100 pounds; ground bone, 100 pounds; charcoal, 50 pounds; salt, 10 pounds.

These proportions are calculated for

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Save the Baby Chicks

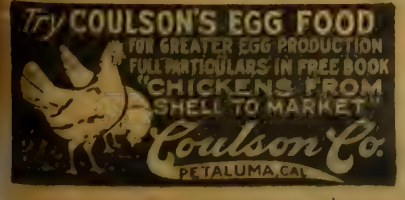
Our book, "CARE OF BABY CHICKS," and a package of GERMOZONE are the best insurance against chick losses. Those formerly losing more than half they hatched now raise better than 90 per cent. To you who have never tried GERMOZONE, we will send postpaid, book and package as above. You pay, if satisfied, 75c; 60 days' trial. We trust you.

Druggists and seed dealers sell GERMOZONE, the best poultry remedy and preventive. For old and young,—bowel trouble, colds, roup, musty or spoiled food, limber neck, chicken pox, sour crop, skin disease, etc. Sick chicks can't wait. Do it now.

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Coulson Co.
PETALUMA, CAL

a ton of mash. When shorts cannot be obtained Mrs. Martin suggests the substitution of 100 pounds each of corn meal, alfalfa meal and soy bean meal. She especially commends the use of alfalfa meal in place of other ingredients that are not available because alfalfa meal gives needed bulk and good color to the egg yolk.

The second mash, which is especially suited to Leghorns, consists of wheat bran, 600 pounds; ground oats, 200 pounds; Sure-milk, 400 pounds; alfalfa meal, 100 pounds; Darlings beef scrap, 200 pounds; corn meal, 300 pounds; fish meal, 100 pounds; ground bone, 100 pounds; charcoal, 25 pounds; salt, 10 pounds.

The scratch feed to accompany either of these mashes consists of 300 pounds wheat, 100 pounds oats and 100 pounds corn, which is reduced in July and August to 50 pounds.

How to Get Pullets

Nearly everybody who raises chickens is anxious to hatch as large a proportion of pullets as possible. The Martins do not care for pullets. They rather prefer a preponderance of cockerels. In order, however, to please those of their customers who are anxious for pullets they mate special pens for the purpose. In these pens a single male is mated to all the hens he can possibly take care of, which is usually about twenty. The age of the male does not seem to matter, it is the fact of the great preponderance of females in the pen that is responsible for a like preponderance of females among the chicks hatched.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, May 2, 1919.—Report for the twenty-sixth week ending May 1, 1919.

With the close of the twenty-sixth week. the eighth laying contest at Storrs is half over. During the first half of the contest last year the best weekly pen record was 62 eggs. In the competition now running, Chickatawbut Farm's White Rocks from Canton, Massachusetts, hold this record with a yield of 63 eggs in the twenty-sixth week. The total for all pens for the week amounted to 4399 eggs, a yield of nearly 63 per cent. This is better than for any previous week, and nearly 100 eggs more than the five-year average for the twenty-sixth week.

From the present outlook, the hens in the Storrs contest will have to hustle if they make any new records for the year. At the end of the first six months last year a White Wyandotte had laid 156 eggs, and two years ago a Barred Rock during the corresponding time had yielded 146 eggs, whereas the best individual record to date in the current competition is held by Rhode Island Red Number 402, that has laid 142 eggs. In the past six months of the last contest the best pen of Wyandottes, ten birds taken together, had laid a little over 1000 eggs, but the best pen record for the first six months this year is held by a pen of Barred Rocks that have laid 961 eggs. In previous years the birds have averaged to lay during the first six months of the contest about 42 per cent of their total yield. On this basis the one thousand birds now competing at Storrs may be expected to lay approximately 145 eggs each before the end of the contest in October.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Jules F. Francais, 961; Laurel Poultry Farm, 874; Ingleside Farm, 752.

White Wyandottes

Obed G. Knight, 912; W. Bradley, 813; Patrick F. Sullivan, 810.

Rhode Island Reds

Laurel Hill Farm, 930; Deer Brook Poultry Farm, 974; Chas. H. Lane, 782.

White Leghorns

A. P. Robinson, 828; Hilltop Poultry Yards, 782; S. G. McLean, 780.

Miscellaneous

Pequot Poultry Farm (R. I. Whites), 757; Chickatawbut Farms (White Rocks), 696; H. A. Wilson (White Rocks), 658.

Stop those Leaks



THE easiest and quickest way to repair leaks in radiators, pumps, water jackets, hose connections, etc., is to use Johnson's Radiator Cement. This will stop the leaks instantly without laying up the car. No mechanical experience is required—all you have to do is remove the cap and pour the liquid into the radiator.

No tool kit is complete without a can of Johnson's Radiator Cement. It overcomes the inconvenience of laying up one's car. A half-pint is ordinarily sufficient for a Ford or other small radiator—for larger cars use a pint.

JOHNSON'S RADIATOR CEMENT

Johnson's Radiator Cement blends perfectly with the water until it reaches the leaks—just as soon as it comes in contact with the air it forms a hard, tough, pressure-resisting substance which is insoluble in water and consequently makes a permanent seal.

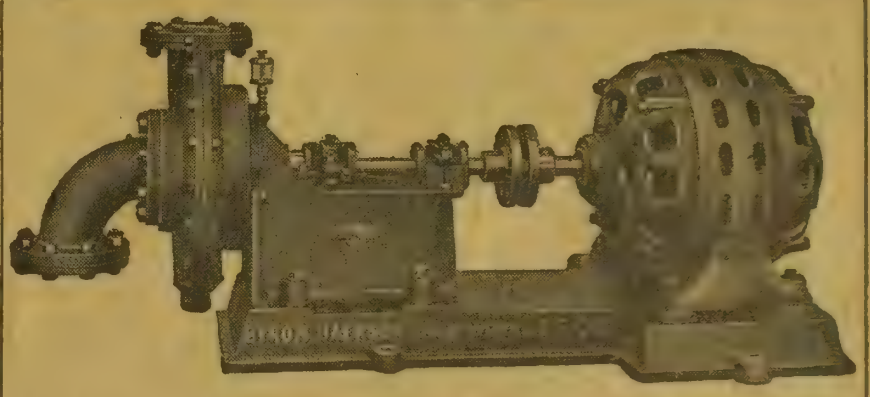
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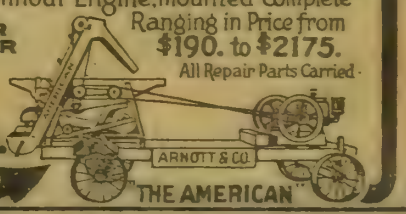
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CA

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — May 31, 1919 — No. 22



Bountiful Crops in a Bountiful Year





Like the teeth of a buzz saw!

YOU'VE stood in awe before a buzz saw and watched it literally tear its way through a piece of material. Being driven at such a terrific speed, it produces results that are almost startling. But if you were to run the buzz saw at a much slower speed, and take some of the keenness off of the teeth, then you would have an action very similar to that of road bumps, ruts and rough places as they rack, strain and wear out your Ford Car or Ford One Ton Truck.

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It has been proved by nearly a million Ford owners that by properly cushioning their machines against road shocks and vibrations with Hassler Shock Absorbers, that you save at least 30% of the ordinary tire and repair expense, and that your Ford's depreciation is decreased a like amount. You also obtain considerable increase in gasoline mileage, due to the smoother running. Hasslers prevent squeaks, rattles and deterioration, for the spiral, conical springs of chrome-vanadium steel compress on either upward or downward movements.

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Hassler Shock Absorbers can be put on in a very few minutes, either by you or your garageman. There are two types, one for all Ford Passenger Cars, the other "Double or Twins" for the rear of the Ford One Ton Truck.

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Don't ride without Hasslers because some one tries to discourage you. They are a quality product—worth their price. The Hassler dealer in your vicinity will put them on for 10 days' trial. Your money refunded if you say so. Write for name of dealer and Trial Blank.

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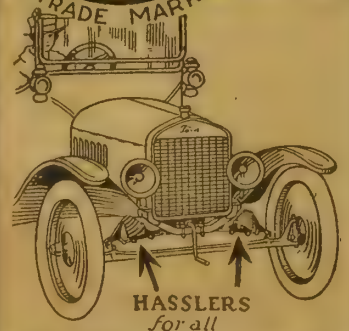
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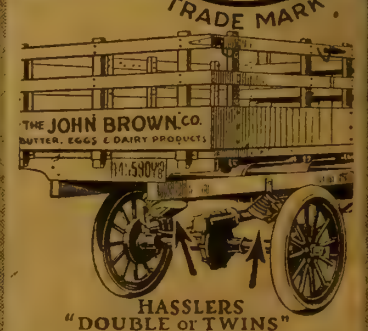


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PATENTED

The conical springs set at the angle shown prevent sideway and allow for the most resilient downward action. The springs compress on either upward or downward movements—do not stretch out of shape—do not allow up-throw. Hasslers last as long as the Ford and make it last.

California Cultivator

Vol. LII, No. 22 Los Angeles, May 31, 1919 One Dollar Yearly

A Prosperous Year for California Growers

THE fruit grower is certainly coming to his own this year. Almost every section gives indications of big crop of high quality fruit, and prices at which larger buyers are willing to contract for future delivery are entirely satisfactory to the most exacting growers. The one most important question at this moment is how may we thin the fruit, irrigate, cultivate, and cure so as to produce a product which will command the highest of these high prices. This the grower is settling for himself, or endeavoring to, for occasionally is heard complaint as to how competent help may be secured, but this is not a question which the grower can discuss for he simply must secure the help which will secure attention and cultural conditions required.

Clippings from the press of the Coast are so intensely interesting that we give herewith a number of them for the benefit of our readers. The first is from

Pacific Coast Packer

Prices offered for the coming peach crop have advanced greatly during the past week or ten days. The San Gabriel Fruit Association, with 158 members, representing an acreage of 2900 acres in the San Gabriel Valley and in the Whittier section, has fixed its price for peaches at $75 a ton. The San Fernando Peach Association has fixed prices upon a similar basis and it is said that the canners who handle 80 per cent of the California peach yield are meeting the advance in price.

Little more than two weeks ago the canners in localities near Los Angeles were offering $50 to $55 a ton for peaches, the difference in price depending upon the variety of fruit. Now the new Stern cannery at Wineville is offering to buy peaches at prices ranging from $60 to $75 per ton for delivery at the cannery. The Golden State Canning Company also has contracted to buy at like prices.

It is reported that the canners had learned that the demand in Europe for canned peaches is going to be large this coming season, and they found that the new cannfng companies in the market this year had already contracted for such large quantities that they had to offer extra inducements to the growers.

The general situation is given in a circular issued by the

California Peach Growers, Inc.

Will now accept orders new crop "Practically Peeled Peaches," cartons only. Peaches per case, 11 ounce, $6.25; two pound, $8.50; five pound, $10.25, f. o. b. sellers' plants. Fall shipment sellers' option. Sales must be to regular jobbing trade and subject to our confirmation. Will quote bulk peeled and unpeeled later soon as crop conditions are settled.

Last year's prices were as follows: 11 ounce case, $5.40; two pound case, $6.40; five pound case, $8.00. There are 48 11-ounce packages to a case; 24 two pound packages and 12 five pound packages.

Clippings from Press of the Coast Show Bumper Crops, Long Prices

These prices are f. o. b. factories California common shipping points, September, October and November shipment our option, and are guaranteed against our own decline until January 1, 1920.

Our reason for not quoting at this time bulk peeled and unpeeled peaches is that crop conditions are not such that we can, with any degree of safety, accept orders for bulk peeled or unpeeled.

* * *

In small fruits the interest is also intense. In the Northwest where large quantities are grown ten cent prices are obtained.. Dispatches refer as follows to

Strawberries

Asking prices for strawberries are high this year. One packer has been bidding in the neighborhood of ten cents a pound and another buyer for the fresh fruit market has been unable to get berries at $2.50 per crate. Imported stock is now retailing at 25 cents per quart. One packer has offered 11 cents per pound for raspberries, but this is not expected to be the prevailing price, a nine cent quotation being nearer the probable average, it is believed. It is the belief of one of the principal buyers that the high price for strawberries this year will cause the planting of a much greater area within the next year.

In California:

Lodi Sentinel

California fruit growers have struck gold. Barrels of the yellow metal wait the delivery of crops. It is the biggest "strike" in the history of the industry. To use a mining term, values are assaying $250 to $400 a ton for dried fruits.

Imagine a small ten pound box of figs selling for $4, or a four basket crate of apricots for $7, or a chest of strawberries for $25. These are just a few of the tremendous prices that have been witnessed in San Francisco in the past few days.

We have got to feed Europe and at the same time speculation is running wild. Crops are large. Everything promises a bountiful yield. But there will not be enough to go around, judging from the way canners and packers have it figured out. For they jumped in at the start and contracted for everything available and swept the growers off their feet with astonishing prices. In the meantime prices are steadily rising.

* * *

As to apricots, one of the big producing counties is Ventura. One of her papers says:

Santa Paula Chronicle

The market price for the dried apricot crop of this region is a record breaking one. Several weeks ago many sales were made at 17 cents per pound and this was considered a fine price. However, the price has steadily advanced until a big lot has recently been sold here at 21½ cents per pound and an even higher price is reported as having been paid in Ventura.

The apricot grower is surely the man of the hour this season.

Down in Orange County:

Santa Ana Register

With the price of dried apricots up around 21 cents, and steadily climbing, and with an estimated increase of some 800 tons of fruit this year, in this section of the county, over last year, apricot growers are feeling well satisfied with the prospects before them. The outlook is the same, practically, throughout the entire state. Last year was a rather poor one for apricots. The price reached about 12 or 13 cents. The result was that a good many of the orchards were taken out.

This year, however, there is a very good crop in sight. There appears to be little or no scale and the fruit should be first class. A large percentage of the crop has been already contracted for. Most of the fruit is dried, the remainder sold green to the canneries. All but a few of the growers are equipped to dry the fruit and market it this way, and the amount that is sold green is comparatively small.

Pits are bringing around $40 and $45 per ton. This is a large increase over last year's crop. With good market conditions, and the present prospects ahead, apricots will pay exceedingly well this year.

In Alameda County:

Hayward Review

Buyers have been in the field all week contracting for the best of the apricot crops around Hayward and Niles. One buyer closed up for 1000 tons on Wednesday at the rate of $100 per ton.

This is the best price the growers have been offered for the past ten years. This high price is caused by the shortage in crop caused by the long and continuous rains when the fruit was in blossom. There are almost complete failures in some of the older orchards in Castro Valley and around Mt. Eden.

In San Joaquin County:

Lodi Sentinel

Highest prices in history have been named for California's 1919 apricot crop. The California Prune and Apricot Growers' Association, controlling practically the entire output of the state, has set its opening price on a 26 cents per pound basis. Not only is this a record price, but it is almost double that named for the 1918 crop, and about triple the price in past seasons.

Growers with even a small orchard are assured of a neat little fortune this season, for they will be paid on a basis of 12 cents a pound instead of eight cents, as specified in the association's contracts.

Never have the markets of the United States and Europe been as bare of both prunes and apricots as at the present time. Practically all of the 1918 crop has been sold, which leaves a clean market for the coming crops.

Packers have been scouring the country since the first of the year endeavoring to sign up apricot crops. There is no denying the fact that they have offered very attractive prices, and needless to say many contracts were made by the independents. But the members of the association, although they will have to wait for a longer period for their money will, in the long run, average a much higher return than those that signed with the packers.

Another Ventura County view:

Ventura Post

With a bumper crop in prospect and prices today at high water mark in the history of the apricot industry, Ventura County apricot growers have a bright season before them, as the result of the combination of good crops and high prices.

Buyers are in the field and have been for some weeks. They are contracting for the output just as fast as they can induce growers to sign. The activity started a week or two ago with opening quotations at 15 cents per pound for the dried product. The figures have been going up steadily, until today it is reported that 22½ cents per pound is being offered.

Some growers anticipate the price going to 25 cents and are holding off in anticipation of getting that figure.

In San Bernardino County:

Redlands Facts

Apricots have been further advanced and materially so—in fact two cents and more a pound—in selling values above even the high prices quoted last week. Prices being paid in the country are going up even more rapidly. Purchases of dried apricots from the growers in the Santa Clara Valley are reported this week at between 25 cents and 27½ cents a pound.

California Prune and Apricot Growers, Inc.

Opening prices on 1919 dried apricots to the trade. These prices, with differentials, are as follows:

Sunsweet Quality: Choice, 25 cents; extra choice, 26; fancy, 27; extra fancy, 29; fancy Moorparks, 29; extra fancy Moorparks, 32.

Growers Brand Quality: Choice, 24½ cents; extra choice, 25½; fancy, 26½.

First Quality: Standards, 19 cents; slabs, 21.

Other grades, such as whole fruit and off-quality deliveries, will have to be taken care of on the basis of sale largely on sample.

The above prices will make it possible for us to make delivery payments of 12 cents or more per pound rather than the eight cents specified in our contracts. Realizing that the above prices speak for themselves, will forego more elaborate comment.

* * *

Of course the buyers are not highly elated over the situation. Here is a dispatch we pick up under a date line

From Porterville

Green fruit producers of California

(Continued on Page 749.)

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877. Combined with California Cultivator 1914. Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, May 31, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

California will produce some plums and other things this year. The present promise is for a wonderful crop of almost every tree product. Whether every branch will show the return indicated on cover page of this issue we question, but it is a bit of an indication of the wealth of California fruits under California conditions. A warning may be in order—although not needed by most California fruit growers for they understand the necessity for thinning. Don't let the trees overbear and reduce the quality of the fruit which this year will bring almost fabulous prices, as is indicated by some of the clippings on third page of this issue.

ALL HONOR

More than ever this year the observation of Memorial Day is general. There is more of sadness than for many years. More than 50,000 new-made graves in France have left vacant chairs by that many American firesides, and the Holy Day, sacred to the heroes of the Civil War and later to those of the Spanish-American War, is now rededicated to all our noble dead.

There is less of sports and less of feasting and the day is observed for what is is, a day of sacred observance. It is said not an American boy's grave in France but will have its flower of remembrance. Surely not one in America. The graves on this side are just as sacred, and the mother or wife whose loved one died serving the home land in the home land may have as holy joy in loving remembrance or paying tribute as may those whose boys went down in the midst of battle.

All honor to the loyal where-e'r they lie.

AGRICULTURE ADVANCES

Two bills of utmost interest to the agricultural industry of California have been signed by Governor Stephens. They are:

The farm adviser bill, carrying an appropriation of nearly $170,000 for continuance of the work which agriculturists have found of so much benefit and of so much promise that they are not willing to give it up.

The state department of agriculture bill, consolidating various state agricultural activities under one director of agriculture. The statement is current that the present state commissioner of horticulture, Geo. H. Hecke, will be named director of the new department.

SLACKERS

The ease with which some contractors find "deterioration" in products for which they have contracted—and later the market has shown a downward tendency—is proverbial. With the market advancing the contractor, who has agreed to pay a cent or more per pound less than the present market commands, is entirely honest in carrying out—and insisting on the producers being honest in carrying out—the terms of the contract. With declining markets the atmosphere changes. Delay after delay is often made until finally the market goes entirely to pieces, then the quality of the farmer's product is discovered to be such that it cannot be accepted at any price, or only at a ruinously low price. This has been so characteristic that it has shaped the policy of one of our largest cooperative marketing associations which changed from selling its fruits f. o. b. Eastern points to selling at whatever price might prevail when the fruit was delivered. This gives the grower an opportunity to take advantake of the rise in market; likewise gives the buyer the advantage when there is a decline, and this is always fair.

About the only decline in farm products during the last few months has been in beans, and the bean buyers have shown characteristics which will probably induce many bean growers to seek other purchasers another year.

SAVE THE WASTES

Even the wastes of our orchards and vineyards will be saved this year of wonderful fruit and fruit product prices. Vineyard products do not appear at this moment to be as well cared for as do the others, but another week we will have from the pen of Professor Cruess discussion of that topic. While he recognizes that as yet there is no adequate method of handling vineyard products they may be developed into a wealth maker. Another week the wastes of the citrus orchard will be discussed by Professor E. M. Chace of the bureau of chemistry of the department of agriculture. These waste products have been turned into very valuable marmalades and other table delicacies which have made employment for thousands, and from present indications in a way which will mean much of profit to the owners of the plants who are also the owners of the orchards which have produced the fruits. The matter of the salvage of prunes and other dried fruits which may be caught by bad weather is also under consideration by deciduous orchardists. It is fortunate that these times of prices which are satisfactory to the producer induce saving of every piece of fruit, for it will create an equipment which will be even more valuable in years when prices are not so high.

?

Congress is in session, and the whole country, especially the rural portion of it, has a look somewhat like unto a question mark. What will congress do? There are questions of world import to be settled. Will our congress rise to the occasion? But more particularly we are concerned with what will be done in such domestic matters as agricultural extension and operations affecting all kinds of agricultural activities.

The grange and other organizations of farmers are watching after farmers' interests, but even then the question mark still stands, for what are the interests of the producer which may at the same time be to the interest of the consumer? There should be no antagonism, but there must be something different from the campaign cry of "Produce More; the World is Starving," without any consideration for the farmers' recompense. There are some of the products of the farm which have gone beyond the wildest dreams as to prices; there are others which have caused the farmers to go broke. There should be a regulating or stabilizing influence somewhere which will enable the farmer to produce and continue to produce and still live.

California bean growers have not lived during the past year—at least not from the results of their labors in growing beans. Other crops may be mentioned which have not sold at living prices. Whether the bureau of markets or other federal organization will aid in this stabilization or may be empowered to aid through legislation is one of the long questions we are asking. The bureau of markets is at present embarrassed by the fact that its life ends in July unless an appropriation is made—and quickly.

Hence we are looking to congress to do something.

BETTER VETERINARIANS

We have received an announcement of the annual joint meeting of the California State Veterinary Association and the Southern Auxiliary, to be held at Fresno, June 2-3. The members of the two associations are doing much to place their profession on a high plane and through their annual meetings are accomplishing much. The day of the old-time "hoss doctor" is past. No longer is the live stock owner satisfied by a practitioner whose sole reliance is the physic ball. The importance of the live stock industry is such that those engaged in it have a right to demand the services of well trained, high class men. In this connection we are reminded that there is not a veterinary college in operation in California. The University of California maintains a department of veterinary science as part of the equipment of the college of agriculture but as the department exists it is quite impossible to offer a course of sufficient scope to award a degree comparable to degrees offered by any first class institution.

The modern veterinarian should have in addition to his technical training a wide knowledge of the live stock industry and be in close sympathy with the problems of the producers. The university should be in a position to offer such training to California boys who desire to practice veterinary science, and it is to be hoped that during the next few years such a school will be established.

REDUCE THE NUMBER

The nurserymen are talking over many things at Riverside this week. One of the most important of these things has to do with standardization of the product of these nurseries, and one feature of that standardization has to do with the reduction of the number of "new" fruits which are almost daily introduced. Reference was made to one peach which answers to some half dozen names in a half dozen different catalogues.

Florida orange growers have been planting scores of varieties of oranges. California has centered on two and has succeeded wonderfully. So Florida called a conference of growers and shippers, and it has recommended that planting shall cease on all but some five or six varieties.

But as to peaches and many other fruits equal judgment is not shown in this state. The nurserymen realize the value of introduction to growers of varieties of real merit, especially when the season is extended.

But to determine as to this merit there should be some definite and concerted action. The nurserymen in convention, representing some 50 or 60 per cent of the stock produced in the state appointed a committee consisting of Messrs. Gandier, Roeding, Shamel, Coates and Coolidge, to report as to feasibility of plan for standardization and reduction of worthless fruits.

Some nursery catalogues are prone to use superlatives with every article described regardless of worth. The reputable dealers propose to discourage this tendency. Strength to their arm

ORGANIZATIONS ORGANIZE

It's a hard proposition to get full cooperation on the part of one cooperative organization with another cooperative organization. It has been slow work to educate individuals up to the point of subduing "independence," "right to control my own," "ability to run my own business," and truly cooperating with their neighbors to the end that industry has grown and all have benefited. That education has been wonderfully advanced during the past few years and many most successful—permanently sucessful organizations—perfected.

Now, can these be brought together in one great cooperative effort?

The editor of the Cultivator recalls one such effort in which he had part in 1915, the Exposition year. We asked: "Can not the cooperators of this one state amalgamate and bring into one organization all the others for mutual benefit?" Men gathered from all parts of the state at the exposition and later at the State Fruit Growers' Convention at Palo Alto, and discussed it. But either the idea was too big or not big enough. The movement failed.

Now comes a bigger idea—a fusing of all agricultural, horticultural and live stock bodies into one federation which shall represent the farmer nationally or even internationally.

There are, in fact, some two or three of these federation ideas advanced, but one is being pressed with great vigor and has sent to the Coast organizers for a series of conferences.

The meetings already arranged are to be followed by similar conventions in the Middle West and other parts of the nation, which will be held later in the year, after the harvest season is ended. Starting at Lexington, Kentucky, May 31, the conference will include Salt Lake City, June 3 and 4; Modesto, June 6; San Jose, June 7; Spokane, Washington, June 11, 12 and 13; Bozeman, Montana, June 14; Bismarck, North Dakota, June 16; Fargo, North Dakota, June 17; and Mitchell, South Dakota, June 18.

Speakers will include United States Senator Thomas P. Gore, Gifford Pinchot, Dr. W. J. Spillman, editor of a farm journal of Pennsylvania; J. A. McSparran, master of the Pennsylvania State Grange; Charles S. Barrett, national president of the Farmers' Union; Milo D. Campbell, president of the National Federation of Milk Producers, and Morris McAuliff, president of the Farmers' Union of Kansas.

The Six Great Conventions at Riverside

Editorial Correspondence

MORE delightful setting, more delightful company, more satisfactory program and arrangement of detail was never given a convention.

The setting is Mission Inn town—in fact just Mission Inn, for all the sessions, three at a time, are housed in the quaint old Inn and it is impossible to get away from its charm.

One convention, that of the nurserymen, is meeting in the Art Gallery; another, the Interstate Plant Quarantine conference, meets in the Cloister, or the little chapel of the Inn, and the big sinky leather chairs induce a sleepy nod when a speaker gets prosy—hence pep is necessary and in fact decidedly on tap nearly all the time. Note, "nearly," for honest to goodness it does beat thunder how some folks—addressers of conventions and things—can make two syllables out of the—"the-ah," with continued clinging to the ah—and can say "um, um, u-m" two or three times between words while we sit here in full realization of the fact that our bill for five or six dollars per day at the Mission Inn is going right on while we are waiting for the next word!!

But pardon,—I was talking about the three sessions. The other was in the 'Dobe in the center of the court. This was of the vegetable folks who are talking about potato seed certification and will talk tomorrow about other vegetable seeds, standardization and other things.

The convention, the one which begins with a capital "The", "The California State Fruit Growers and Farmers' Convention", does not begin till Wednesday, and this is written only on Monday evening, so the real story next week.

Another conference in session is that of the Horticultural Commissioners of California in conjunction with the nurserymen. The keynote of this session is "Closer Cooperation" between nurserymen and commissioners. The spirit indicates it's coming.

There are big men here. A list of a few of them was given in last week's Cultivator. It certainly is an opportunity for California growers that could they but "sense" it would bring many more of them here.

But it isn't possible to run back and forth from meeting to meeting in the effort to "cover" three sessions and to write of the serious side of the convention while the guitar and mandolin play and the senorita with castanets sings La Paloma, in which even the mocker joins, all unite to make day dreaming of foreign lands and idle chat with friends more attractive than workaday writing.

* * *

THE TREND OF AGRICULTURAL PRICES

Address by Dean Thomas Forsyth Hunt at California State Convention of Fruit Growers and Farmers at Riverside

IT IS now pretty thoroughly understood that the general increase in prices is related to the amount of currency and other instruments of credit in circulation. The dearness or cheapness of any particular commodity is not determined, therefore, by its price in dollars and cents, but by the amount of other commodities it will purchase.

Various indexes are used to determine price levels. I have chosen Bradstreets index of the wholesale price of thirty-six commodities, because the prices of farm products with which I shall deal are wholesale prices. This index was 210 in 1918, as compared with 100 during the five years preceding the war. Thus, during 1918, no commodity was high unless it was twice the price of pre-war times. The highest price level was 215, reached in July, 1918. By March 1, 1919, it had fallen to 193. In general it has held at about that level since then. On May 1, 1919, live stock, however, had reached the highest level on record. Usually, new price levels occur a few months after a new bond issue, because new credits are established. It will be interesting to observe whether the new Victory Loan operates in the usual manner.

The general trend of prices indicates that during 1917 the price of crops and live stock rose faster than did farm wages and articles farmers buy. In 1918, however, farm wages and articles farmers buy rose much more, relatively, than did the price of farm products. While the money value of farm products was higher in 1918 than in 1917, relatively prices were less favorable to the farmer in 1918 than in 1917. If the five years prior to the war, 1909 to 1913, be taken as 100, then the value of farm land in 1918 was 167, farm wages 172, the average price of crops and live stock 209 and the articles which farmers buy 202.

Contrary to the opinion of many sincere people, in general the wholesale price of farm products during 1918 has not been high. The prices have been strictly related to the amount of currency and other instruments of credit and to the price of articles which farmers must buy in the conduct of their business. It is true that farm wages have not risen quite as rapidly as the price of farm products. This, however, is of less importance than would at first seem, since three-fourths of the labor on American farms is performed either by the farmer himself or some member of his family. While there has been, in the aggregate, enormous increase in the capitalization of American farms during the war, expressed in dollars, yet if these farms were converted into dollars, the dollars would not buy as many commodities as could have been bought with the proceeds of these same farms prior to the war.

Naturally, some farm products rose more rapidly than others during the war and some have receded much faster since the signing of the armistice. On March 1, 1919, wheat, corn, beans, hogs, sheep and wool were somewhat above the general price level. Wool, however, is the only one which was strikingly above it. Barley, oats, hay, potatoes, butter, milch cows and horses were well below the general level. Horses were less than one-half the relative value of other commodities. Horses are both actually and relatively cheaper than they have been in years, notwithstanding the prices of farm horses in France and England have been from two to three times the pre-war price. On March 1, 1919, the average price of barley was one half that of eleven months ago. Beef cattle, cotton and eggs were about normal when compared with the general level of prices.

Authorities generally have hesitated about making any predictions based upon previous wars, since this World War transcended all other wars in the number of countries and the variety of interests involved. The magnitude of the cost in money and life having been beyond all previous knowledge, the after effects may be beyond all previous experience. It is of some moment, nevertheless, to observe that the length of the Civil War and that of the recent World War were practically the same, and that the inflation of commodity prices during the war was identical when compared with the five years preceding each war. If this be a coincidence, it is a most extraordinary one. While one must not be hasty in drawing conclusions, it will not harm us to know that commodities lost two-thirds of their war prices within six years of the close of the Civil War. Return to their pre-war levels took about thirteen years.

As stated at the beginning, the new price level of 1918 is now generally recognized to be due to the amount of currency and other instruments of credit in circulation. Is this a new permanent price level such as has occured in history before, or is the price level going to fall in the course of a few years to the 1913 price level or even to that of 1896? Professor Plehn of the Economics Department of the University of California has pointed out to me that, at the close of the Civil War, when the United States was on a currency basis, the European countries were on a gold basis, to which we returned later. Now the European countries are on a currency basis. Perhaps the United States is nearer a gold basis today than any other country. If so, what effect is this going to have on the rate at which its currency will be retired? Irving Fisher, Professor of Economics, Yale University, is of the opinion that the general level of prices is not going to fall much, if at all. He believes we are on a permanently higher price level, that is, for many years. Indeed, he indicates there are factors favorable to an even higher price level.

On the other hand, referring to the panic of 1873, Horace White, a writer of the times, said, "The appearance of prosperity immediately preceding the panic is so deceitful, the activity of trade and the upward movement of prices so exhilarating, that the tornado always finds us with every inch of canvas spread, all the ports open and the crew fast asleep." Which is the correct view? It is possible that both may be correct.

These have been prosperous times for the farmers who had contracted debts prior to 1914. In 1918 they could pay their pre-war debts with one-half the commodities that were required during the five years preceding the war. To that extent, the farmers have been making money. It is one of the cases where it is fortunate to be in debt. If a farmer contracts a debt now to be paid fifteen years hence, and in the meantime the prices of his commodities return to pre-war basis, it will require twice the commodities to liquidate it.

However, so far as current expenses are concerned, the farmer is not so much interested in the general level of prices as he is whether the prices of what he has to sell rise or fall faster than the commodities he must buy. If one really knew what was going to happen to the price of specific articles, it would be comparatively easy to become many times a millionaire. All it would be necessary to do would be to sell long or short, as the circumstances required. I sometimes watch the billiard players, but I do not understand the game. I can see the forces that move the balls, but I can never tell which direction they will take. Perhaps some day I shall learn to play billiards. Not until then shall I prophecy.

Notwithstanding, it may be pertinent to recall some of the well known features of agricultural progress during the past half century. Between 1860 and 1910, the population of continental United States increased a little less, and the number of farms increased a little more than three times. Which will increase more rapidly in the next half century? Will the number of farms be tripled during that period? The land in farms now occupies about one-half of the land area of the United States. During the decade ended 1880, the improved land in farms increased slightly over fifty per cent. How much will this area increase in the decade ending 1930? How rapidly will we increase our importation of food? Whence shall we import it?

The labor cost of producing farm products has in many cases been greatly reduced through the introduction of labor saving machinery. Some genius for statistics has determined to his satisfaction that between 1855 and 1894, the time of human labor required to produce a bushel of Indian corn declined from four hours and thirty-four minutes to forty-one minutes. In like manner, it was found that the required human labor for a bushel of wheat declined from three hours and three minutes to ten minutes. While these figures are open to question, a great reduction of human labor, when applied to the production of food, is well understood; better, perhaps, than the consequences. There were three direct consequences. The price of products declined. Farm wages increased. It required a larger farm to produce a given gross income. The rate of farm wages declined between 1866 and 1879 when stated in currency, but stated in gold, there has been a general rise in wages ever since the close of the Civil War. Thus, using the gold standard, the average monthly wage without board was $15.50 in 1866 and $25.46 in 1909. In 1918, it was $47.07. The readjustment of the size of fields to labor saving machinery was made possible through the development of the United States west of the Mississippi River during the last three decades of the last century.

Does anyone foresee a similar reduction in the labor required to produce agricultural products? The human race cannot in the long run consume more than it produces,—a fact which we are just now in danger of forgetting. Our material welfare consists in efficient production, which means a large production per unit of labor; in equitable division among all the individuals

(Continued on Page 751.)

Agricultural News Notes of the Pacific Coast

Northern California

Butte County orchardists are appealing for peach thinners.

Early cherry shipments have met strong demand in New York.

Horticultural Commissioner Mills of Butte is conducting ground squirrel campaign.

The Hayward Review, Alameda County, chronicles contracts for 1000 tons of apricots at $100 per ton.

An agricultural expert from Java, Dutch East Indies, is investigating rice conditions in the Sacramento Valley.

Work is being rushed on the new Colusa rice mill in order to have it in readiness to handle this year's crop.

Berries are bringing $3.25 to $4.00 per ten pound box at Placerville, as against an average of $1.50 in former years.

A New York manufacturer is contemplating making a planting of 90 acres of ramie near Woodland, Yolo County.

Sonoma County cattlemen met recently at Santa Rosa and discussed affiliation with the State Cattlemen's Association.

Farm Adviser Jones of Eldorado County reports shipping from that section of some remarkably fine Duroc-Jersey hogs.

A petition for the organization of the Honcut irrigation district in Butte County has been filed. It will cover about 37,000 acres.

A petition to form an irrigation district to be known as Cordua irrigation district has been filed with the Yuba County board of supervisors.

The planting of rice was finished much earlier this year than formerly. The acreage will be great and it is thought the harvest will be earlier by three weeks.

Horticultural Commissioner Norton of Nevada County says there is a very considerable drop of young fruit in pear orchards. He estimates the crop at only about half normal.

Farm bureau delegates from Yuba, Sutter, Placer, Eldorado, Sacramento, Yolo, Solano, Napa, Merced and Madera Counties have decided on a wage scale for general and orchard work.

The Durham Cooperative Stock Breeders Association, Butte County, has elected H. F. Bahmeier, George E. Pearl, Frank M. Hall, C. F. Cheaney and Frank E. Baxter, who will formulate rules and regulations in the operation of irrigation system for the settlers and who later on will act as temporary directors for a mutual water company, which will be formed in taking over the water system from the state.

The State Fair Association announces the folowing judges at the coming fair: Professor E. A. Trobridge, Missouri College of Agriculture, Columbia University, light horses and horse show; Hugh G. Van Pelt, editor of Kimball's Dairy Farmer, Waterloo, Iowa, dairy cattle; Guy Putnam, Tecumseh, Nebraska, Duroc Jersey; Professor J. I. Thompson, University Farm, Davis, will assist in the judging. R. M. Miler of Texas Agricultural College, formerly of the University Farm, Davis, judge of sheep. W. J. Head, San Francisco; Robert V. Moore, Oakland, and J. C. Hinds, Alameda, poultry and pet stock.,

Central California

A packing house at Visalia, Tulare County, made a shipment of peaches on May 17.

Tulare County expects to ship out about 1000 cars of Valencias. Half of the crop is now picked.

Santa Clara County reports offers of as high as 22 cents for best grades of dried prunes; 27 cents for dried apricots.

Over 2000 acres in Stanislaus County are to be planted to crops for production of seed; 900 acres will be devoted to Sudan grass seed.

Machinery costing $12,000 for bleaching nuts is being installed in the Lodi packing house of the California Almond Growers' Exchange.

Grasshoppers have made their appearance in the Terra Bella district of Tulare County and are eating young growth on olive and orange trees.

Indicative of what is expected to happen when the cantalaupe crop of the district starts going to market it may be noted that the Turlock Merchants and Growers, Inc., is advertising for 20 truckers, five swampers, four bookkeepers, 16 inspectors, 12 car loaders, five checkers, and some extra stenographers. It is expected that the business will begin about July 25.

On the monthly pay day, May 15, the Tulare creameries distributed $190,000 to the dairymen of the section, with 63 cents per pound as the price of butter fat. On the same day the Cooperative Poultry Association paid out $20,000 to its members for poultry and eggs delivered. Members of the Liberty Loan committee stated that the amount paid equalled 62 per cent of the city's subscription of $306,000 to the Victory Loan.

Walter F. Drabnick, Harry Locey and Richard Higgins have been named a joint committee of the Visalia Board of Trade and the Visalia Commercial Club to have charge of the organization work for the proposed Tulare County citrus fair, to be held here early in December. Live stock will be included in the prize lists this year, this feature of the show being placed in the hands of John P. Walker, chairman of the Tulare County Duroc-Jersey Association.

With prices off for top, nine carloads of hogs were sold at the Tulare Farm Center hog auction April 13, the prices ranging from $17.90 to $16.20, 860 animals being disposed of. The feature of the sale was the close of the boys' pig contest inaugurated by the bureau, 11 animals being entered which sold for $18.05. The pigs averaged 60 pounds at the beginning of the contest and at the end of 115 days the average was 250 pounds. The prize pig cost its boy owner $31, and was sold for $55, a net profit of $24.

All egg price records for April were broken at Tulare on May 15 when payments were made to members of the Cooperative Poultry Association at the rate of 45 cents for selects, 41 for No. 1 and 38 for No. 2 eggs seven cents over the prices for the same month last year. The association also announced the adoption of a system of collecting eggs by motor truck at night from the ranches, during the hot weather, to insure that all eggs be marketed promptly and be in the best possible condition when shipped.

Southern California

The first carload of tomatoes out of Brawley was shipped May 14.

Heavy tomato shipments are now going forward from Brawley, Imperial County.

Ranchers below the line in Mexico are appealing to have the duty on cotton lowered.

Date growers of Coachella Valley are contemplating building a $50,000 packing house.

Orange growers at La Verne, Los Angeles County, contemplate the early erection of a citrus packing house.

The industrial commission has fixed a minimum of 28 cents for piece work by experienced workers in canneries.

The big stock of lima beans stored in Ventura County has been very materially reduced during the last two weeks.

With only 28 per cent of the Lima beans left in the pool the price has been raised by the directors to eight cents per pound.

Apricot growers are pleased with the high prices promised for fruit this year; even pits will bring $40 to $50 per ton, it is claimed.

Hemet apricot growers are pleased with the prices set by the Prune and Apricot Growers' Association. Prices on apricots range from 19 to 29 cents.

Riverside Fair Association promises great exhibit at the next fair which will be held in October. Honey producers of the county promise fine exhibit.

Moreno, Riverside County, farm bureau is organizing to cooperate in the marketing of the big crops of barley and wheat produced there this season.

Dr. Fawcett of the citrus experiment station has been giving demonstrations as to treatment of gum disease before farm bureaus of Redlands and Highlands.

County Development Agent Nelson of Imperial County announces that the acreage planted to alfalfa in the valley this year has jumped to 130,000 from 100,000 last year.

A Japanese shipper of cantaloupes makes charge that some of his packing house employes have been "tempted" "to do that which they should not do" by inspectors of cantaloupe packing houses.

The great cotton conference to be held in New Orleans in October is arousing interest among California planters. It is expected that 4000 delegates from all parts of the world will attend this conference.

Market Commissioner Weinstock charges that the fish industry has resumed profiteering and that 32 per cent of the catch is diverted to making of fertilizer to force up the prices for human consumption.

The railroads are protesting the right of freight trucks to operate over the highways of Riverside County in carrying their freight between San Jacinto and Los Angeles. The supervisors will take up the question at an early date.

Dr. H. J. Webber, formerly head of the Riverside Citrus Experiment Station, has been promoted to the position of director of the experiment stations of the University of California. He will be suceeded at the citrus experiment station by Dr. J. T. Barrett, acting director.

The Coast and General

Chicago eggs are selling around 45 cents.

Cattle ranges in all parts of Arizona are improving.

Walla Walla, Washington, plantings of fruit trees are greater this season than for years.

The second annual Navajo County fair will be held at Snowflake, Arizona, October 7, 8 and 9.

Canners at Centralia, Washington, are contracting strawberries, 12 cents; loganberries, 8 cents per pound.

Contracts have been made for new stables at the Arizona state fair grounds and for a new entrance to the grounds.

Snow has practically disappeared from the White Mountain Range, Arizona, and streams are gradually decreasing in their flow.

A waste products plant at Wenatchee will use 400 cars of apples in the making of fruit bricks which are commanding increasing market.

A forest fire covering 200 acres in the pine belt north of Payson, Arizona, has been reported by the supervisor of the Tonto forest reserve.

The bureau of crop estimates has fixed upon 32,719,000 bushels as the production of peaches for the coming year. The crop will be much larger than that of last year.

The concrete road from Phoenix to Tempe, Arizona, is practically completed and will be entirely open to travel within a short time. This is a part of the state highway and will be further improved by a concrete road from Tempe to Mesa.

Nine foremen of sheep gangs in the Hillside, Arizona, district, have been arrested on the complaint of the cattle growers, that they did not move their sheep rapidly enough along the trail designated as the Sheep Trail for driving sheep from the southern part of the state to the northern ranges.

Attorney General Wiley E. Jones, of Arizona has recently ruled that planting Johnson grass in Arizona is liable to involve one in some legal difficulties as the law is very stringent in the matter. The ruling was occasioned by the desire on the part of a dry farmer in the San Simon Valley to increase his fields as he had found it a splendid hog feed.

May 7 was Registered Pig Day of the Girls' and Boys' Pig Clubs of Maricopa County, Arizona. Through E. B. Oxley, county leader for the County Boys' and Girls' Club work, arrangements were made with the banks whereby those interested could borrow money for the purchase of registered pigs, and a considerable number availed themselves of the opportunity. One boy, a member of a pig club, has sold $130 worth of pigs this year.

According to M. E. Musgrave, predatory animal inspector for the biological survey for Arizona, a new animal pest has developed from the Mexican situation. Quite a number of Mexican families living along the border have deserted their homes and left behind their dogs. These dogs in considerable number have turned wild and are preying on calves on the ranges near the border. Some have mingled with the wolves and have acquired many of their characteristics.

A PROSPEROUS YEAR

(Continued from Page 745.)

are asking too high an opening price for their product, declares Hal C. Williams, one of the leading Chicago brokers in California canned goods, who says prices for fresh fruits are being held at such a level that the average person will be unable to buy. Williams is touring the state investigating cannery conditions. He says, in his judgment, the total revenues to the growers would be greater if some effort were made to stabilize the opening prices and maintain them at a level which would be attractive to everyone.

* * *

The producers of prunes are likewise having that satisfied feeling. But prune eaters of the Santa Clara Valley are already hungry, as note the following dispatch in the

Fresno Republican

San Jose, in the heart of the prune growing section of the Santa Clara Valley, practically is pruneless tonight as far as the resident consumer is concerned.

According to growers and packers, prunes which sold last year for 6½ cents a pound today sold for 12½ and 13 cents, while the two highest grades went up to 20 and 22 cents.

They reported a corresponding increase in practically all grades of fruits. Green apricots which last year sold for $65 a ton went from $100 to $105 a ton. Dried apricots sold for 27 cents a pound, almost double last year's quotations, and were in big demand.

The increase was attributed to the heavy European demand.

A scarcity of these fruits here, particularly in stores and restaurants, was reported, with prunes leading in scarcity.

* * *

Manager Coykendall, Prune and Apricot Growers, Inc.

The California Prune and Apricot Growers will enter the prune districts of Oregon next year, according to H. G. Coykendall, general manager.

On May 1 the California Prune and Apricot Growers formally opened the season by booking orders for future deliveries. According to a statement by Mr. Coykendall the association on the first day booked orders covering its entire product for future deliveries at a price to be named later by the association, and naming its own sizes. These orders came from Belgium, Sweden, Norway, Russia, China, Africa, South America and a number of other foreign countries. In addition to booking orders to cover its stock, the association turned down orders aggregating between 40,000,000 and 50,000,000 pounds. In 1917 the association shipped 15 carloads of prunes into Canada, and this season has orders for 12,000,000 pounds for that country booked at the association's opening price.

Prune growers up North are likewise elated, although crop will not be up to normal. We note under date of May 16 the following

Dispatch

Italian prunes opened at 13½ cents and now local packers are offering 15 cents for 30-35s. The 1918 season opened at 11⅞ cents for 30-35 sizes, which made 50-55s worth 9⅞ cents. The latter size this year are worth 14 cents. Growers of well cared for orchards should receive an average of $260 to $280 per ton for their dried fruit. Practically all the crop of the Willamette Valley, Washington, that is not pooled in the cooperative associations is now contracted for. There is a feeling that the market is a little top-heavy and that there will be a downward trend in prices.

The Willamette Valley district which has 12,000 to 13,000 acres in bearing prunes, produced some 34,000,000 pounds of dried prunes last year. The crop this year will be somewhat lighter. It is too early to make a very accurate estimate of probable tonnage since the blossoms are just falling in many of the orchards but it is known that the crop will be shorter than last year even though many young orchards are coming in. The thrips have put some orchards out of business for the year. The last two years have been very dry and warm and this condition coupled with the fact that the crop of 1918 was a very heavy one has left the fruit buds in many of the older orchards in a condition too weak to function properly.

Peaches are promising a fairly good crop while pears are lighter than last year.

The loganberries have not yet blossomed but are looking fine.

* * *

Even dried apples and water will be impossible for the small pocketbook. From that dried apple center, Rochester, New York, comes the following comment on the dried apple situation, given in

Pacific Coast Packer

About 2600 boxes of prime white stock was sold this week at 18¼ cents per pound, f. o. b. here, but with that exception there has been little doing in the evaporated apple market here for the last week. Holdings are light on all grades as told previously and business from now on will be restricted. Prices are fully maintained. The principal quotations f. o. b. here are: Prime, 18 to 18½ cents per pound; choice, 19½ to 20 cents; fancy, sold out, all basis, boxed; chops, 7¼ to 7½ cents per pound; choice, 8 to 8½ cents; fancy, 9 to 9½ cents, all in barrels; waste, scarce, prime to fancy, 4 to 4½ cents per pound, bags.

More interest now centers in the prospects of the new 1919 output than in the old crop closely cleaned up. There is a strong impression that export demand will be the strongest factor it has ever been when the season opens up next fall. Foreign markets have been stripped by the war and there are no domestic reserves. Coupled with this is the policy of business men to reach out for their share of foreign trade in the adjustment of the market which is at hand, and it is likely that firms which never before have been interested in export trade will at least, take a flyer at it.

This is reflected in the business that is now being done in future for fall deliveries. Many cars have already been sold and the price for prime white stock, boxed, which began a fortnight ago at 15 cents per pound, has now worked higher until the last sales have been made as high as 17 cents a pound. This is the highest price of its kind on record for this territory. The sharp advance in values is shown by the contrast with a year ago, when the market on futures, prime stock, opened at around 12 cents to a shade higher.

* * *

Pears are also looking good.

Sacramento Bee

Pears are bringing as high as $75 a ton on contract. This is an exceptionally high price for canning pears. In previous years $50 a ton has been considered a good price for this fruit. The pear crop this year is reported short. In Eldorado County the crop is estimated at 75 per cent, but indications are that the percentage will be lower than this.

* * *

Meantime, the producer is digging deep for cherries and a few other fresh delicacies. Note these:

Fruit Stand Signs

"Fine Black Figs, 15 cents Each;" "Cherries, 35 Cents Pound;" "Home Grown Avocados, $1.50 Each;" "Cantaloupes, (much larger than English walnuts), 25 Cents Each;" "Apricots (larger than green peas but same color), 15 cents;" "New Potatoes, 10 Cents One-half Pound;" "String Beans, 15 cents Pound;" "Fancy Cherries, 50 Cents Pound;" "Cucumbers, 10 Cents Each;" and while Roquefort cheese doesn't grow on trees, as an indication of the price we are willing to pay in these glorious days, "Roquefort, 17 cents per O-u-n-c-e."

BEEKEEPING ORGANIZATIONS TO ORGANIZE

At a recent annual convention of beekeepers associations a committee was appointed for the purpose of forming an organization of beekeepers associations. The committee reported this resolution:

"Be it resolved: that the secretary of this association be directed to invite representatives of all organizations of beekeepers, teachers of beekeeping and members of the allied trades to meet at Kansas City, Missouri, in January, 1920, for the purpose of formulating and adopting a plan and constitution for a National Association."

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NAPA	H Stewart Co
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RED BLUFF	Lyon & Garrett
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SAN JOSE	C. G. Sigurd
SANTA ROSA	Ketterlin Bros.
SEBASTOPOL	Sebastopol Berry Growers, Inc.
SONOMA	John Batto & Sons, Inc.
SUISUN	All Dealers
UKIAH	Ukiah Farmers Club, Inc
VACAVILLE	All Dealers
VINEBURG	John Batto & Sons, Inc
WATSONVILLE	Pajaro Valley Merc Co.
WINTERS	All Dealers
WOODLAND	W P Boyce & Son
YUBA CITY	Starr & Brenner

Central California

CERES	Ceres Hardware & Implement Co.
EXETER	Exeter Mercantile Co.
FOWLER	J S Manley Co.
HANFORD	Hanford Hardware Co.
KINGSBURG	Olson Bros
LEMON COVE	W H Moffett & Son
LINDSAY	Ostrander-Race Hardware Co.
MADERA	Madera Hardware Co
MERCED	Merced Hardware Co.
MODESTO	Turner Hardware & Implement Co
OAKDALE	Nightingale-Sivley Co.
PARLIER	Eymann Hardware Co.
PORTERVILLE	Porterville Hardware Co.
REEDLEY	Reedley Hardware Co.
SELMA	Kolter-Goldstein Co.
STRATMORE	Bigham & Browning
VISALIA	Cross Horlock Co.

Southern California

BANNING	C S Holcomb
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COVINA	W L. Hurley
ESCONDIDO	Robertsen & Casson
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LANKERSHIM	Thos. H Brown
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VENTURA	Ventura Hardware & Plumbing Co

If your town and dealer are not shown in above list write me for new SECURITY booklet. Give name of your hardware dealer.



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Summer Course in Agriculture

By M. E. Bemis

The Arizona college of agriculture is planning something of an innovation in agricultural education. This will consist of a six weeks' course in irrigation agriculture. This was designed primarily as a post graduate course for agricultural students from the high school or college, but may be taken by any adult interested in agriculture.

The purpose is to give an opportunity of gaining practical knowledge of agriculture under irrigation.

The course will begin June 30. Headquarters will be the Mesa agricultural experiment station. Students will visit farms throughout the valley and will also inspect the Roosevelt dam and the water distribution system.

The program illustrates the work which will be given:

June 30-July 4: Irrigation under the Salt River Valley project, history of irrigation in Arizona, development of the Salt River Valley and other irrigation projects, irrigation legislation, engineering features including visits to Roosevelt dam; duty of water, seepage, underground water, necessity of drainage.

July 7-11: Soils of the Salt River Valley, soil types under the projects, composition, per cent and potential fertility, general character of arid soils, character of irrigating and of ground water, influence of irrigation on soil fertility, alkali and the rise of alkali, special problems of arid soil fertility.

July 14-18: Field crops of the Salt River Valley, alfalfa, cotton, cereals, sorghums, legumes and cover crops.

July 21-25: Animal products of the Salt River Valley, relation of the irrigated valley to the range, dairying comparison of feeding systems.

July 28 to August 1: Horticultural crops in the Salt River Valley, fruit and vegetable production; citrus, olives, dates and cantaloupes.

August 4-8: Miscellaneous farm operations under a large irrigation project, markets and marketing, agricultural industries, organization, company developments, colonization, criticism and suggestion.

Study of Plants

By Ernest Braunton

No department of nature can be more interesting or elevating in its study than that of the plant kingdom. But if you are not interested in plants it would not be profitable to pursue. for your mind would be on something else. You must feel that you are going into the work for yourself, to do the investigating yourself, and not rely wholly on others or on books. Get all the help you can but keep in the fore yourself. Unless you assume this attitude, a determination to investigate and understand, you will make but little headway.

Do not attempt too much at first. Your capacity for learning in this new direction will increase with every day, but if you become thoroughly acquainted with one plant the first day you have scored a great triumph. Do not set yourself certain tasks to perform at or within a specified time. You should absorb the knowledge easily, as it comes, and not make hard work of it. It should be approached as a nature study nor as systematic botany. The latter will appear later if you pursue the matter far enough. One thing you should do, however, and that is to keep the work continuous. Do not take it by fits and starts or even one or more days ea h week. You may go afield but once each week, but you may closely observe trees, plants, and flowers every day. Let no day pass unless you have scrutinized some flower so closely that you know its separate parts. If you follow these lines you are on the road to success at no distant date. I wish enough of our readers were interestd so we could each week have a short simple talk on botany for beginners, not the complex study of the subject found in text books.

Evergreen Raspberry

Much interest was aroused by a note in these columns a few weeks ago about an evergreen raspberry, and several have written to learn the name. It has no common name. All berries of this sort belong to the genus Rubus, and this species is Rubus ellipticus, native to the Himalaya Mountains. It is hardy where lemon trees are and is a true evergreen, growing to a dozen or more feet in height. It fruits well and the berries are fine for home use but too soft for shipping so that it will never be grown commercially, but for home use it is yum-yum. When ripe the berries are yellow and of delicious flavor.

The Satin-Leaved Acacia

The handsomest of all acacias is A. podalyriaefolia, so named because the leaves are like those of the podalyria or satin-bush. The acacia leaves and young branches are covered with a satin like growth of minute soft hairs, hence our name of satin-leaved acacia is eminently proper and much easier to speak or remember than its scientific jawbreaker. Its leaves in shape are unlike those of any other species we know, being nearly round a d a silvery gray in color. The flower balls are very large and of a deep golden yellow, the most desirable of all species for cutting for house use. The tree is as hardy as the lemon, slow of growth and will not thrive under the hard conditions that other species will endure. But of all it is the finest when in full bloom.

Garrya Ellyptica

A complaint comes that of five Garrya elliptica plants now in the garden five years, not one has bloomed. Whine not; I have grown one for eight years and it blooms not. Neither does it spin, but my head does when I think of the care lavished upon it. I have visited two nurseries where garryas are grown, one of them a half dozen times, but have never seen one in bloom. We have a native species in the South, said to be less showy when in bloom than the Northern G. elliptica, but I have seen the male plants in bloom up in the Arroyo Seco near Pasadena and they were handsome. Unless one has a wild hillside whereon to plant, the purchase of this native shrub is not advised, for it is not showy at best, bearing no real flowers as we understand the word, but strings of gray papier-mache bracts that are curious rather than beautiful.

Wormwood

How many of our readers know one or more native species of artemesia? For the wormwood of the Bible is one, and several species grow in both Palestine and California. The next time you find a plant of it, taste the juice and you will be readily convinced that its common name is well deserved. Wormwood is many times mentioned in the scriptures but always in connection with something bitter. Idolatry, profanity and other sins are

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often compared to it. Moses compared idolators to a "root that beareth gall and wormwood." Solomon said the end of a wicked woman "is bitter as wormwood", and in Amos it states "ye who turn judgment to wormwood". In Los Angeles County we have a half dozen species and one of them is called California or silver sage, but is not either the white sage or black sage, but a very common weedy plant covering many local slopes.

SIX GREAT CONVENTIONS

(Continued from Page 747.)

concerned in its production; and in wise consumption. Efficient production, equitable division and wise consumption constitute a trinity that leads to prosperity. Too much emphasis must not be placed upon any one of them. A great many economic theories break down because one or the other of the three is overlooked.

There have been changes in food habits. A striking illustration is sugar. In 1870, the people of the United States ate less than 33 pounds per person annually. In 1914, they ate more than 89 pounds each. The wholesale price in the first mentioned year was 13½ cents, and the last 4 2-3 cents. During less than half a century the consumption of sugar increased three times. The cost was reduced to one-third; hence the annual wholesale cost was nearly the same in both instances, being $4.42 per person in 1870 and $4.17 in 1914. For 1918, the wholesale price of the sugar consumed per capita had risen to $6.03.

During the same period, there has been a great increase in the consumption of fruits, which are a glorified form of sugar. There are many persons now living who can remember the time when an orange on Thanksgiving or Christmas was in the same category with turkey and plum pudding. Will prohibition bring about changes in our food habits? To what extent will prohibition increase the consumption of cream, sugar and fruit? Will sugar beets displace barley? An acre of sugar beets in California will produce 4000 pounds of table food. An equally good crop of barley will produce 800 pounds of human food. What effect will the change, if it occurs, have upon the density of population, upon the price of land, upon the demand for fruit? Is the fruit grower going to have his innings?

The United States has become a creditor nation. When the United States was a debtor nation, our stocks and bonds were held by people who lived in Europe. What became of the dividends? They were spent in Europe for food, clothing, shelter, education and recreation. These dividends created a demand in Europe for fresh eggs, spring chickens, winter lambs, hothouse grapes and Seville oranges. Vast quantities of these same stocks and bonds are now held in America. What will the owners buy with the proceeds of these coupons when they clip them?

During the war, the United States sent to our allies food, munitions and other commodities for which we accepted their notes to the extent of several billion dollars. Evidently, these notes must be redeemed with interest in commodities. What commodities? Obviously, they must be commodities which our allies can produce. Equally certain, they must be commodities which we desire. Will they be manufactured goods or food? What effect will this have on the relative price of fabricated articles as compared with food and other raw materials? Will this balance of trade which must take place sooner or later occur rapidly enough to affect materially the price of the things the farmer has to sell as compared with those he must buy?

Doubtless, it will sooner or later become apparent that under modern conditions it no longer pays the people who live in cities to engage in war, not even if they win. When that fact becomes thoroughly understood, we will no longer have wars except in those countries where civilized society does not obtain.

Go over bearing fruit trees and rub off all the water sprouts. They take up plant food and energy that should be used in the development of fruit and essential growth.

How to Control the Onion Thrips

The onion thrips is an insect so small that it is almost invisible to the unaided eye, but it is prolific, and the most serious menace to the onion growing industry of this country. It causes an annual loss to this crop alone estimated by specialists of the United States department of agriculture to be at least $2,250,000. Though the insect has a particular liking for onions, it preys upon other garden and truck crops, such as cabbage, cauliflower, cucumbers and melons, and also has a ravenous appetite for greenhouse and many ornamental plants, particularly roses. To aid growers in identifying this insect and preventing the losses for which it is responsible, Farmers' Bulletin 1007, "Control of Onion Thrips," has recently been published by the United States department of agriculture.

The first indication that an onion field has been attacked by thrips, says the bulletin, is shown by the leaves, which become whitened. In advanced attacks the leaves are curled, crinkled and twisted, and finally die down permanently. To control this pest, begin spraying with nicotine sulphate solution as soon as there is any evidence of the insect. If spraying is delayed until hundreds of young thrips are present the crop will be seriously injured. The spray material is made by the following formula: Three-eighths pint of nicotine sulphate (40 per cent), four pounds of dissolved soap and 50 gallons of water. Spraying should be done thoroughly and applied as a fine mist.

It is not advisable to plant other crops, such as early cabbage and cauliflower, upon which the thrips feed, near the onion fields. After onions, cabbage and related crops are harvested, the field should be cleaned up to destroy any breeding places of the insect. They will continue to thrive on any portion of these plants or weeds that might remain in the field. It is a good practice to plow as deeply as possible and harrow the ground after harvest. Much of the injury can be avoided by planting as early as possible and by using quick-acting fertilizers after the onions are well set or the bulbs have begun to form. Onion fields should be watched constantly and the plants should be kept growing thriftily, since once the plants become checked in their growth from any cause the thrips will multiply more rapidly than ever and it will be a hard fight to save the crop.



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Mr. L. C. Henry of Utica, Minn., purchased an International Motor Truck to haul his live stock and farm produce to market and to bring return loads from town. He says, "We use the truck for nearly every kind of hauling. It saves more time than any other machine in our farm service." Five of Mr. Henry's neighbors bought International Motor Trucks when they learned, from his experience, what a useful economical farm machine he had.

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Tizit will also free the trees of moss, lichen and fungus, all of which are working serious injury, and we also find that the trees are immune from the ravages of the Red Spider after being sprayed with Tizit.

The resultant effects of Spraying with Tizit, evidenced by healthy, vigorous trees and clean fruit that stays in the trees until picked, should make the use of Tizit Spray a regular annual practice on every grove. Money expended on Tizit Spray pays big dividends.

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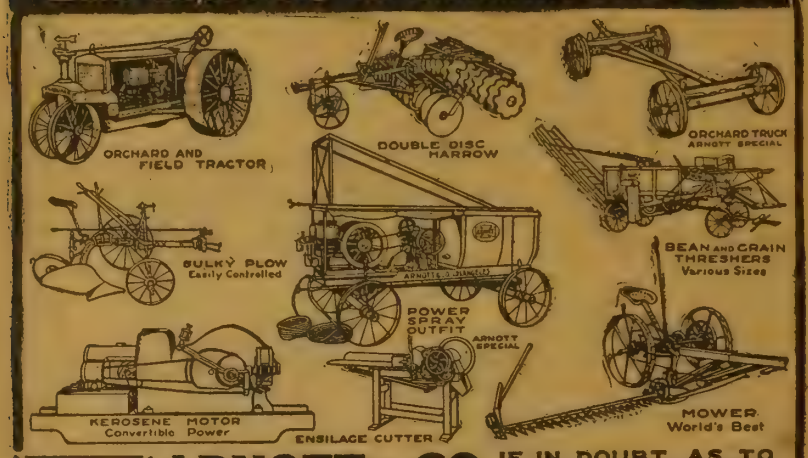
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The Fruit Outlook

Herewith table giving crop percentage of some of the orchard fruits as reported to the state horticultural commission by the various county horticultural commissions. This table was compiled by George P. Weldon, deputy state horticultural commissioner.

County	Almonds	Apples	Apricots	Cherries	Peaches	Pears	Prunes
Colusa	70	100	70	90	90	100	80
El Dorado	.....	100	.....	100	125	90	100
Fresno	100	.....	100	.....	100	.....	.....
Imperial	.....	.....	115	.....	.....	.....	.....
Inyo	.....	95	100	100	90	100	100
Kern	100	100	100	.....	100	100	100
Kings	.....	.....	100	.....	100	.....	90
Los Angeles	.....	.....	.....	.....	.....	.....	.....
Madera	65	.....	55	.....	85	.....	85
Marin	100	100	40	100	90	100	100
Mendocino	.....	80	.....	.....	.....	95	80
Monterey	.....	100	40	.....	.....	75	80
Nevada	.....	80	.....	100	100	70	.....
Orange	.....	.....	95	.....	.....	.....	.....
Sacramento	90	100	90	90	100	110	105
San Benito	.....	100	70	.....	100	100	100
San Joaquin	60	100	100	100	100	80	100
Santa Barbara	.....	.....	100	.....	95	75	.....
Santa Cruz	.....	100	100	100	100	100	105
Solano	50	.....	60	25	100	100	80
Shasta	100	100	95	100	95	95	.....
Siskiyou	.....	.....	.....	.....	.....	.....	.....
Stanislaus	125	100	110	100	88	100	100
Sutter	75	60	.....	75	80	75	100
Tehama	100	100	100	100	100	100	100
Tulare	.....	100	100	.....	95	.....	95
Ventura	100	.....	85	100	.....	.....	.....
Yolo	80	100	95	100	90	100	100

Almond Pollination

The experiment station of the California college of agriculture is issuing Bulletin 306, "Almond Pollination,' by Warren P. Tufts. Almond growers have for a long time been in need of more definite information regarding the culture of the almond. The university is aiding an industry which needs great extension.

The bulletin starts with a bit of history of California plantings of almonds which began in 1853. There have been many failures, and failures caused by lack of pollination have been under discussion since '85, when Mr. Hatch pointed out that Languedocs near seedlings always produced heavier crops than when planted in solid block by themselves. There are several half tone illustrations and charts. The book closes with the following summary:

Summary of Almond Pollination

Satisfactory artificial germination of almond pollen was secured in a 12 per cent cane sugar solution.

Inclement weather conditions undoubtedly injured the viability of the almond pollen produced during the blooming seasons of 1917 and 1918.

There is considerable variation in the amount of pollen produced by the various almond varieties.

Almond varieties may be roughly divided into two classes: early bloomers and late bloomers, when the length of their effective full bloom is considered.

The first blossoms produced by certain almond varities each season may yield a smaller amount of pollen and pollen which is inferior in viability to that produced by flowers on the same tree maturing several days or a week later.

Pollenizing agencies, such as the honey bee, are necessary to the set of a good crop of fruit.

The Harriott variety, which during the season of 1916 proved able to set fruit with its own pollen, the following season proved self-sterile.

All almond varieties thus far tested have proved self-sterile, at least in certain years. All of the 17 varieties tested during the season of 1917 proved self-sterile. This list includes the Big White Flat, California, Drake, Golden State, Harriot, I. X. L., Jordan, King, Klondike, Languedoc, Lewelling, Ne Plus Ultra, Nonpareil, Peerless, Princess, Reams, Texas and a hardshell seedling.

Certain almond varieties are intersterile.

The I. X. L. and Nonpareil varieties proved practically inter-sterile during the two seasons' work.

The Languedoc and Texas are intersterile, as shown by the results of 1917.

The California at present seems to be the one best pollenizer for all varieties thus far tested, which have a coincident period of bloom.

The California may be pollinated by the Nonpareil and Peerless.

The Drake may be pollinated by the California, Languedoc, Nonpareil and Texas; however, the Languedoc is a poor pollen producer.

The Harriott may be pollinated by the Ne Plus Ultra.

The I. X. L. may be pollinated by the Ne Plus Ultra.

The Languedoc may be pollinated by the Drake.

The Ne Plus Ultra may be pollinated by the California, I. X. L., Jordan and Nonpareil.

The Nonpareil may be pollinated by the California, Drake, Jordan, Ne Plus Ultra, Peerless and Texas.

The Reams may be pollinated by the Texas.

The Texas may be pollinated by the Drake and Nonpareil.

One colony of honey bees should be provided for each acre of orchard.

Care should be taken in the arrangement of varieties in the orchard to facilitate cross-pollination and convenience in harvesting.

PRUNE AND APRICOT GROWERS IN ANNUAL MEETING

The annual meeting of the Prune and Apricot Growers, Inc., was held on May 14 and all officers were re-elected except that H. C. Dunlap, who has been a member of the executive committee, has been made secretary-treasurer to succeed J. H. Bone, who goes to another position.

One of the most important matters brought up for consideration was the proposed $200,000 advertising campaign.

EVAPORATORS FOR PRUNE DRYING

The experiment station of the college of agriculture is issuing Circular 213, "Evaporators for Prune Drying." It is by W. V. Cruess and gives plans and details for several types of prune dryers.

OREGON PRUNE GROWERS INVITED TO JOIN

Manager Coykendall of the California Prune and Apricot Growers, Inc., says that the association plans to organize the Oregon prune growers next year.

If you are wondering what vegetables to plant that will stand the hot weather of summer try the following: pole bean, tomato, eggplant, pepper, squash, cantaloupe, watermelon, okra, chard, blackeye cow pea, carrot and sweet potato.



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Write us today for full details of the Twin City 12-20—these are but a few of its outstanding features. Ask for our booklet, "The Factory Behind the Tractor."

At $1525 *complete* you will find the Twin City 12-20 the most thoroughly dependable and economical tractor for your farm.

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Colton, Cal.
Only Bull Calves For Sale

MACHINERY
OF EVERY DESCRIPTION
Bought, Sold and Rented
BUTTRESS & McCLELLAN
205-7 N. Los Angeles St., Los Angeles

McAlister Dispersal Sale Successful

The dispersal of the famous herd of registered Holsteins owned by McAlister & Son, Chino, May 21-22, proved to be a splendid appreciation of the choice cattle this firm has developed in California. While it is a matter of regret that through this sale California and the Holstein breed lose from their ranks a breeding firm whose energy, fair dealing and financial strength have been for years directed in a manner that has contributed notably to the advancement of the best interests of the breed, yet a compensating fact is found in the wide distribution the sale provided for rightly bred cattle among new breeders, most of them dairymen of Southern California.

The big sale started off briskly and moved to the finish without a single hitch, and this in spite of an extraordinary unseasonable heavy rain storm that continued throughout the afternoon of the first day.

Consistent prices ruled throughout the entire sale, the top coming on the first day when R. F. Guerin, Visalia, secured the great cow K. P. Tola at $3950.

Burr Farm, Los Angeles, selected an extra choice lot of females that will strengthen the good breed they are building.

M. Bablyon, Santa Ana, bought a richly bred sire in a son of Prince Gelsche Walker out of the same dam as the $3100 heifer sold in the 1917 Guaranty sale at Sacramento.

C. F. Heil of Santa Ana was the fortunate purchaser of the famous bull It at the modest price of $2000, and the same buyer also secured some choice females.

Other items on individual purchases will be given in a later issue of the Cultivator.

Twelve animals in the sale sold for $1000 to $3950, and the entire herd of 159 head, including a few nonbreeders, several one, two and three teated cows, and a bunch of bull calves, sold for a total of $88,685, an average of $558 per head.

The following is a complete list of the animals sold, with name of animal, date of birth, official record if any, price paid, and name and address of purchaser:

Agee Brothers, Brawley

Forum Gold Leaf 5th, May, 1914, 20 pound two year old, $400.
Mercedes Nachefe Segis, December, 1912, 25 pound cow, $475.
It Sadie Burke, September, 1918, $800.
Forum Gold Leaf Segis, January, 1913, 25 pound cow, $500.
Sharon Netherland Acme, November, 1912, 21 pound cow, $625.
Little Netherland Acme, November, 1912, 24 pound cow, $600.
West View Aaggie Colantha, December, 1913, 28 pound cow, $800.

C. C. Buford

Georgie Pontiac, February, 1912, 14 pound cow, $400.
Orndyke Duchess Korndyke, March, 1910, 27 pound cow, $875.

W. D. Millard, Arcadia

Neva De Kol Pontiac, January, 1913, 14 pound, two year old, $475.
Mercedes Pontiac Nachefe, January, 1918, $400.
It Segis Wavelet, March, 1918, $425.
Queen Pontiac Korndyke Sadie Vale, November, 1916, $500.
Princess Pauline Alcartra, March, 1916, $700.
Lady Riverside Burke, January, 1914, 21 pound, three year old, $1150.

M. O. Pullim

Korndyke Sadie Vale Neva, March, 1917, $375.
Cristeria Xatasso Mechthilde, February, 1914, 23 pound cow, $575.
Claria Pontiac Topsy, May, 1913, $550.
K. P. N. S. Cristeria, March, 1917, $425.
Miss Pontiac Model De Kol, January, 1917, $700.
K. P. Pearl, December, 1913, 13 pound, two year old, $700.
Forum Pappoose Burke, November, 1913, 20 pound cow, $650.
Ursena De Kol 2nd, March, 1912, 20 pound cow, $600.
Ursena Segis De Kol, February, 1916, $500.
Empsie Clothilda Segis, December, 1912, 22 pound cow, $550.
Lady Clorinda Pontiac, January, 1916, $625.
Allenvail Mary Walker, March, 1914, 28 pound three year old, $825.
Allenvail Cornucopia 2nd, May, 1914, 24 pound three year old, $725.
Bull-King Winnie, December, 1914, $500.

W. W. Taylor

Aaggie Lotta Pontiac, May, 1911, $585.

W. T. McAllister

Locust Terrace Goldie, January, 1911, 22 pound cow, $400.
Mary Juliana Alcartra, September, 1916, $600.
Canary Fannie Pauline 2nd, March, 1912, 25 pound cow, $800.
Fanny Segis De Kol, March, 1916, $510.

W. R. Warne

Aaggie Lotta Segis, September, 1917, $310.
Inka Pietertje Pontiac Segis, January, 1918, $500.

Charles Harrington

Heifer calf, February, 1919, $280.
It Yoshida, November, 1918, $350.
It Wavelet Segis, March, 1918, $500.

A. W. Walker

Bull calf, January, 1919, $150.
Ina Lady Segis, February, 1914, 21 pound cow, $710.
Minnehaha Gerben Korndyke, February, 1914, 25 pound three year old, $750.
Canary Pauline Sadie Vale, March, 1917, $700.

E. T. McSwany

Bull calf, June, 1918, $210.

County of Orange

Mildred Pietje Segis, February, 1914, $475.

Captain Robert Price, El Paso, Texas

Heifer calf, October, 1918, $285.

P. H. Krick

Miss Alcartra Prilly Model, August, 1918, $360.
K. P. Idyl Segis, February, 1914, 35 pound four year old, $1750.

R. F. Guerin, Visalia

Allenvail Clothilde Walker, November, 1913, 26 pound three year old, $1025.
K. P. Tola, July, 1912, 33 pound cow, $3950.
White House Belle 2nd, April, 1917, $825.

Burr Farm, Los Angeles

Clothilde Walker Sadie Vale, January, 1917, $710.
Duchess Colantha Orndyke, October, 1916, $835.
Heifer calf, $250.
Duchess Orndyke Sadie Vale, December, 1917, $475.
It Siempje Korndyke, May, 1918, $400.
It Ruth Walker, February, 1919, $400.
Canary Fanny Sadie Vale, January, 1918, $500.
Changeling Tidy Abbekerk Florence, August 1911, 21 pound cow, $750.
Pauline Walker Sadie Vale, January, 1917, $1150.
Model Aaggie Sadie Vale 27th, January, 1918, $550.
Gleesome Gaiety Girl 2nd, August, 1911, 27 pound four year old, $300.

Cone and Goodnight

Bull calf, Clothilde Walker It, June, 1918, $640.

M. Babylon

Lady Segis Idyl, May, 1916, $1050.
Bull, Prince Gelsche Korndyke Segis, May, 1917, $1375.

A. H. Smithson

Korndyke Sadie Vale Pearl, September, 1917, $400.
Heifer calf, January, 1919, $325.
Maud Rachel Sadie Vale, January, 1917, $785.

C. W. Anderson, Burbank

Bull, King Paul Korndyke Vale, May, 1916, $925.

C. W. Cassell

Bull calf, January, 1919, $325.

C. A. Wilkinson

It Canary Segis, March, 1918, $350.
Heifer calf, $160.

H. J. Angel

It Canary Pauline, March, 1918, $410.

Gotschall & Magruder, Ripon

Hartog Creamelle De Kol 2nd, November, 1916, $850.
Princess Pauline Sadie Vale, February, 1917, $550.
Westview Model Aaggie, April, 1916, $700.
Princess Neva Segis, January, 1916, $800.

P. Jacobs

Venango Queen, January, 1906, 27 pound cow, $300.
Bull, Duke Segis Sadie Vale, December, 1917, $230.

E. R. Stalder

Venango Sadie Vale, February, 1917, $675.
Lady Allenvail Walker, April, 1916, $410.

A. G. Gustafsen

Bull calf, January, 1919, $175.
Yoshida 2nd, February, 1907, 27 pound cow, $425.

American Beet Sugar Company

It Lady Clorinda, June, 1918, $425.
Allenvail Daisy Walker, September, 1912, 28 pound four year old, $850.
Bull calf, Abbekerk Brunhilda It, October, 1918, $375.
Bull, November, 1917, $250.
It Forum Gold Leaf, March, 1918, $375.
Bull calf, March, 1919, $170.
Heifer calf, February, 1919, $200.
Heifer calf, April, 1919, $350.
Bull calf, July, 1918, $400.

Bost & Johnstone

Bull calf, It Star-Rena, February, 1919, $750.
Queen Segis Mercedes, March, 1917, $675.
Empress Sadie Vale Segis, April, 1917, $700.
Duchess Clothilde Segis, January, 1916, $670.
Korndyke Segis Louise, May, 1917, $260.
Lady Vale Newtonia, June, 1917, $600.

W. H. Morrow

Bull calf Star Rena It, February, 1919, $625.

B. & H. Dairy

Allenvail Segis Walker, March, 1913, 22 pound four year old, $375.

R. G. Zeledon

Canary Segis Ursena DeKol, March, 1915, 16 pound 2 year old, $650.

R. C. Speer

Bull, King Sadie Vale Oakland, February, 1918, $260.

A. Hunt

Neva Segis De Kol, November, 1913, 24 pound four year old, $485.
Bull calf, May, 1918, $200.

G. W. Short

Bull calf, August, 1918, $425.
Rosarond Lee Hengerveld, April, 1913, 23 pound four year old, $650.
Canary Ursena Sadie Vale, March, 1918, $500.
Cleopatra Pontiac Constantine 2nd, November, 1917, $400.
Lottie Cornucopia Segis, January, 1918, $710.
Heifer calf, February, 1919, $325.

Short & Elliot

Korndyke Sadie Vale Crane, June, 1917, $375.
Cristeria Mechthilde Pontiac, December, 1917, $300.

O. K. Clammer

Bull, King Briems Korndyke, December, 1917, $500.
Bull calf, March, 1919, $170.
Maud Rachel Segis, December, 1909, 25 pound cow, $300.
Neva De Kol Posch Segis, September, 1913, 22 pound three year old, $625.
Siempje Korndyke Segis, January, 1909, $205.
Yearling heifer, $300.
Miss Korndyke Mercedes, February, 1909, 24 pound cow, $525.
White House Belle, $225.
K. P. Baby Walker, $175.
Queen Pauline Pietertje Segis, $200.
K. P. Ruth Walker, $130.
Sadie Cornucopia Wayne, $110.

J. Fuster

Bull, King Korndyke Neva Segis, $250.

AUCTION SALE OF REGISTERED
Poland China Hogs
40 Splendid Young Sows
10 Choice Bred Gilts
5 Carefully Chosen Boars

These hogs are representative selections from the best of the California breeders, including M. Bassett, W. H. Browning, W. A. Young, Hewitt & Hewitt and such Eastern breeders as Fesenmeyer and T. F. Walker.

They carry the blood of such noted sires as President, J. O. Orange, I. B. A. Wonder and Chieftain.

To be sold without reserve Wednesday, June 4th, 1:00 p. m., at oil station on the Davis Highway, two miles west of Sacramento.

AMERICAN HOG CO., OWNERS
Ord L. Leachman, Auctioneer, 1004 5th St., Sacramento
Main 1987-R

Christian Assembly
Mercedes Nachefe Segis 2nd, May, 1914, $500.
Hood & Baughman
Lady Newtonia, April, 1911, $400.
Chloe Aaggie Sadie Vale, June, 1917, $750.
H. Michel
Heifer calf, April, 1919, $310.
Heifer calf, February, 1919, $335.
It Lyda, July, 1918, $500.
Heifer calf, March, 1919, $300.
Heifer calf, February, 1919, $325.
Leeman & Kilgore
Queen Pontiac Butter Boy, June, 1914, 22 pound two year old, $610.
Empress Hillside Segis, April, 1915, 16 pound three year old, $510.
Empress Lyons Segis, February, 1916, $510.
Forum Model Segis, April, 1916, $585.
Lady Mayflower Walker, February, 1916, $700.
It May Korndyke, $825.
L. C. Bornt
Coloma Johanna Hartog, October, 1910, 28 pound cow, $1000.
Bull calf, April, 1919, $850.
J. L. Morris
Pauline Pietertje Sadie Vale, December, 1916, $850.
Lorena Segis Louise, June, 1916, $735.
R. E. Babcock
Allenvail Pauline Walker, August, 1913, 32 pound four year old, $1425.
C. F. Heil
Finderne Valdessa Korndyke, May, 1913, 20 pound three year old, $1425.
Bull, It, May, 1912, $2000.
La Faurie Brothers
Bull calf, April, 1918, $250.
C. T. James
Bull, Pontiac Newdine It, January, 1918, $400.
Charles B. Bergen
Isabella Crane of Lucerne 3rd, February, 1914, 21 pound three year old, $385.
J. E. Alton
Bull calf, October, 1918, $190.
James Fox
Bull calf, February, 1919, $125.
Vail Company
Bull calf, $200.
Mary Baxter
Bull calf, October, 1918, $140.
W. F. Eldridge
Bull calf, October, 1918, $140.
I. J. Scott
Heifer calf, $255.

UNIVERSITY JERSEY MAKES STATE RECORD

A new record of butter fat production for a California Jersey has been established at the University Farm at Davis by Interested Jap's Santa making 939.08 pounds of butter fat in a year. Two years ago the California state record for a Jersey was 702 pounds held by Pearl of Venadera owned by Guy H. Miller of Modesto. Last year this record was passed by three cows, Mermaiden's Fern II, owned by the University of California, making 729.55, Fern's Silver Ray owned by Frank Vanderpoel of the Imperial Valley, making 779.54 and Interested Jap's Santa of the university herd making 805 pounds. The state record cow now raises her own record 134.08 pounds. The new record which is Santa's five year old record beats the six year old record of Sophie 19th of Hood Farm (later grand champion of the breed) by eight pounds. It places the university cow in eleventh place among all the cows of the breed. It is the highest record of butter fat production made at an agricultural college.

The animal husbandry division of the university has achieved distinguished honors during the past year by establishing two new records for agricultural college herds. In April it sold a pure bred Shorthorn bull of its own breeding for the record price for an agricultural college of $5500. Now it establishes a new record of butter fat production by an agricultural college cow.



Interested Jap's Santa

The pure bred Jersey cow owned by the University of California that recently completed a record of 939.08 pounds butter fat and 15,538.02 pounds milk, a new state record and one of the 11 best records made by any Jersey.

The Everlasting Pacific

A Silo That Stands The Test of Time

When you build a barn you build it of the best lumber for that purpose. You do so because you want it to stand and give service.

That's why we use California Redwood in Pacific Silos—we build them to stay built and give you service all the time.

All staves are milled to the true circular outline of silo, both inside and outside. Each piece is chosen for its durability and permanency — is free from pitch, knots and other imperfections.

The foundation for a silo is a very important point. It must be perfectly level and strong. We will supply foundation plans for the Pacific silo or will install it complete for you.

Pacific silos are very simple and easy to build. Once built they stay built, need no attention and are not affected by changes of weather.

All Pacific silos are fitted with self-adjusting, straight-pull spring lugs. By using spring lugs at even distances around your silo, it is not necessary to tighten and loosen hoops. This is one of the most important features of silo construction.

Solve Your Water Problem

Nothing adds so much to the efficiency and convenience of a farm as a water tank. It saves time, labor and money, and assures you of water all the time.

Pacific Redwood Tanks are built like Pacific silos—strong and everlasting. Our patent non-shrinking feature does away with all chance of leakage. A Pacific tank is always tight—the hoops never need adjusting.

For your irrigation system or pipe required on the farm, let our engineers lay out your plans and solve your problems. Pacific machine banded pipe lasts a lifetime.



Cut Out and Use This Coupon

Pacific Tank and Pipe Co.
312 Market Street, San Francisco
907 Trust & Savings Bank Bldg., Los Angeles

Send me descriptive matter and complete information regarding Pacific silos and water tanks.

Name .....

Address .....

JOIN
California Dairy Council
NOW

Don't wait for someone to call on you and argue you into it.

Everyone admits that milk and all milk products should be advertised to the public but there is no one to furnish the money unless it be those who will profit by the increased trade that is sure to follow.

The present high prices are admittedly profitable, but they spell danger in the future.

Thousands of consumers are already using substitutes and many more will do so.

Substitutes are persistently advertised—dairy products are not.

California Dairy Council will advertise them if You will furnish the money.

Send in your subscription voluntarily—don't wait.

If the money of those who have already subscribed is spent in sending solicitors to see those who have not there will be just so much less to spend in getting new business.

Join NOW—write to

California Dairy Council

268 Market Street, San Francisco
2311 Fairfield Avenue, Hollywood

Imported and American Bred
Percheron, Belgian and Shire Stallions

A large collection of Stallions ready for service this season. Heavy boned types with plenty of style and action. Prize winners and descendants from prize winners. **No better in America.**

State Certificate of Soundness and Life Insurance

furnished with every horse. If your community is in need of a high class Stallion come to Patterson, California, and see the largest and best collection in the West. **Special Prices** and Liberal terms for the next sixty days.

Visitors Welcome **Correspondence Invited**

N. W. Thompson

Patterson, Cal.

Hauser's Digester Tankage

Gives Greatest Value For Least Money
It Makes Them Fat

Hauser Packing Co. **Los Angeles**

When writing advertisers, mention The Cultivator.

Vive la France

Ovid Pickard, an Oregon farmer of French descent, whose pride is his ancestry led him to name a baby calf "Vive La France" at the outbreak of the great war, later developed this animal into a world's champion cow.

Mr. Pickard went to the barn one day about the time the great war broke out in 1914 and found a new heifer calf. She was of unusual beauty and promise, and her owner felt that he should show his trust in the country of his fathers by naming the newcomer 'Vive La France." Besides having a burning desire to see France victorious, Pickard always cherished the thought of some day owning a great cow. But little chance, apparently, had a poor farmer, who rented his place, against the hundreds of men who had money and animals of seemingly better breeding.

"Vive," as they call her at the Pickard Farm, made a three-year-old record when the Huns made one of their final drives on Paris, but not much publicity was given to her first effort in those dark and doubtful days. Her first great record assured Pickard that he had a wonderful cow and he set out after another and greater world's record.

Pickard has only 15 cows, and four of them are as good as any man can own. One of these is Old Man's Darling 2d by name, and she holds the junior four-year-old record of the Jersey breed by having made 985 pounds butter fat in one year. "Vive La France," a stable mate, has just completed her record as senior four-year-old, which breaks by nearly 100 pounds the old record (made many years ago) of Olympia's Fern.

The exact figures of "Vive La France's" record are as follows: 14,925 pounds milk; 1031 pounds butter fat in 365 days; averaging percentage of butter fat, 6.91; age at beginning of test, 4 years 7 months.

By making this record "Vive La France" becomes senior four-year-old champion of the Jersey breed, and she also holds the junior three-year-old championship made a year ago, on which occasion she made 12,744 pounds of milk and 892 pounds butter fat. She has a two-year-old record of 9210 pounds milk and 633 pounds butter fat In her first test "Vive's' milk tested 6.88 per cent fat and in her second it tested 7 per cent, so it can be seen from this that she is a naturally high testing cow. Her average test of 6.91 in the latest test is not in the least abnormal, although she tested high in the eleventh month. The four-year-old record also makes her champion cow of the Jersey breed at all ages, as she surpasses the record of Sophie's Agnes, the first 1000 pound cow of the breed.



Vive la France
World's champion four year old Jersey owned by Pickard Bros., Marion, Oregon.

Milk and Cream Exhibit at Western Dairy Products Show

At the Western Dairy Products Show held at Boise, Idaho, February 10-12, 1919, there were 63 entries of milk and cream. Of these entries 54 were in the market milk and cream classes and nine in the class for cream for butter making. The judges were Ben R. Eldredge, dairy fieldman for Utah; P. S. Lucas, assistant professor of dairy manufactures, Corvallis, Oregon; and Noel Negley, dairy husbandman, dairy division, United States department of agriculture.

The winners in the various classes, together with score in each case, are as follows:

Class 1—Market Milk, Raw

First, Frutiger and Company, Portland, Oregon, 98.1.

Second, Elliot-Brant Rancho, Los Angeles, 97.8.

Third, Smith Brothers, Jersey Farm, Salt Lake City, Utah, 97.4.

Class 2—Market Milk, Pasteurized

First, Portland-Damascus Company, Portland, 97.9.

Second, Crescent Creamery Company, Los Angeles, 97.2.

Third, Independent Dairy, Seattle, 97.1.

Class 3—Milk Dealers

First, Fernwood Dairy, Portland, 95.5.

(Average of five patrons' exhibits.)

Class 4—Certified Milk

First, William Campbell, Seattle 97.8.

Second, C. W. Orton, Seattle, 97.5

Class 5—Market Cream, Raw

First, Frutiger and Company, Portland, 97.4.

Second, Charles Lehman, Portland, 97.2.

Third, Wardin and Heusser, Portland, 96.8.

Class 6—Market Cream, Pasteurized

First, Fernwood Dairy, Portland, 97.8.

Second, Crescent Creamery Company, Los Angeles, 96.8.

Third, Riverview Dairy, Portland, 96.6.

Class 7—Board of Health

First, Dr. D. W. Mack, Portland, 97.8. (Average five highest scoring samples.)

Class 8—Creamery Patrons

First, S. T. Jackman, Lynden, 96.6.

Second, W. H. Jackman, Lynden, 94.4.

Third, C. A. Pape, Nampa, Idaho, 94.3.

Class 9—County Farm Bureau

First, Whatcom County, Washington, 86.4. (Average score on five highest scoring samples.)

DOING GREAT WORK

Humboldt County has long been one of the most advanced dairying counties in California. It had the first cow testing association and the first farm adviser in California. The cow testing association has enabled the dairymen of that county to reduce their herds in numbers and to increase the returns, and the first year or two of the work of the association was not deemed sufficient, but the testing is persisted in after several years of successful work. The report for April shows really wonderful results. There

Jerseys

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right
S. F. WILLIAMS
ORLAND, CAL.
Member Orland Jersey Cattle Club.

Venadera Herd
REGISTERED JERSEYS
Young bulls from proven dams in Register of Merit
GUY H. MILLER
MODESTO, CAL.

ALL MY RECORDS
are made under ordinary dairy conditions. The farmers cow is
The Jersey
YOUNG BULLS FOR SALE
C. D. HAYWORTH
MODESTO, CAL.

Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
W. J. HACKETT
MODESTO, CAL.

Get One of My Jersey Bulls
to increase the production of your herd. They are rich in the blood of the great cow, Gertie of Glynllyn.
Visitors Welcome Correspondence Invited
A. A. Jenkins
R. R. Box 46 Tulare, Cal.

The Keep On Herd
REGISTER OF MERIT JERSEYS
Young Animals for Sale
DR. H. W. HAND - - - Orland, Cal.

Remember July 10th
On the above date I will sell the most select offering of
Shorthorn Cattle
ever offered in the West. Practically the entire lot will represent the choicest of Scotch breeding. Watch for future announcements.
W. M. Carruthers
Live Oaks Cal.

Ord L. Leachman
AUCTIONEER
Sacramento
(1004 5th Street)
My services are available to all who plan to sell live stock, farm equipment or real estate, and who want the high dollar. Pure bred live stock sales a specialty. Terms reasonable. Write or wire for dates.

The Leading
Live Stock
Auctioneers
Col. Ben A. Rhoades
Harold B. Rhoades
Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References: The leading breeders in the state. Write or wire for dates and terms.
Rhoades & Rhoades
1501-3-5 South Main St.
Los Angeles, Calif.

HOLMES STOCK FARM
Registered Holsteins of best breeding. Young bulls for sale.
R. L. Holmes Modesto, Cal.

are 29 dairymen with cows ranging 60 or above and with monthly milk production ranging from 1000 pounds to 2222 pounds per cow. One member, George McCready, has cows testing as high as 5.1, ten of them totaling from 60 pounds butter fat to 67.8; Martin Pontino, nine cows, 63.9 pounds to 84.3; Eugene Bondini, eight cows, 60.6 to 71.1; Jeff Nissen, seven cows, 60.0 to 72.0; S. V. Foster, Jr., seven cows, 60.0 to 69.0; Iver Iversen, seven cows, 60.6 to 79.5; W. W. Turner, six cows, 61.2 to 73.8; Joe Richerio, five cows, 62.1 to 71.1; L. Costa, four cows, 60.0 to 78.6; Rieberio & Mense, four cows, 60.0 to 78.9; J. Kirkpatrick, three cows, 63.6 to 67.8; Frank Rieberio, three cows, 60.6 to 68.4; J. B. Hill, three cows, 60.0 to 70.2; Axel Kjer, three cows, 60.9 to 63.0; Peter Iverson, whose high cow produced 61.5; I. L. Moxen, 70.8; Cochran Brothers, 60.9; R. L. Chaffee, 64.2; James Kane, 60.3; Joe Dies, 67.3; Martin Nielsen, 63.3; Chris Thompson, 63.3; Tom McGowan, 68.4; Joe Ramos, 61.5; Joe Rocha, 60.0; Joe Martin, 6.45; D. J. Turner, 60.9; J. C. Kjer, 61.5; Molea and Avilla, 62.7.

NEWEST COW TESTING ASSOCIATION

The extreme northern end of the state comes with its report of some good cows, members of the Klamath River Cow Testing Association. There is some wonderfully fine country up in Siskiyou, northern Humboldt and Del Norte, and along the valleys of the Klamath are some cows that the Babcock test is calling attention to. Professor Voorhies sends list of some of their performances for the month of April. Some of the cows are giving above 60; some above 50 pounds of butter fat per month. Mrs. Sophie Blake, with a grade Jersey which shows a production of 64.08, tops the list. She also has other cows above the 50-pound line. P. F. Peini has cows ranging around 63.18, 61.95, etc. Other dairymen have cows showing butter fat production most favorable, for instance, Sero Del Ponte, 61.4, 62.73; C. P. Macbeth, 60.75; J. R. McMillan, 56.11; J. W. Webber, 51.30; A. W. Green, 52.65; Victor McFarlane, 50.31; Charles Phillips, 53.58; F. P. Fehely, 52.06; V. M. Del Ponte, 57.81; Charles Williams, 51.75; Paul Bravo, 52.89.

VALUE OF DAIRY PROQUCTS

The dairy council is putting out an increasing amount of publicity regarding the healthfulness, even necessity, of dairy products. From one of its recent circulars we quote:

Experts assert that every adult should consume at least one pint of milk daily, every growing child at least one quart, and every infant two quarts. The records of city milk distributors show the actual consumption to be between one-third and one-half that quantity, so there is opportunity to increase the sale of milk in cities from 100 to 200 per cent.

Oleomargarine should never be served on the table. It is vastly inferior to butter as food. If used at all it should only be used as a substitute for lard. Full cream cheese is a more sustaining food than meat—and costs less—but people don't know it, so they nibble at a little piece now and then with pie. Ice cream can be made into innumerable forms of desert. It is not harmful as rich pastries are; it aids in the digestion of the meal and is a healthful food also.

The California Dairy Council is being organized to carry on this advertising campaign. It is now operating with a temporary board of directors. The first annual meeting will be held July 9, at which time a permanent board of 21 directors will be elected. It is important that the membership be large enough by that date to insure a representative board and to provide enough subscriptions to justify the inaugurating of a campaign. Dairymen and creamerymen are eligible to membership.

THE AVERAGE SALE PRICE OF GUERNSEYS

During 1918 there were 32 public sales of Guernsey cattle. There were 1318 Guernseys sold for an average price of $330. The 220 cows sold brought an average of $574 a head; 517 heifers average $305; 167 bulls brought an average of $284 each and 4124 unclassified animals averaged $252.

Prince Walker Cornucopia
The Highest Record Son of Prince Gelsche Walker



His dam ALBA SADIE CORNUCOPIA CREETA has just completed official records of 36.26 pounds butter from 516.7 pounds milk in seven days. Her previous records were as follows:
At seven years—
Milk 338 days.....18,849.40
Butter 866.28
At six years—
Butter seven days 34.13
Milk 532.40
At five years—
Butter seven days .... [illegible]
She is a daughter of Sir Sadie Cornucopia, son of the first 30 pound cow, Sadie Vale Concordia.

Over 60 of our best females are bred to PRINCE WALKER CORNUCOPIA, and he will be given the fullest opportunity in this herd. Put one of his young sons at the head of your herd.

Santa Anita Rancho
Anoakia Breeding Farm
Santa Anita, California
Anita M. Baldwin, Owner W. H. Taylor, Supt.

His Calves Are Beauties

Every one who is fortunate enough to own a son or daughter of KING KORNDYKE PONTIAC 20TH our $6500 herd sire, is enthusiastic about the splendid type and beautiful marking of his calves. While they are only babies his daughters show great promise of developing into exceptional dairy cows.



King Korndyke Pontiac 20th

His young sons are moving fast, and it will pay you well to see us now about one for your herd, for we are not going to be able to fully supply the demand for some time to come.

Our Entire Herd is Tuberculin Tested
Tulare Holstein Farm
W. J. Higdon, Owner TULARE, CAL. H. L. Redd, Herdsman

For Sale Sir Fayne Pontiac De Kol Pietertje
H. B No. 157535



Will offer for sale this valuable Herd Sire. He is from a 24 pound granddaughter of King of the Pontiacs.

Born April 17, 1915.

Sire—Sir Mooie Fayne De Kol Jane 76287.

Dam — Whittier De Kol Pontiac Pietertje 173965. Butter seven days, 24.12.

Todos Santos Rancho
E. D. Barry, Jr. *Daggett, Cal*

Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average:
Milk one year....24,089.88 pounds
Butter ..... 1,105.07 pounds
This butter average is equalled by only one other bull of service age in the world. Buy your next bull from
Eldorado Herd
Alex. Whaley, Owner Tulare, Cal.



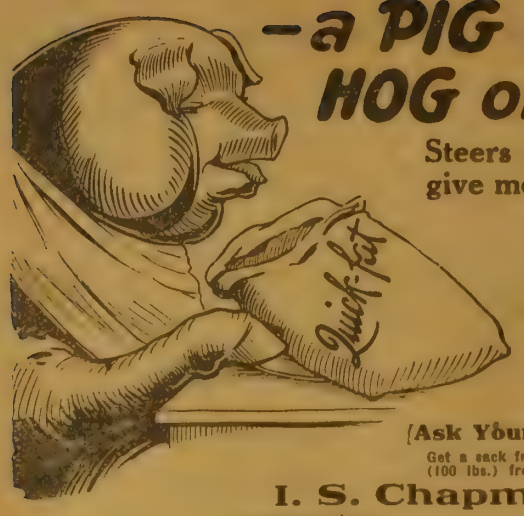
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We can supply you with a splendid young bull—one that will increase both your milk and butter yield—sired by a bull with more 30 pound daughters than any living sire. An immediate reply to your inquiry.
R. F. Guerin, Breeder of Holsteins
Visalia, Calif.

HOLSTEIN-FRIESIAN CATTLE
Registered young bulls from best families.
Registered Berkshire Pigs
Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes — we pay registration fee.
Careful attention given to mail orders.
Whittier State School
Whittier, California

Attention Buyers
For sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.
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have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales
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Quick-fat is a new feed made from alfalfa meal and molasses base, reinforced. Concentrated and partially predigested.

The nutritive value is practically the same as barley.

It can be fed alone or mixed with other foods, grains, etc.

Ask Your Stock How They Like It

Get a sack from your dealer or send $2.50 for a trial sack (100 lbs.) freight prepaid to your station.

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Chapman Building San Bernardino, California

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As good as the best and better than the rest. A boar or a sow pig sired by my great herd boar Director, and out of one of my choice sows will add prestige to your herd. I am booking orders now for the pigs of March and April farrow. Write now and place your order.

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Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



M. Bassett

Hanford, Kings County, Cal.



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A young boar pig carrying the blood of that world's famous boar— Star Leader will add the necessary quality to your herd. These young boars are ready for shipment and priced reasonable. Let us send you full particulars. Write us at once.

Anchorage Farm, Orland, Calif.

Important Duroc Offering

We recently purchased a car of excellent Duroc-Jerseys selected from some of the East's leading herds.

Thirty-five yearling and aged sows for sale. Will breed them to any boar on the farm. Several young boars ready for service and fall shows.

Young pigs of both sexes.

H. P. Slocum and Son

Willows, California

The Key Herd of Duroc-Jerseys

Bred Berkshire Sows

June farrow—ready for immediate shipment $100. Satisfaction guaranteed—send it with order—no time to lose. Two good young boars.



F. P. Hall Perris, Calif.



Take a Look at Blue Valley Model

One of our promising young boars. Strictly Big Type. Aged sire Greenfield's Special by Superba. Big Type Polands that satisfy. Write

Poland China Ranch H. B. Peake, Mgr.

San Bernardino, Calif.

When writing advertisers, mention The Cultivator.

Live Stock News Notes

Kern County Auction

Kern County farm bureau announces auction sale at Wasco, June 7; McFarland, June 14; Bakersfield, June 21.

Riverside-San Bernardino Cow Testers

The Riverside-San Bernardino Counties Cow Testing Association is doing some fine work in eliminating boarders and in giving real values to workers. The association has now under test 960 cows and of these 75 produced better than 44 pounds butterfat. Amongst the big producers are cows in the herds of Howard Warren, San Jacinto, 55 pounds milk daily, 71 pounds butter fat for the month; P. Farrell, Ontario, 60 pounds milk, 54.80 pounds butter fat; Bost and Johnstone, Corona, 60 pounds butter fat; I. Pulliam, Ethanac, 61.20 pounds butter fat; H. A. Younkin, Corona, 54.60; T. J. English, Chino, 53.20; W. C. Coke, Ontario, 52.56; A. A. Gregory, Redlands, 52.44; I. V. Netzley, Chino, 52.06.

Poland-China Breeders Unite

The Fresno County Poland-China breeders have invited Madera County breeders to unite with them in the forming of a Poland-China association, and held a meeting at Hughes Hotel last Tuesday, May 27. The temporary officers were Al. Buckland, chairman; and Walter C. Ficklin, secretary.

Durocs Commanding Great Sale

R. K. Walker, secretary of the Southern California Duroc-Jersey Association, is checking up on some of the accomplishments of Durocs at recent public sales. He reports that at 175 public sales the last winter, 7729 pure bred Durocs sold for $1,613,568.02—$208.00 was the general average per head for the entire lot. These figures are very illustrative of the tremendous popularity of the Duroc-Jersey hog in the old settled Middle West sections as well as in new territory such as California.

Berkshire Breeder Now Dairying

Frank B. Anderson, Sacramento, secretary of the Western Berkshire Congress, has entered the dairy business and is selling whole milk to Sacramento buyers.

Anderson has a small lot of pure bred Holsteins, and at the recent McGillivray sale selected some of choicer lots. He expects to gradually replace his grades with pure breds, and while he does not plan building up a large herd he is determined to have the best small herd in the state.

Returns From Eastern Trip

W. M. Carruthers of Live Oak, who has been visiting the leading Shorthorn nurseries of the Middle West has returned. While East Carruthers selected a carload of extremely choice bred females and a few bulls of the same character. According to Carruthers, the man who goes East to buy good catte had best take his nerve and a long pocketbook with him. All values are on exceptionally high levels, but particularly is this true of the more fashionably bred Scotch sorts. Just before his return, Carruthers attended the notable circuit of sales including that of Frank Scofield of Texas, the world's record breaking sale of H. C. Lookabaugh at Watonga, Oklahoma, and the $1531 average sale held by Park Salter at Wichita, Kansas.

Practically all the cattle purchased by Carruthers were from the leading herds of Missouri, Iowa and Kansas. Females were even secured from the famous Ravenswood herd, Bunceton, Missouri, which, by the way, is the oldest herd of Shorthorns in existence; Allan Betteridge, Bunceton, and Harriman Brothers, Pilot Grove, Missouri. Bulls were secured from Dean C. F. Curtis of Ames, Iowa, and John Tomson of Dover, Kansas. It was from the Tomson herd that Carruthers got a splendidly bred roan son of Beaver Creek Sultan, a grandson of Whitehall Sultan, and from one of the choicest bred Clara dams in the country.

It is possible that part of the recent purchases will be included in the sale Carruthers will hold at Sacramento, July 10.

Sells Good Duroc Boar

V. F. Dolcini, proprietor of the June acres Stock Farm, Davis, has sold a yearling Duroc boar to George Dierson, Sacramento. The boar, a son of the University of California herd boar, Model Col., was a winner in the 1918 state fair futurity. Dolcini does not expect to show this year.

Thompson Promoted

Friends of Professor J. I. Thompson of the animal husbandry department of the University of California will be glad to know that he has been promoted from assistant professor to the rank of associate professor of animal husbandry.

Thompson is recognized as one of the leading swine authorities of the United States.

Sheep Expert for U. of C.

J. F. Wilson, a sheep expert now with the United States department of agriculture and stationed in Wyoming, has been engaged to take charge of the sheep investigations conducted by the University of California. Professor Wilson is a graduate of the Wyoming college of agriculture and did graduate work at the University of Missouri. He will take up the work formerly carried on by Professor R. F. Miller, who resigned to go to Texas.

Establishing a Standard

A recent addition to the herd of Duroc-Jerseys at George Junior Republic, Chino, is a young boar sired by a son of Orion Cherry King and out of Golden Model 31st. This boar is being developed slowly with the view of placing him at the head of the herd the coming season. R. A. Condee, farm superintendent, states they are establishing a standard both for their Duroc-Jerseys and Holsteins. Every cow is placed on yearly test on freshening and must show a minimum production of 10,000 pounds of milk and 300 pounds of fat to remain on the farm. While the cows are tested regularly they have not had a single reactor in three years nor a single case of abortion. Mr. Condee says, no accidents preventing, George Junior Republic will be represented at the fall shows.

A New Herd Sire

The Poland-China Ranch of San Bernardino under the management of H. B. Peake has recently secured from Hale L. Marsh a junior herd boar, Blue Valley Model, by Blue Valley Tecumseh. This boar will act as running mate for their aged boar Greenfield's Special by Superba, the grand champion at the 1915 World's Fair. Fifteen big type sows now make up the herd, which will be considerably increased this fall. Mr. Peake, the manager, states that business has been exceedingly good and the demand for bred sows and gilts has been greater than the supply, but hopes by another year to be able to fill all orders. A number of young gilts are being retained which will be bred this fall for spring litters. Recent sales include a boar and gilt to John Boyle, Los Angeles; boar to Ashdown Bros., DeVore; boar to Walter Echols, Chino, and four sows to Mr. Bennett, Victorville.

Tulare Breeders' Sale

R. F. Guerin, president of the Tulare County Poland-China Breeders' Association, states that at the recent organization of the association arrangements were made for holding a public sale in Tulare, October 9. Further details of the sale will be announced later.

A Red Letter Day for Polands

California Poland-China breeders are looking forward with interest to the sale scheduled to be held at Hanford September 17, by John M. Bernstein and W. L. Haag and Son.

The sale will be particularly notable from the fact that it will contain the largest number of Eastern bred Polands ever offered in this state. Forty head of big type bred sows selected from many of the leading herds of the Middle West will sell, carrying the service of such prominent boars as

President, Young Jumbo, Yankee Jr. and Lendorris Liberty Bond. The last two boars are bred deeply in the blood that is held in such high esteem throughout the Poland-China world. From time to time detailed comment will appear regarding the forthcoming sale.

Heath Now at Innisfail

Verne Heath, who was formerly connected with the dairy department of the Napa State Hospital, and who more recently was engaged in the dairy business in the Hawaiian Islands, is now in charge of the Innisfail herd of milking Shorthorns owned by Alexander and Kellogg, Suisun. Heath, who is one of the most expert fitters and developers of dairy cattle in the West, is planning to take a show herd on an extensive circuit this fall.

Tulare County P-C Breeders

Directors of the Tulare County Poland-China Breeders' Association have set the date for their first sale on Thursday, October 9, to be held in the live stock pavilion at Tulare and will appoint a "class" committee which will pass on all the animals submitted 60 days before the date set and again the day before the sale, so that only the best animals in the county will be offered at auction. All pedigrees will be guaranteed by the association and every effort will be made to make the sale one of the most notable for the breed in California. By-laws closely following those of the Kings County Association have been adopted and a membership campaign will be inaugurated soon. —G.

Goes East for More Cattle

R. M. Dunlap of Sacramento is now in the East and while away will select a heavy shipment of pure bred Shorthorn and Hereford bulls and females for California buyers. Dunlap has been identified with the cattle business of the state for a good many years, but states that he has never known such a keen and widespread demand for the better sort of cattle as exists at this time. Dunlap will be gone about six weeks.

Wool Growers May Have Secretary

President Fred A. Ellenwood of the California Wool Growers' Association suggests that the time has come when the association should become more active and that a secretary, preferably a man thoroughly acquainted with every angle of the business, especially marketing, be employed to devote his entire time to the work of the organization. The suggestion met with approval at the meeting at Davis and a plan for financing the work is being considered.

McNeil Holstein Sale

The dispersal sale of the well known McNeil herd of grade Holsteins at Fresno on May 16 was a pronounced success. While some of the cattle, particularly the young stock, were not in the best sale condition, the average of the entire herd was good. Among the buyers at the sale were representatives from the County Farm of Fresno County who selected some choice cattle. The sale was conducted by Col. Ben A. Rhoades and Harold B. Rhoades.

Getting Ready for the Sale

H. S. White, Chino, breeder of Duroc-Jerseys, is using as herd boar Rivera Col. by Model Col. and out of Col. B's Queen 4th, a sow purchased by H. C. Witherow, Live Oak, from University Farm, Davis. Four of his gilts are being retained and will be consigned to the sale to be held in Los Angeles some time the coming winter.

TULARE STOCK SHOW

Tulare County, which has developed in the past few years into one of the most extensive stock breeding sections of the state, will hold a big stock show this fall under the auspices of the Tulare Board of Trade at the city of Tulare, which is in the center of the Holstein and hog production of the county. Cooperating with the Board of Trade will be the Tulare County Live Stock Association, which is building a fair grounds at the edge of the city; the Tulare County Duroc-Jersey Hog Breeders' Association, the Tulare County Poland-China Hog Breeders' Association, recently organized at Tulare, and the Tulare Co-operative Poultry Association. Extensive preparations are being made to make the event a notable one in live stock circles in the state and it is planned to make the affair an annual one.

While live stock will be the principal feature of the show, provision will also be made for displays of tractors, farming machinery, automobiles and other lines allied to the live stock industry. The breeding of pedigreed draft horses has begun to develop in this section and the first display in the county of such stock will be made at the fair.

The date will be definitely set before the first of June and the show will probably be late in October or early in November.

SAN LUIS OBISPO SHOW

The San Luis Obispo County Live Stock Association will hold an annual live stock show on the grounds of the California Polytechnic School, San Luis Obispo, June 26-27. San Luis County is one of the great live stock centers of the state and it is showing interest in a higher grade of live stock, or rather in pure breds as money makers for San Luis pastures. In order to bring to the attention of a greater number of the farmers the advantage of these pure breds this association has been formed and the directors are planning for a great show. Five thousand dollars has been secured for use on exhibit features and other expenses of the show There will be a big barbecue on Friday, the 27th. One feature of the show will be an exhibit of county grammar schools and an annual field day so that there will be fun a-going for young and old. The management contemplates an attendance of at least 2000.

The objects of the association are to encourage and extend the influence of live stock breeding, to safeguard the members, to arrange for public sales of fat and other stock, to arrange exhibits at fairs, and to maintain permanent buildings for a fair on the Polytechnic grounds in San Luis Obispo.

CATTLEMEN'S NEWSPAPER

Live stock men of Humboldt County are putting out a "house organ" devoted to the interests of cattlemen of that section of the state. It is the "Stockmen's News" and headquarters is at Eureka. One of the most interesting features of the paper has to do with cattle rustlers who are to be held up to publicity through this paper.

Get ready and the chance will come.

AYRSHIRE ANNUAL MEETING

Upsetting all previous traditions, the executive committee of the Ayrshire Breeders' Association voted Springfield, Massachusetts, as the scene of the 1919 annual meeting of the Ayrshire Breeders' Association. New York and Philadelphia have monopolized the meeting for years. The choice of Springfield should prove popular and a large attendance is confidently expected June 11, 1919. The annual meeting has been held early in January, but June was deemed a more appropriate season and the constitution is being changed accordingly.

Brighton Farm Herds
Registered Shorthorns
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Berkshires---Both Sexes
H. L. & E. H. Murphy
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ALAMO HERD
(Founded by the Late Gov. Sparks)
Registered Herefords
Herd and range bulls reasonable. Largest Hereford herd in California.
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Geo. Watterson, Owner
Bishop, Inyo County, Cal.
Anxiety, Repeater, and Bonnie Brae breeding. Bred and raised on mountain range.

LENDORRIS RANCH
This is
Lendorris Liberty Bond
—A boar destined to make Poland-China history in California. No better ever bred. Weight 215 pounds at five months. We will have something bred to him for sale this fall.
W. L. Haag & Son
Hanford, Cal.



To You who Are Looking For GOOD **Duroc Jerseys**
We can now supply a few choice boar and sow pigs. They are by such boars as Cherry Chief 2nd and Calif. Great Wonder and from Golden Model sows.
George Junior Republic Chino, Calif.
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Save Your Hogs

Raise Your Hogs and Cattle at a Profit
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MERIT PROVES ITSELF

Senior Herd Sire



King Pontiac Netherland Segis 3rd

A grandson of King of the Pontiacs. We have 30 of his daughters in our herd, seven of which are now on official test. Three of his daughters at the average age of two years two months have made an average better than 21 pounds. He is proving his ability as a sire.

The Holsteins on Rosamaines Ranch are strong, vigorous and healthy. The daughters of our Sr. Herd Sire, King Pontiac Netherland Segis 3rd, have proven him a great sire.

KNOW—
Don't Guess
Our herd sires have proven their ability to increase the production of both milk and butter.
We are retaining all their daughters but if you desire to increase the profits of your present herd we can supply you a young bull of type and individuality and bred to increase production.

His Dam



Gerben Abbekerk Maid

Dam of our senior herd sire, a 34 pound daughter of Sir Skylark Ormsby Hengerveld, who has 27 A. R. O. daughters.

Gerben Abbekerk Maid has a seven day record of 34.45 pounds with a test of 4.29 per cent and a 30 day record of 138.19 pounds. A wonderful dam of a magnificent sire.

To the man who desires to make his future building operations secure, we say place one of our young bulls in your herd. Address

Rosamaines Ranch Stalder Bros., Owners Riverside, Calif.



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Sahara Drier

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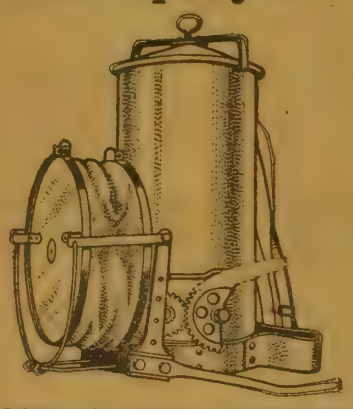
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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Sex of Goslings

Is there any way by which the sex of a young goose can be determined? We have quite a flock of goslings at present and are anxious to sell off the ganders but don't know how to tell them apart. Any light you can throw on the subject will be highly appreciated.—Subscriber, Novato.

It is impossible to distinguish between geese and ganders before they mature except by size, voice and general behavior. The gander at two or three months of age is usually larger and has a coarser and more strident voice. He is also more inclined to fight and to hiss at strangers or animals. It is said the English farmers, when they wished to separate geese and goslings, used to put them all together in a pen with a dog. The ganders would hiss at the dog and stretch out their necks at him. The geese would try to run away. If you watch your flock closely you will probably be able to pick out most of the males by these three tests.—J. A. K.

Chicks Not Doing Well

I came to you some time ago for advice as to where to buy baby chicks. I did as you advised and bought 500, and as fine a lot as you ever saw. They are now six weeks old and have done finely up until three days ago. But ten or twelve began drooping, feathers looked dull and unkept, and upon examination found their crops full of a watery substance. Six have died, and upon cutting them open found the intestines covered with little yellow, ulcer-like sores. The liver looked all right. They have free range and plenty of green. I fed the first two weeks buttermilk mash and chick feed. Since I have fed cracked wheat and milk, feed meal, bran, beef scraps, bone meal, fish meal, charcoal and grit as a mash, feeding it dry and keeping it before them all the time, giving the grain first thing in the morning and last at night. The last two weeks have been very cold and foggy and have kept them up until noon with but little exercise. Will you please advise me what to do. I am putting salts in drinking water and have cut down on feed.—Subscriber, Redlands.

The yellowish ulcers or nodules on the intestines may come from mold sores which have been taken into the digestive tract from moldy food or litter, and they may possibly be due to coccidiosis. If they are from the first-named cause, in which case the disease is called aspergillosis, there is nothing to be done but to make sure that every bit of the feed and scratching litter is perfectly sweet and clean. If from the second, there should be a more or less bloody diarrhoea. Whether this exists or not, the treatment for coccidiosis can do no harm and may do good. Feed a very small amount of grain night and morning. Feed mash during the middle of the day, never leaving it before the chicks longer than two hours. Feed greens as usual. Keep buttermilk in fountains constantly before the chicks. The restricted grain ration will keep them hungry and they will consume large quantities of buttermilk. This is the treatment recommended by the California experiment station, and is equally good for indigestion. So far as I can judge without seeing the formula, your mash is rather too rich in animal protein. Better omit either beef scrap or fish meal while you are feeding the buttermilk and reduce the amount of what you use. An occasional dose of salts is all right, but the chicks will get more if it is incorporated in a moist mash, feeding not more than a quarter of a teaspoon for each chick.—J. A. K.

Tomato Blight

What is the best and most effective method to combat blight in tomatoes? I have heard of some solution to pour on the ground and allow to soak into the roots.—Subscriber, Shafter.

This is probably the true summer tomato blight. Fall tomato blight, which is caused by attacks of fungus spores on the leaves, may be prevented by spraying with Bordeaux mixture, but the true summer blight is a bacterial trouble affecting the roots, and for this there is no help whatever after the plant once shows the appearance of the blight. The blighted plant should, however, be immediately pulled and burned to prevent spread of the trouble. A preventive measure sometimes followed is to use a weak solution of copper sulphate, but the range between strength which will kill the plant and that which will prevent the trouble is so slight and varies with soil conditions so that it is impossible with present knowledge to make any recommendation.

Goat Profits

Please tell me through the Cultivator what would be a fair share of Mohair and kids for herding Angora goats, the herder to have all the fertilizer?—Subscriber, Elsinore.

Without more definite information it is difficult to answer this question. Assuming that A furnishes the goats and B furnishes the feed and labor, an equal division of mohair and kids would probably be fair.

One of the most satisfactory methods of arriving at terms would be for the herder to estimate the probable value of the clip and the kids, then to estimate the amount of expense and labor required to handle the herd and charge enough percentage to make the venture profitable to himself.

Kerosene Cure for Sick Hens

I see on page 674 in your issue of May 10 that Jean A. Koethen tussles with chicken problems in "What Kills My Hens?" I have tussled with them and will tell what I have found will cure mine. Forty-four years ago a friend gave me a fine laying hen which she said at that time was about to die with cholera as the others had. She said, "I gave her a teaspoon of kerosene oil, either to kill or cure her." Since then I have used this remedy often and the best way is to soak bread crusts in the kerosene oil. After the patient has fasted a day or two force her to eat the bread if she refuses to eat it alone. Take the case early. As to barley feeding, will say I am doing it (with dry mash) and see no ill results, yet I notice they eat grit (crushed dishes and glass) voraciously, which may be the hen remedy for barley hulls. The barley is ripe in the straw. They get exercise, beards, barley, hulls and all. There may be trouble later—I have the kerosene oil on tap, however.—F. J. Callahan.

Blackberries Not Bearing

A year ago last March we set out some blackberry bushes (Burbank's Thornless). We fertilized the ground very heavily with hen house manure,

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with the result that in a very few weeks the vines grew so fast it kept us busy building more trellises to support them. Last August we trimmed the vines quite severely, but still they grew, so that in spite of the trellises branches sprang out and trailed to the ground. Wherever they touched the ground, rootlets formed, producing a new plant. This spring, where we began with three small plants a year ago, there is a thicket about 10 or 12 feet long and about three feet wide, thrifty and vigorous, but without a sign of a blossom. What is the matter with it? Did we over-fertilize the ground, and what can be done to make them bear this year?—H. E. S., Fullerton.

Keep the young plants cleaned out and cultivate around the original plants. After another year your vines should begin to bear. If they do not, dig them out and plant the Mammoth blackberry. You will then have something that is sure to bear fruit of a fine quality. The vines have thorns that are not very vicious.—J. W. M.

Fungus on Spinach

What is the trouble with the leaves of spinach? We took good care, gave plenty of irigation and cultivation but plants refused to grow, leaves turned yellow while plants were still small.—Subscriber, Long Beach.

These leaves were quite yellow with rusty looking spots almost entirely covering the worst infested. They were referred to Professor Fawcett of the citrus experiment station who answers:

The spinach leaf enclosed contains spots containing a species of Cladosporium. This fungus has been reported as occurring on old spinach leaves and rendering them unsaleable. I might suggest that as a preventive for another year the plants be sprayed with Bordeaux mixture when young. Of course, spraying the edible leaves as the plants approach maturity would injure their sale.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Trees on Road

A private road runs across the end of my ranch. It has a row of eucalyptus on it, which feed on my land and cause crops bordering along that road to be of very poor quality. The owner of the land on the other side of the road also objects to these trees. What are our rights in respect to the removal of the trees?—Subscriber, Lakeside.

If both parties desire to have these trees removed there seems to be no reason why they could not be dug up and taken out as it is a private right of way. In any event you would be entitled to cut off the roots which intrude into your land, and in the case stated the trees would undoubtedly die.

Obligation to Sell Water

If I sell water to my neighbor for five years under contract, can he compel me to sell water after the contract expires? Can another neighbor compel me to sell water to him also?—Subscriber, Ontario.

Water being sold under written contract, no right of prescription would thereby arise in the case which is apparently stated. There is a provision to the effect that where a corporation furnished water to irrigate lands which were sold by that corporation the right to the flow and use of said water shall remain a perpetual easement to the land sold. It is further provided that whenever any person cultivating land within the flow of any ditch owned by such concern has been furnished water by it for irrigation, such person is entitled to the continued use of such water upon the same terms as those who purchased the land of the concern. It is also possible that a person furnishing water for hire may come within the provisions applicable to a public utility and find himself under the jurisdiction of the railway commission.

Tax on Bank Deposits

I have money deposited in saving's bank account in national bank. Heretofore it has not been taxed. This year the assessors insist that it is taxable. Is this correct? If the money is drawn out of the national bank and deposited in a saving's bank, will it then be exempt?—Subscriber, Long Beach.

It was early made the policy of this state to favor saving's banks, and with that end in view it is specifically provided that money deposited with saving's and loan corporations or with building or loan associations shall not be assessed to the owner. A national bank cannot itself be a saving's bank, although they frequently have a saving's bank in connection. Money deposited in a national bank in the form of a term account, which may pay like interest with money deposited in a saving's bank account is not within the provisions of the law exempting it from taxes.

Blower In Sawmill

Can a mill be compelled to install blowers to blow away sawdust and shavings, and thus protect their employes from breathing them with the result that they may contract lung trouble?—Subscriber, Bloomington.

The industrial accident commission is vested with supervision over every place of employment in this state and has full power to require any employer to furnish and use all such safety devices and safeguards as shall render such place of employment safe to its employes. It is also vested with power to enforce its recommendations. The authority of this board may be invoked by filing a complaint with it specifying the particular injury and particular place which it is sought to bring to the attention of the commission.

Partnership Pump

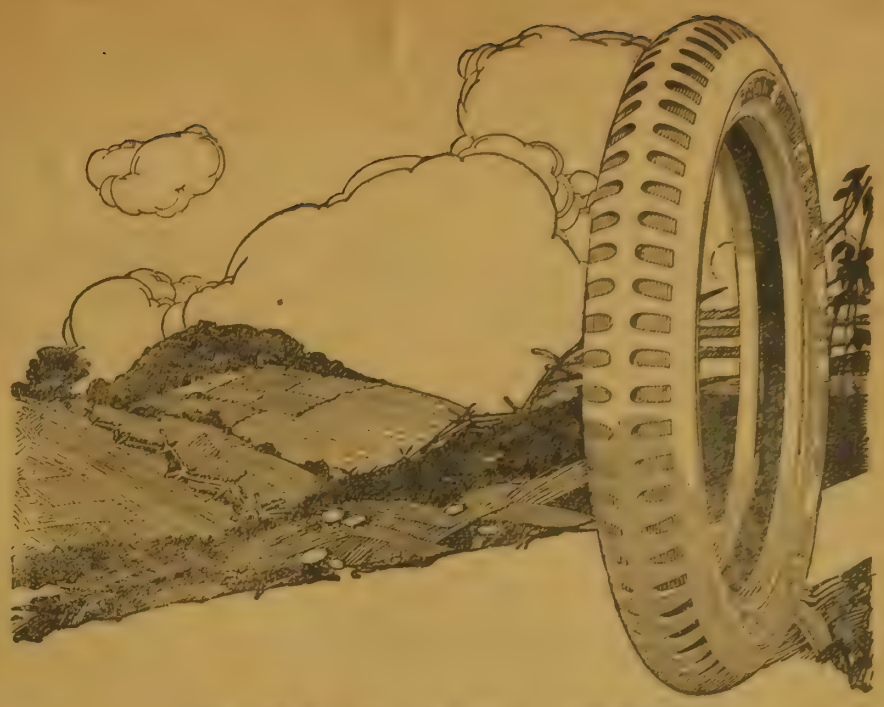
My neighbor and I last year put in a pumping plant under a written agreement that each of us should own a one-half interest with the right to irrigate each of our properties. We each paid one-half the expenses. My neighbor bought the engine on time and I bought the pump on time. I owed him some $30 for the excess payment which he made, for which I gave him a note. I suggested that we put a fence around the place, to which he agreed, and I went ahead and built the fence. Since then we have had trouble, and he has taken the pumping belt so that I cannot use the engine. What can be done about it?—Subscriber, Fresno.

The property was held in co-tenancy and the neighbor is doubtless entitled to some lien in order to protect the payment of the note you gave him, although it would seem that you are entitled to contribution for his proportionate share in putting up the fence to which he agreed; your neighbor has no right to exclude you from entry into the common property nor to exclude you from your use thereof. It will probably be necessary for you to bring action against him upon your contract to establish your respective rights to the property and compel him to install the pump, in which action you would probably be entitled to recover whatever damages you may have suffered by way of being deprived of the use of the pump.

Estray Stock

My horses occasionally stray into my neighbor's land. He takes them up and makes me pay for them. His horses also get loose and come on my land. What should be done about it?—Subscriber, Fresno.

The law in respect to estrays provides that any person finding an estray domestic animal upon his premises or the highway adjacent may take up and have a lien thereon for expenses and costs incurred in keeping said animal, which costs are specifically detailed in the act; thus your neighbor has the right to impound your animals straying on his land, and you would have the same right to impound his horses. It would seem though, that it would be less expensive for both of you to adopt a common ground.



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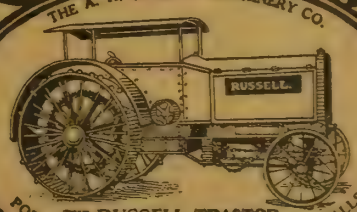
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For Sale — Budding Cloth 50c yard; also leading varieties citrus nursery stock. Selected and pedigreed buds. Order quick for early delivery. Cyrus W. Wilhite, Citrus Nurseries, Glendora, California, Box 154.

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Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

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Seed Corn—Fancy selected Seed Egyptian, Jerusalem, Dwarf Milo, Common Milo, Hickory King, Iowa Gold Mine, Iowa Silver Mine, King Phillip, Amber Cane, Honey Drip Sorghums, Sudan Grass, etc. Write us for samples and prices. FARMERS' UNION WAREHOUSE, Box 420, Tulare, California.

One Row Pays the Extra Cost, Garden Grove, Kansas, variety real Dwarf Milo maize, 6100 pounds threshed corn to the acre grown here last year. 15c per pound. 100 pounds or over 12½c; express paid. D. M. K. Co., distributors, Holtville, California.

Cabbage and Kale Plants—Any quantity delivered anywhere, 100 40c; 300 for $1.00. By express, collect, $2.00 per 1000. Tomato, Cauliflower and Pepper, 25c per dozen. I. F. Tillinghast, Santa Rosa, California.

Red Jersey Sweet Potato Plants, best early, sweet and easily grown, free from pests or disease; 50c per hundred, $2.00 for five hundred, $3.50 per thousand, postpaid. R. M. Plympton, Arroyo Grande, California.

For Sale—Fancy Recleaned amber Sorghum and Sudan grass. Also hand-picked Seed beans; any quantity. Stock pumpkin seed 20c per pound. Aurora Seed Mill, Stockton, California.

Box 501, Fowler, California. Write for circular, prices on seed and plants, Sudan, Dwarf Milo Maize, Honey Sorghum, Amber Cane.

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Many other bargains. Trade us tools you don't need and little cash for material you do or pay with Liberty Bonds. Have you anything for sale? If so, phone or write us. Material guaranteed as represented or money refunded. DEMMITT CO., office upstairs, 120 N. Main. Yards, 816 Yale. Phone 15191. Los Angeles.

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Black Minorca and Buff Wyandotte Eggs $1.50 per setting. Chicks 20c each. Thoroughbred stock, none better. A. G. Moore, 432 Ulysses Street, Los Angeles.

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo Schmitt, Box 263 Corcoran, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARMS, San Leandro, California.

Baby Chicks. White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

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British Columbia—Choice of three mixed farming ranches in Central British Columbia, partly improved. GOOD ARABLE LAND. (1) 160 acre, including two buildings and one-fifth acre in town, 2 miles away. IDEAL DAIRY RANCH. RY. & STEAMBOAT. (2) 330 ACRES, will grow ALFALFA, TIMOTHY, on lake. Plenty RANGE SURROUNDING. Ry. and steamboat. (3) 524 ACRES. Small house and barn, on lake front. 48 ACRES MEADOW, IDEAL STOCK RANCH. 30 miles from Grand Trunk Ry. Big game and best fishing. Plenty grass and extra cattle range from B. C. Government at low rental or for purchase. Owner is experienced British Columbia Land Surveyor in delicate health. He will, in each case, give two years option to purchase at $110. Semi annual rental, in advance, after examination. OWNER WILL PAY TAXES. State in first letter, whether interested in CATTLE, HOGS, SHEEP, Dairy Stock, GRAIN, or a mixture. Also please state your resources. J. H. Brownlee, CANADIAN LAND SURVEYOR, 403 Peoples Saving Bank Building, Sacramento, California.

FOR SALE
A home with an income. 20 acre nine year old pear orchard, in Little Rock, said to be the best pear country in America. I paid $20,000 for it 2 years ago; as the trees grow older the grove is worth more money. But if I can sell within the next 30 days, I will accept any reasonable cash offer and stand my losses. Courtsies to agents. Owner, 215 Mason Opera House Bldg., Los Angeles.

For Sale—Ranch of 37 Acres, good buildings, modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator, Box B. A. J.

FOR SALE
Nineteen hundred acres, about 250 tillable, balance fine range. Lots of back range. Gravity water. Four hours ride from Los Angeles. Facing the boulevard. R. R. station on the property. Price $12.50 per acre. You can't beat this in the state.
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215 Mason Opera House Bldg., Los Angeles. 11844.

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For Sale—320 Acres Alfalfa Land, including water, located in Kings Co. Price, $100 per acre. Will divide, terms. J. A. Elliott, owner, 130 E. 25th street, Los Angeles. Phone 63247.

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If You Want to Sell or exchange your property, write me: John J. Black, 116th Street, Chippewa Falls, Wisconsin.

WANTED

Wanted—Place as foreman. Advertiser is thorough in all lines of farming, fruit growing and the care of live stock. Experienced in working all kinds of labor, both tenant and wage systems. Address, Box 22, Care of Cultivator.

We Want Good Men with Small Capital to act as our representatives, open branch stores and sell our line; Teas, Coffees and spices direct to consumers. Don't delay. Write today. Best Coffee Co., 605 Crocker Street, Los Angeles, California.

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

Feeder Hogs Wanted. R. B. & N. Ranch, Waukena, Tulare Co., California.

CATTLE

BUTTE CITY RANCH
SHORTHORN CATTLE, SHROPSHIRE SHEEP, BERKSHIRE HOGS, SHETLAND PONIES. Stock for sale at all times. Second Farm Sale—all breeds—August 2, 1919. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

Guernseys—We will sell stock from our prize winning, high producing herd, at reasonable prices, valued according to individuality and breeding. Our supply is limited but if the buyer wants a number of animals and will write us we will furnish him with particulars. Revada Guernsey Farm, Yountville, Napa Co., California.

For Sale—35 Head high grade Holstein cows, fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch. Hannon Bros., Third Street, Lankershim. Care of Chas. Irwin.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery Street, San Francisco, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced, California.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

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MULES

For Sale — Twenty-five young mules, one and two years old. Chas. Hubbard, Riverdale, California.

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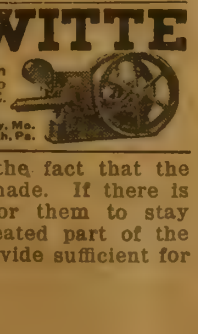
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Do not overlook the fact that the chicks must have shade. If there is no natural shade for them to stay under during the heated part of the day, be sure and provide sufficient for their needs.

Notes from the First Day of the Poultry Institute

By Cornele G. Ross

THE opening of the Southern California Poultry Institute at San Gabriel brought so many of the devotees of her Majesty, the White Leghorn hen, to the Mission Play House that we might well have called the boulevard the Queen's Highway instead of El Camino Real.

After an opening address by Geo. D. Dake, mayor of San Gabriel, a few pertinent remarks were made by A. A. Peters on the absolute necessity of closer attention to increasing the production of our poultry and the interest which our national government is taking in helping us to bring this about. He also advised, very strongly, that we increase our efforts at cooperation and organization and that we do something to exploit the food value of the egg and other poultry products.

Prof. J. E. Dougherty then took up the subject of the day, "Principles of Feeding." Professor Dougherty stated that we feed for two purposes, namely, to maintain the body and to furnish a surplus to be used in production, but that we cannot expect to achieve results that are satisfactory unless we have a bird with the necessary constitutional vigor and vitality to resist disease and to assimilate the food we give it and turn it into meat or eggs.

Ten thousand optimists are in favor of good roads to one pessimist against them. Good roads are "the goods".

"Twixt optimist and pessimist
The difference is droll;
The optimist sees the doughnut,
The pessimist sees the hole."

Vote "YES" for the road bond measure, July 1, 1919. It is to your personal pecuniary interest.

The very complete charts made the remarks clear and instructive and should be seen to be appreciated.

The most important problem of the poultryman today is to eliminate the poor producers and breed up from the high producers to increase the average of his flock.

University Farm Ration

Dry Mash—Wheat bran five pounds, wheat shorts five pounds, ground barley five pounds, Soya bean meal two pounds, meat scrap three pounds, charcoal one-half pound, salt one-tenth pound.

Scratch—One pound cracked Indian corn, one pound whole milo, one pound barley. Or—One pound barley, one pound oats, one pound milo. Or—One pound milo, one pound barley.

Variety in a ration is very essential as it increases palatability and the greater the number of materials used in the ration the less the danger of its lacking some necessary mineral salt.

Every ration should possess adaptability to the needs of the fowl, palatability to increase digestion and variety to increase appetite. It should be properly balanced and of sufficient bulkiness and should have some natural tonic effect. Lastly it should be of low cost by selection of materials of local production.

Methods of feeding are important, and regular, systematic attention is absolutely necessary.

Scratch is preferably fed in deep litter, dry mash in hoppers constantly before the birds.

Tender green feed daily, all the hens will eat. Some animal feed, buttermilk, etc. Grit and carcoal as digestive aids and mineral matteral in the shape of shell and bone, as well as from your green feed.

As to the grain ration Professor Dougherty said that so far the experiments at Davis did not show any material advantage from the use of any particular grain but that hens not accustomed to a grain might have to be given time to learn to like any new grain before the same results could be looked for.

The food values of the different grains are so nearly similar that they may be used interchangeably according to cost, but here again he advised a mixed ration of two or more grains.

He did not think, in feeding barley or oats, that either soaking or sprouting would pay for the extra work.

After a fine lunch, served at the "Grape Vine," where most of the members adjourned at noon, the assembly reconvened at 1:30 p. m. and Professor Dougherty took up the subject of feeding again and went into the details of compounding a balanced ration.

The purpose of the egg mash is to add to the grain ration a greater percentage of protein, to help the hen by furnishing her with a portion of her food in a ground form, and thirdly to turn the by-products unfit for human consumption into the nutritive and palatable eggs and meat.

The conclusion of the University as a result of their experiments of three years back, is that the egg mash should contain 15 per cent of animal products and ten per cent of some high protein vegetable by-product like Soya bean meal or linseed meal, to get the necessary protein content, the balance to be fillers like wheat bran, wheat shorts and ground grains. (See the formula for University Farm ration.)

Professor Dougherty suggests the feeding of early hatched pullets in order to avoid early moulting on a mash of 95 per cent wheat bran and five per cent bone meal after the age of 4½ months, putting them back on the heavier mash at about 5½ months.

The aim is to prevent laying until the pullet has fully developed, which will tend to diminish early moulting and the laying of small eggs.

That great interest is shown in poultry husbandry is evidenced by a registration of 150 and an attendance of nearly 300 for the first day.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Heifer With Five Teats

I have a valuable Guernsey heifer, five months old, that I purchased recently and after receiving her find she has five teats. The extra one is growing on the side of one of the back teats. Would like to know if this extra teat could be removed by a veterinarian without injury to the main teat and if anyone has had experience along that line.—Subscriber.

Sometimes those little extra teats growing on the side of another do not give any milk but when they do they are very annoying when milking. Do not know of any having been removed but there is no reason why it could not be done successfully. Now is the time to do it. It can be done by cutting it off and bringing the edges together and holding them there with stitches or a plaster until healed. I believe a better method would be to put a clamp on tight and leave it there until it drops off. Be sure to take all into the clamp that you wish to get rid of. The last method could not fail because it works well with rupture. Make the clamp of two pieces of hard wood with small bolts through the ends. Make a groove in both pieces on the sides where they come together so it can not slip when once in place. Screw the bolts up very tight.

Do not forget to look over the young chicks from time to time for lice and mites. Hot weather is the paradise for lice and mites. So be careful, be sure, don't be sorry. Look out for lice.

For Your Vacation

Go to Wheelers



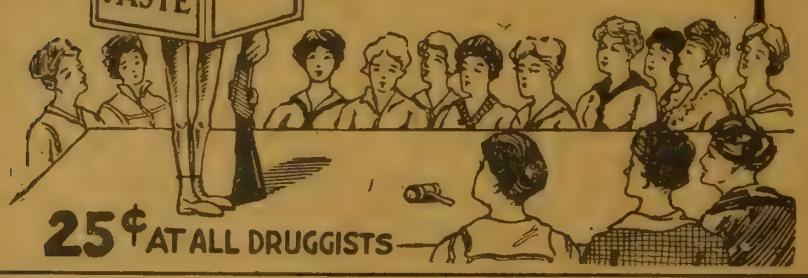
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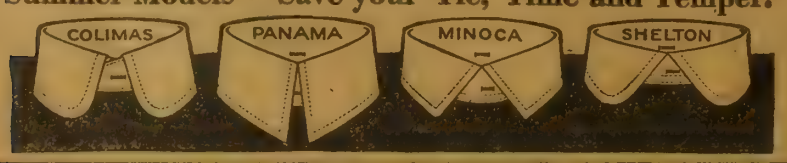


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Household Department

THE DAY OF MEMORY

When the days grow long and the grasses glisten
Impearled with tears the night has shed,
When birds all sing and the trees all listen,
There comes to us the Day of the Dead.
Dearer than gems or golden treasure
Is their dust, whose memory Honor keeps,
And the Nation leaves its toil and its pleasure
To garland each bed where a hero sleeps.

We have grown old; they are young forever,
With glory's halo around each head.
Our names will die, but forgotten never
Are those on the roll of the Nation's dead.
Past are the pain and the bitter aching.
Our sacred dead are their country's now,
And the hearts that throbbed well nigh to breaking
Calmly above their ashes bow.

Peace to them—peace forever and ever!
Here shall no rude alarm intrude.
The jarring world shall disturb them never.
They know not of war or wars interlude.
Bring to their graves no thought of sorrow
Why should we mourn o'er our country's dead?
Their fame shall grow bright through many a morrow
And shine like the stars when the day has fled.

Bring laurel and pine for their memory immortal,
And roses, red roses, to emblem the love
Which follows them, even through the dark portal,
And pansies, for thought of their welcome above.
Bring roses — white — for their purpose holy,
And mid the sweet flowers which are strewn at its side,
Whether his rank was high or was lowly,
Set the Banner of Stars, for which each one died.

A LAND ARMY FARMERETTE

(Continued from last week.)

On that second day I stumbled to my feet stiff but cheerful. The first day, which of course was the worst day, was over. I knew how it all felt and was not afraid of the second which passed much as the first had. I was limber again, but weary in the evening. Again I rested long and earnestly. And by this time I was mentally fit to appreciate a song that I heard the girls singing to the tune of "Drink to Me Only With Thine Eyes!"

My third day, much to my surprise, found me appointed the leader for the day of the home garden squad. I was a proud farmerette and by the end of that day I felt that I was heart and soul a member of the camp.

On my fourth day of active service I was graduated from the home garden and became a real farmerette.

From that day on I spent my time in the fields, working for farmers who had requested Land Army helpers. In that part of New Jersey where our camp was located there are many large truck farms where vegetables are grown for city markets. Therefore most of our work was done with vegetables, although a few of the strongest girls helped the farmers get in the hay and harvest rye and other grains. My time was spent digging potatoes and picking tomatoes, for the most part, but I did do a litle work with hay in a barn one afternoon.

I had supposed that one could get a first-hand acquaintance with potatoes by mashing and eating them, and with tomatoes by way of making artistic salads. But that is all a mistake. A potato is more than a part of a dinner; it is a stubborn tuber firmly bedded in dark earth that must be lifted and broken and shaken on a spading fork ere the tuber is released for use. A tomato is more than a salad. It is a thing hidden under leaves on the ground and in order to crop it in large quantities one must work one's arms like a windmill and one's legs like a grasshopper, and one's back like that of the excellent safety pin, must be bent in the middle that both ends may meet. At least that is how it feels! I shall never forget my first day of potato digging nor the long days of tomato picking.

On the day when I went out first to harvest my dinner acquaintances, the Irish-Americans, our squad leader, a tall, strong, kindly woman who is a teacher in the winter time, told me to work slowly and steadily until I was quite accustomed to labor of this kind. Working slowly was easy enough. Working steadily was quite another matter. The earth under those long rows of potatoes was moist from a recent shower, which made it very heavy to lift. The weeds rose high. "Better pull out the weeds as you go so that you can see just where the potatoes are," said the Squad Leader. "You, Peggy and Polly, you're new girls; dig just one row at a time till you get used to it." Polly and I thought we were experienced weeders after those days in the home garden but weeds like these, so lusty, so tall, so tenacious of their places in the earth, we had never even seen. We tried them first with the right hand and then with the left but nothing happened. Then we gripped them firmly with both hands and tugged as desperately as if life had depended on it. The top of my weed broke off. Polly's came up at last, suddenly, and she sat down, unexpectedly. Ellen, our squad leader looked at us and smiled —but not in ridicule, fortunately for her!" I ought to have told you to loosen the earth a bit with your forks. Then they'll come up more easily," she said comfortingly.

After a while I looked at Polly and Polly looked at me. Ellen was far down the field, ahead of us, doing two rows to our one. "How do you like it?" I asked with the wicked intention of getting Polly to admit that she was as tired as I. "Do you feel a bit sick of diging potatoes?" Polly hesitated and replied with a noble evasion. The farmerettes do not encourage groans and complaints and girls who weary others with their grumpy feelings become unpopular. Said Polly, "I am not exactly sick of it, you know but I am —content!"

After a while the farmer who was employing us came down into the field. He was carrying some big yellow tomatoes. I wanted one dreadfully. I was hot, grimy, soaked with perspiration. The cool wet acid of the tomato was very alluring to the imagination. And—that good farmer gave us those tomatoes! "Better set down and eat 'em in the shade of that tree," said he. We did. We sat there in happy misery for a short five minutes and swallowed great mouthfuls of juicy tomatoes with a speed and facility which would have seemed unnatural and impolite in the days before we became farmerettes. Polly looked at me and I looked at Polly. We laughed at each other's looks and went back to work, the farmer asking me, as I went, why I didn't bring that tree along to give us a little shade while we worked!

I have harvested a lot of potatoes since that day. On the last day before I left camp another girl and I dug and sacked nearly 20 bushels in six hours. But never have I worked harder than on that first day with the thermometer at nearly one hundred.

My experience with tomatoes was long and thorough. The work is hard —no work for slackers but usually not too hard. The girls seldom get sick and most of them look ruddy and muscular and well all of the time. What they are bearing should not be underestimated for most of them have never done labor that needed muscular strength and perhaps never would have done it but for patriotic reasons. On the other hand, parents can feel reasonably sure that if their daughters are in good health and working at a camp where the food is good and the opportunities for bathing adequate, the work will not hurt them but be a positive blessing.

"Making market" is the easiest and quite the jolliest of all jobs, because while you are doing it you can gossip or sing. We sat down on inverted tomato baskets and waited while the farmer tore up strips of faded serge. Then he gave us each a piece and set us to work to polish the tomatoes we had picked. Carefully and quickly we rubbed the dirt away and sorted the tomatoes.

When this work was done the farmer brought in great wheelbarrow loads of beets and some bunches of cut twine. We were to tie beets. "Five to a bunch," said he, "and the biggest at the bottom, in the center. Six little ones in a bunch when the larger ones are gone. Pick off all withered and yellow leaves and tie 'em tight."

When we had finished, the beets were soothingly dipped in a tank of cold water, to cleanse and freshen them. We envied the beets.

The work is hard, as I have said, and very often we ached from head to foot. But the work was done with song and laughter. And it was good work. I shall always be happy in the memory of the days when I was a farmerette, of the camp at the top of the hill, the fine spirit of the girls who lived there, and the small green and white flag floating under Old Glory.

IN MEMORY OF JANE DELANO

Memorial Day is a fitting time to recall the recent death of Jane Delano, director-general of the department of nursing of the American Red Cross. Miss Delano died in France on April 15, where she had gone only a few months before in furtherance of her work.

The May number of the Red Cross Bulletin is entirely given up to tributes to her life, her work and her personality. We give one incident which perhaps indicates the force of character which enabled her to accomplish what she did:

Miss Delano had her first dealings with the German Army when she was a young superintendent of nurses of the yellow fever hospital at Jacksonville, Florida. At that time she was only 25. A waxen-mustached, superior mannered young army physician arrived to inspect American methods of treating yellow fever. He walked about the wards for a few days, greatly to the amusement of the nurses, until finally he concluded that he had learned al there was to be found out. He presented himself at Miss Delano's desk.

"I desire that my trunks be sent down to the station in the morning, Fraulein; I leave at 10."

The tall young superintendent looked at him.

"But, you know, Dr—— we are under quarantine, and I can't allow you to——"

"Oh, I understand your rules and regulations!" interrupted the German. "I know that it is required, but as for me, I am different. My government needs me, and I go in the morning."

She explained again the danger of the contagion, and the rules which governed the hospital. The officer grew emphatic. Finally she reached over and touched the bell on the desk, her mouth firm, but the twinkle still behind her grey eyes.

"Conduct Dr—— to ward No. 4," she instructed the orderly who answered her call. "He will be our guest there until further notice. Report to me if it is necessary to put him to bed, and I'll decide then whether he goes on ordinary or fever diet!"

Dr.—— remained at the hospital until the quarantine was lifted.

TWO GOOD RECIPES

By Ida M. Mowry

A Quickly Prepared Fruit Salad

One apple chopped, two celery stalks chopped fine, 24 Muscat grapes or raisins seeded, one teaspoon sugar, one tablespoon sweet cream, one-half cup nut meats. Stir all lightly together with a silver fork. Serve in orange shells or on fresh lettuce leaves.

Nut Raisin Cake

One-half cup fat, one-half cup sugar, one-half cup honey or Karo syrup. Beat to a cream. Add one egg, beaten in mixture.

One-half cup sweet milk, one-half cup raisins, one-half cup nut meats, one-half cup ground chocolate, one-half teaspoon vanilla extract, small pinch of salt, one full teaspoon baking powder, one-fourth scant teaspoon baking soda, mixed in 1½ teacups sifted flour. Slow oven as for Devil's Food.

PRUNE PANCAKES

Two cups of flour, one-half teaspoon of soda, two eggs, one cup of sour milk, one cup of stewed prunes, chopped, one teaspoon of sugar, one pinch salt. Put flour in pan, add salt, sugar, sour milk and yolks of eggs; use enough sour milk to make thin batter, add chopped prunes and lastly the beaten egg whites, and the soda dissolved in hot water. Serve with a syrup made of one cup sugar added to one-half cup of stewed or baked prune juice.

HOW JIMMY WAS BROUGHT BACK

Jimmy, the soldier boy from the mountains, was slowly dying. He had slipped into the Slough of Despond. Slowly but visibly he sank, and no word of encouragement from the solicitous nurses in the general army hospital in North Carolina brought a gleam of hope to his heavy black eyes.

But one day a representative of the recreational branch of Red Cross service brought into Jimmy's ward a trio of mountain boys armed with banjo and guitar, and made them sing and play for the patients. The lilt of a merry folk song semed to arouse the languishing Jimmy. It fanned a fading life spark that had been beyond the reach of material aids.

Eventually Jimmy admitted that he "useter pick one o' them," indicating a guitar, "as a kid in the backwoods." "Want ter try yer han'?" asked one of the three who proffered a handmarked and scarred guitar to the invalid. The Red Cross worker, with the sanction of a nurse, encouraged the boy. Fumbling with the strings, he produced a few chords, his eyes brightened and he smiled. "It kind o' comes back to a feller," he observed.

"How would you like to have a guitar to practice on while you are getting well?" asked the Red Cross worker. "Oh! Oh, I'd sure like it. Mebbe the doc won't stand for it!" But the doctor did "stand for it" the next day—and for a little while each day. And Jimmy got a new grip on himself; his thinking was objectified a bit, and he looked forward to the practice hour impatiently.

Now Jimmy is in a convalescent house and is frequently in demand as a one-man orchestra.—Red Cross Bulletin.

HELPS FOR CLEANING DAYS

There is nothing more helpful for cleaning days than gasoline, but it should never be used when there is a fire or artificial light in the house. Wipe up matting with a cloth wrung from gasoline and the colors will be freshened and brightened. Clean curtain shades by laying them on the floor or table and rubbing with the gasoline. Paint is readily cleaned by its use and the most delicate enamel will not be injured by a liberal rubbing. To remove grease spots from mattings and rugs, dissolve one teaspoon of common salt in a pint of gasoline and if necessary apply the fluid a second and third time. As a destroyer of bedbugs it has no equal. Any kind of vermin will yield at once to its gaseous influence.

Every spring the house should be fumigated with formaldehyde. This will kill off all living moths and worms in carpets and furniture.

To make a good and cheap polish that will keep your windows shining, mix well together a pound of whiting, one-fourth pound of borax and enough coal oil to make a firm paste. Rub over the glass and let dry, then wash off with hot water. This preparation is also excellent for cleaning silver and brass.

To make an excellent soap solution dissolve a bar of soap shaved fine in a pint of boiling water, then stir in a tablespoon of borax and when wanted for use stir in enough of this solution in hot water to make a good suds. There is nothing better than this dissolved soap for washing lace and muslin curtains, counterpanes and blankets. By using strong, hot suds made with this solution for cleaning out the pantry and closets, and then sprinkling a little dry borax powder on shelves and around edges of floor it will help to keep out moths and roaches, and when moths are troublesome it is well to mix a little camphor gum with the powder.

Old leather covers of chairs may be freshened by rubbing lightly with a soft sponge dipped in the well beaten white of an egg, and sometimes a cloth wrung from hot milk will restore the luster of leather furniture, and to keep the woodwork shining, go over it quickly with a soft cloth wrung from warm water, then rub with a dry cloth and rub to a polish with a clean cloth.—A. M. H.

All ugly objects about the home grounds should be removed or if this is impossible plant ornamental vines nearby to hide them from view.

Farm Light and Power

HERE is a farm light plant that you will like—for its economy and utility. Just remember that even this exceptionally low price secures Fairbanks-Morse quality—design—workmanship and materials. Touch a button to start and another to stop.

The low speed engine with ball bearing dynamo assures long life—less attention—lowest possible maintenance cost. The 40 light "F" farm plant comes completely mounted on one base with our famous "Z" *kerosene* engine, which in addition to electric lights gives mechanical power to operate a washing machine—cream separator—churn—or other machines. Instrument board is conveniently mounted over the dynamo. Unquestionably the biggest value in the farm lighting field—and you get the added advantage of mechanical power.

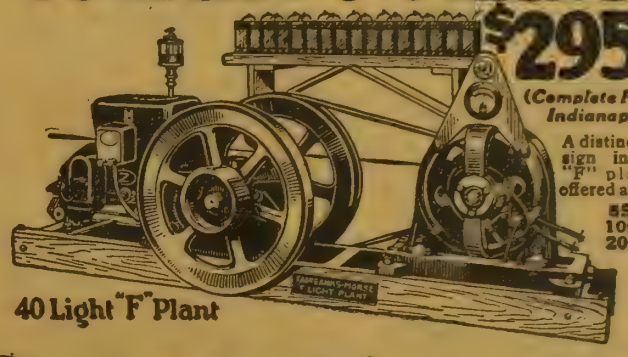
There is a dealer near you who will carefully explain all details and also prove that it is the one *practical* combination plant for which you have long been waiting.

40 LIGHT "F" PLANT

$295

(Complete F. O. B. Indianapolis)

A distinctive design in larger "F" plants is offered as below:
55 lights
100 lights
200 lights



40 Light "F" Plant

Fairbanks, Morse & Co.
MANUFACTURERS CHICAGO

Irrigate through this pipe—

Water the High Spots

You can't reach with an open ditch

Your ranch doesn't have to be level if you use Western Surface Pipe. You can carry your stream of water across depressions and onto the high ground you can't reach with an open ditch. There's no waste, either, from seepage or gopher holes.
Western Surface Irrigation Pipe is made from a single sheet of heavy galvanized steel. The seam, riveted and soldered, absolutely prevents breaking of the galvanizing. Write for price list and illustrative booklet today.

WESTERN STEEL SURFACE PIPE
GALVANIZED RIVETED

Write also for prices on: Riveted Steel Pipe, Riveted Well-Casing, and other Irrigation Supplies.

Western Pipe & Steel Co.,
444 Market Street, San Francisco
Fresno Bakersfield Los Angeles

Deliver your water where you want it.

Kill All Flies! THEY SPREAD DISEASE

Placed anywhere, DAISY FLY KILLER attracts and kills all flies. Neat, clean, ornamental, convenient and cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed.



DAISY FLY KILLER at your dealer or 6 by EXPRESS, prepaid, $1.25.
HAROLD SOMERS, 150 De Kalb Ave., Brooklyn, N. Y.

The Threshing Problem Solved

Threshes cowpeas and soy beans from the mown vines, wheat, oats, rye and barley. A perfect combination machine. Nothing like it.

"The machine I have been looking for for 20 years," W. F. Massey. "It will meet every demand," H. A. Morgan, Director Tenn. Exp. Station. Booklet 26 free.

Koger Pea & Bean Thresher Co.,
MORRISTOWN, TENN.

Los Angeles Markets

Los Angeles, May 28, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 59 lb.; prices to retail merchants in 1-lb. squares, 59@60.

Dairy exchange prices last week on extras:

May	21	22	23	24	26	27
'19 ...	60	60	61	60	59	59

CHEESE

Brokers' prices.

California fresh, lb., 30; price to retail merchants, 32-33.

EGGS

Fresh extras, Produce Exchange closing price, 47 doz.; price to retail merchants, 50 doz.; case count, Produce Exchange closing price, 45 doz.; price to retail merchants, 47 doz.; pullets, Produce Exchange closing price, 45 doz., price to retail merchants, 47.

Dairy exchange prices last week on extras:

May	21	22	23	24	26	27
'19 ...	51	51	50	49	49	47

POULTRY

Prices to producers: Hens, 35; broilers, 30@31; fryers, 30; roasters, 37; old roosters, 14 capons, 42; ducks, 27; ducklings, 33@34; geese, 25; turkeys, 35@40; squabs, 45.

Belgian hares 14.

LIVE STOCK

Very liberal receipts of steers, cows and lambs with no increase in the demand for the dressed product, are the factors that have made the entire live stock market in this city weak and lower. Hog receipts alone have been moderate but the demand for dressed pork at the prevailing high prices for live hogs has caused the local killers to reduce their killing quota and has driven a few slaughters off the market entirely so far as hogs are concerned. An undertone of weakness is apparent in recent purchases of hogs and local packers freely predict that prices are on the decline.

Cattle prices have declined 50 cents per cwt. in the last week and the market is still weaker at this decline.

Lamb receipts are in excess of requirements and it is found necessary by some local houses to ship their surplus stock of live lambs to Eastern markets to relieve the congestion. Large shipments of California lambs are being sold on the Kansas City, Omaha and Chicago markets at very satisfactory prices.

Wethers and ewes, in sympathy with lambs, are also weak. Texas sheep are being shipped to the Kansas City market in large numbers and this has tended to weaken the market there and its effect is felt locally since that market is the main outlet for our surplus.

The following prices represent those paid by local killers f. o. b. Los Angeles. County point prices are usually $1.00 to $1.50 less than these figures, dependent upon the distance from the city:

Cattle:
Good steers .....10.50@11.00
Medium steers .....9.50@10.00
Common steers .....8.00@9.00
Good cows .....9.00@9.50
Medium cows .....7.00@8.00
Common cows .....5.00@6.50
Hogs No. 1, 175-225 lbs.....19.00@19.50
Hogs No. 2, all other weights..17.00@18.00
Sheep:
Lambs No. 1, 55 to 75 lbs.....14.00@14.50
Lambs No. 2, 65 to 80 lbs ....12.50@13.00
Wethers .....10.00@11.00
Ewes No. 1 .....8.00@9.00

POTATOES AND ONIONS

These are the actual prices obtained May 27 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Potatoes: Demand and movement slow. Market dull. Stockton, Burbanks, quality generally good, sacked per 100 pounds, extra fancy, 2.50@2.75. Idaho Russets, quality and condition fair, 2.10@2.25; Oregon Burbanks, fancy, 2.40@2.50. New stock, homegrown Red Rose and White Rose, 1.50@1.75 per lug box.

Sweet potatoes: Lug box best 1.40@1.50; sacked 5.00 per cwt.

Onions: Demand and movement moderate, wide range in prices. Old crop, Stockton, sacked per 100 lbs., Browns, best from cold storage 4.25@5.00; new crop, homegrown onions 30 per dozen bunches, Imperial Valley and Coachella Valley, Wax and Yellow Bermudas, standard crates, best 4.00; poorer 3.50.

VEGETABLES

These are the actual prices obtained May 27, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes, doz., 25@75.

Asparagus: Northern, green, local fancy, 14@15; fancy, 11@12.

Beans: Local Wax 10@11 lb.; Kentucky Wonder, best 12@12½.

Beets, doz. bunches, 25@30.

Cabbage: Sales to retailers, best, cr. 2.50; poorer, 2.00.

Carloads f. o. b. usual terms, demand and movement slow, market unsettled, wide range in prices, 30.00@45.00, mostly 30.00@40.00.

Carrots, doz., 40@45.

Cucumbers, hothouse, 75@1.00 doz.; Signal Hill, box of 2½ doz., 1.30@1.40.

Corn, sweet, per doz., 1.25.

Lettuce: Sales to retailers, best lettuce in cabbage crates, 75@90.

Carloads f. o. b. usual terms—demand and movement moderate, market firm, little change in prices. Hauling light. Iceberg, California crates, wide range in prices, 1.85@2.25.

Parsley, doz., 10.

Peas: Local (San Pedro) best, 10@12.

Radishes: Round Red 20 per dozen bunches. Long White, 30 per dozen bunches. Long Red 25 per dozen bunches.

Rhubarb: Local Giant Cherry, 1.25@1.50 per packed box. Strawberry, fancy 1.00@1.35.

Spinach, doz., 20.

Squash: Imperial, per 4 basket crate, 1.00@1.10.

Tomatoes: Quality and condition generally good; Imperial, 4 basket crates, 2.25@2.50, small 2.00@2.25.

Turnips, doz., 45@50.

FRUITS

These are the actual prices obtained May 27 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtons, fy. medium size, 3.50@3.75; loose, 9@11 lb. Oak Glen, Rome Beauties and Pearmains, 3.75@4.00.

Apricots: four basket cr., 1.50@2.00.

Blackberries per tray of 15 baskets, 2.25.

Cherries: Black Tartarians, 12@15 lb.; Governor Wood, 10@11 lb.

Figs, per 10 lb box, 1.75@2.00.

Gooseberries, 10@11 lb.

Loganberries, basket, 20@25.

Raspberries, local, 15@16 per basket.

Peaches, 4 basket cr., 2.50@2.75.

Pineapple, lb., 18@20.

Strawberries, 3.50@4.25 per 30 basket crate.

Lemons: Fy. packed, 4.25@4.50; local pack, 3.00@3.50; loose, some tree ripe, 1.75@2.00.

Oranges: Navels, medium size 5.00@5.50; local pack, 3.50@4.00.

Grapefruit: Local fy., 3.00@3.50 bx.; poorer, 1.75@2.25.

BEANS

Demand and movement moderate, market firm, little change in prices. Carloads f. o. b. usual terms—pool prices, sacked per 100 pounds choice recleaned basis, Limas 8.00, Henderson Bush 7.50. Warehouse cash to growers—best, choice recleaned basis, Small Whites, sacked per 100 pounds 6.30@6.40, Large Whites 5.85@6.10, Blackeye, sacked per 100 pounds demand and movement good.

HONEY

Carloads f. o. b. usual terms—practically no demand. No sales reported. Old crop practically cleaned up. Light supplies of new stock just arriving but too few sales to establish market. Beeswax, l. c. l. 38 per pound.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....16.00@20.00
Barley .....15.00@18.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy 26.00
Standard alfalfa .....18.00@20.00
Stock alfalfa .....14.00@18.00
Standard dairy .....21.00@22.00

GRAIN

Prices on local Grain Exchange:

Milo Maize .....2.76¼@2.87½
Barley .....2.60@2.61¼
Corn, sacked, No. 2 yellow 3.25
No. 3 yellow 3.25

Johnston Turbine Pumps



The only pump made in which EVERY bearing is absolutely sand proof and lubricated. Large Volume from small diameter wells. Send for descriptive literature.

American Well and Prospecting Company
Manufacturers of
Water and Oil Well Machinery
407 East Third St. Los Angeles, Cal.

There is no argument as to the best and cheapest source of available nitrogen for worn out frosted orchards. Where

Nitrate of Soda

is used the fruit never fails to set. Apply to orchard now for best results.
Mention crops interested in when writing for free information and literature.

Nitrate Agencies Co.
W. S. SPARR, Agent
321 Stimson Bldg., Los Angeles, Cal.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle it, send 20 cents in stamps and mention your dealer's name and get sample by mail postage paid. Write for prices in larger quantities delivered free by parcel post.
Mfg. by Z. A. MACABEE, Los Gates, Cal.

San Francisco Markets

San Francisco, May 27, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:
Extras 59½

Prices extras past week and year ago.

May	20	21	22	23	24	26
'19 ...	62½	62½	63½	63½	61½	59½
'18 ...	41	44	43½	44	44½	..

Rcts. wk. ending May 26, 569,100 lbs.

CHEESE

Dairy Exchange quotations:
Cal. Flats .....30@31½
Cal. Y. A. fy. 34
Ore. Triplets 38
Jack, full cream .....25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 51
Firsts 50
Extra Pullets 48½

Prices extras past week and year ago:

May	20	21	22	23	24	26
'19 ...	54½	54	54	53	51	51
'18 ...	41	42½	42	41	39½	..

Rcts. wk. ending May 26, 18,811 cases.

POULTRY

Hens, 36@40; roosters young, 45@50; old roosters, 20@24; broilers, 34@38; fryers, 40@42; ducks, 35@38; geese, 36@38; squabs, 60@65.

Belgian hares, live, 14@16; Jackrabbits, doz., 2.50@3.50.

LIVE STOCK

Cattle—On foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. alive, 11@11½; 1200 to 1400 lbs., 11@11½; second quality, 10@10½; thin steers, 7@9.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 5@6.

Calves — Light weight, per lb., 12½@13; medium, 11@12; heavy, 8½@10½.

Lambs, yearling, 11@11½; milk, 13@13½; sheep, wethers, 10½@11; do, ewes, 8½@9.

Hogs—Hard grain fed, 100 to 150 lbs., 18¾; do, 150 to 250 lbs., 19¼; do 250 to 300 lbs., 18¾; do, 300 to 400 lbs., 18¼.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers—Choice, 1000 to 1200 lbs., Cattle—Good grass steers, 1000 to 1200 pounds, 11@11½; medium to good grass steers, 950 and over, 9½@10; good heifers, 1000 and over 10@10½; good cows, 1000 and over, 9½@10; good heifers, 1000 and over, 9½@10; good cows, 1000 and over, 9½@10; medium to good cows, 900 and over, 8@9; canner cows, 5@6; good bulls, 6@7; calves, 9½@11.

Hogs — Today's market on top packer hogs, hard and well finished, weighed and delivered off cars at our plant, South San Francisco; 175 to 250 pounds, 19; 150 to 175, 18½; 250 to 300, 18½; over 300, 18; under 150, 17¾. Usual dock and price discounts for other weights and kinds.

POTATOES AND ONIONS

Price to wholesalers:

Oregon Burbanks, 2.00@2.25; Gems, 2.10@2.35; sweet, per 100 lbs., 5.00@6.50; new potatoes, 4.00@5.00; Garnets, 5.00@6.00.

Onions: Per ctl: Reds, 3.75 f. o. b. Stockton, 4.00@4.25 at San Francisco; Bermudas, Crystal wax, 3.50@4.00; yellow, 3.50@3.75.

Garlic, 50@75.

VEGETABLES

Wholesale selling price:

Artichokes, doz., 25@50.
Asparagus, lb., 5@9.
Beans, String, 12@14; Kentucky Wonders, 13@15; Wax, 12@13; pole, 12@13.
Carrots, sack, 4.00@4.50.
Celery, crate, 1.50@5.00.
Cauliflower, dozen, 50@1.00.
Cucumbers, hothouse, box of 30, 2.00@2.25; other, 1.50@2.00.
Corn, Imp., 20@25.
Eggplant, southern, 20@25.
Lettuce: Cr., San Jose and Watsonville, 50@1.25.
Okra, green, lb., 35.
Peppers, Bell, lb., 15@35; Chili, 25@35
Peas, lb., 4@8.
Rhubarb, Strawberry, bx., 1.25@1.75; Mammoth, 2.00@2.25.
Spinach, 75@1.25.
Squash: Summer, 90@1.10; Italian, box, 1.00@1.25.
Tomatoes, Mexican, crate, 2.50@4.00; Imperial, 3.00@3.50; Southern California, 2.50@3.00.

Turnips, yellow, 1.50@1.75; white 1.00@1.25.

CITRUS

Per bx: Lemons, 3.50@4.50; lemonettes, 2.00@2.50; grapefruit, 3.00@4.50; mandarins, half orange box, 3.50@4.00; tangerines, half orange box, 3.50@4.00; navel oranges, 4.00@5.75; Valencias, 4.50@5.25.

FRESH FRUITS

Wholesale selling price:

Apples: California Newtown Pippins, 4-tier, 3.25@4.00; Winesaps, 4.25@4.50.
Apricots, 2.50@2.75; small, 2.00@2.25; boxes, 1.50@1.75.
Bananas, 7@8.
Blackberries: Southern, 2.50@3.00 cr.
Cantaloupes: Crate, 10.00@12.50; pony crate, 8.00@9.00; flats, 4.50@5.00.
Cherries, 1.25@1.50 per tray and drawer; bulk, black, 10@12½; do, white, 8@10.
Figs, Black 2.00@2.25; White, 1.75@2.00.
Gooseberries, chest, 10.00@12.00.
Loquats, 6@9.
Peaches, cr., 2.00@2.25.
Pears: Winter Nellis, 3.00@4.00.
Raspberries, cr., 3.00.
Strawberries: Chests, 10.00@12.00; Longworth, 12.00@14.00; crates, 2.00@2.25.

DRIED FRUITS

Price to growers:

Apricots: Opening prices on 1919 dried apricots to the trade:

Sunsweet Quality: Ch., 25; extra ch., 26; fy., 27, extra fy., 29; fy. Moorparks, 29; extra fy., Moorparks, 32.

Growers Brand Quality: Ch., 24½; extra ch., 25½; fy., 26½.

First Quality: Standards, 19; slabs, 21. Other grades on sample.

Peaches: Packers' quotation, basis price. Standard yellow, 16; Muir, 16¼; ch. yellow 16¾, Muir, 16¾, extra fy yellow, 17, Muir, 17½; fy. yellow, 18¼, Muir, 18¾; extra fy. yellow, 19½ Muir, 20½.

Figs: Calimyrnas, 15@20. Mission, 11@13; Adriatic, 12@15.

Prunes: Packers' quotations basis price. 30-40s, 19; 40-50s, 17; 50-60s, 14½; 60-70s, 13½; 70-80s, 13; 80-90s, 12¾; 90-100s, 12½; 100-120s, and 120s up, no price quoted.

GRAIN AND FEEDS

Barley: Feed, 2.57½@2.62½ per cental; shipping, 2.65@2.75 f. o. b. country.

Oats: Red feed, 2.20@2.40 per cental.

Corn: California yellow, 3.15@3.40 per cental. Egyptian, 2.75@3.25; Milo maize, 2.50@3.05.

Rye: 3.65@3.85.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.66 1-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.13	3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 1-3

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran 43.00@44.00; mill run, 42.00@43.00; Rolled barley, 52.00@54.00. Linseed oil cake meal, nominal; cocoanut cake or meal, 20 tons, 41.00 per ton; 10 tons, 41.00; 5 tons, 41.50; less quantity, 42.00; smaller lots higher proportionately.

HAY

Under date of May 24, Scott, Magner & Miller says:

Receipts past week 1292 tons. Although a few cars of new volunteer oat hay arrived, there has been practically no other new hay other than first crop of alfalfa. Most of the receipts were of the medium grades of old hay which have moved very slowly as trade is light and sales are only effected with difficulty.

Choice red oat or wheat hay of the old crop has been scarce and what few cars have arrived have sold at top quotations. First cutting alfalfa heavily charged with foxtail has been offering but as this commodity is extremely hard to dispose of unless prices are made attractive dealers hesitate to buy.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market—for prices to consumers' charges of cartage, commission and handling expenses must be added according to conditions.

Fancy Wheat Hay
(light 5 wire bales).....19.00@21.00
No. 1 Wheat or Wheat and Oat Hay .....16.00@18.00
No. 2 Wheat or Wheat and Oat Hay .....12.00@18.00
Choice Tame Oat Hay.....17.00@19.00
Other Tame Oat Hay.....12.00@15.00
Wild Oat Hay.....11.00@14.00
Barley Hay .....11.00@14.00
Alfalfa Hay .....15.00@19.00
Stock Hay .....11.00@13.00
New first cutting Alfalfa, in order .....10.00@13.00
No. 1 Barley straw, bale.....50@80

Citrus Markets

Los Angeles, May 28, 1919.

Heavy shipments of Valencias are still going forward. The market is entirely satisfactory, all the fruit being taken as soon as cars arrive. New York prices range from $3.90 to as high as $7.30. A very few navels are still being forwarded and are commanding the best of prices ranging around $4.00 and $5.00. In the central district Valencias are running heavily to large sizes but there is little trouble this year in disposing of these to the trade. Valencias are running rather small in the southern district.

Cooler rainy weather throughout the Eastern consuming sections has lowered the lemon market. Considerable weak

fruit is showing up, which also helps to bring down prices.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 22,203 cars, lemons 5510, total 27,713. To same date last season; oranges 9878, lemons 2928, total 10,806. Central California this season; oranges 4008, lemons 354, total 4362. Last season to same date; oranges 2498 lemons, 115, total 2613. Northern California; oranges 244, lemons 2, last year same date, oranges 202.

MARKET NOTES

It has been stated by C. G. Johnston, superintendent of weights and measures for California that several million short-weight berry baskets have been delivered to growers. 40,000 of these baskets have been discovered in the Florin district.

About 75 per cent of all apricots grown in Kings County are Royals but present plantings show Tilton a leading favorite.

The California Prune and Apricot Growers, Inc. have decided to take up a national advertising campaign and will push the small package.

Plantings of lettuce are being made in the Colma district for fall crop.

Los Angeles County has 8200 acres planted to potatoes; Riverside, 860 acres; San Diego, 800; San Bernardino, 620; Orange, 600; Imperial, 160; total 11,230 against 14,070 harvested last year. Largest increase in San Fernando Valley. Largest reduction Orange and Riverside Counties.

The first crop of strawberries is cleaning up in the southern part of the state.

Tomatoes: San Francisco district; planting continues in all directions but will practically be over by June 1. In one section of Contra Costa County early plantings are showing considerable bloom although the earliest tomatoes in this district generally arrive from Vacaville and Winters. Brawley district; shipments increasing very rapidly with fine quality due to ragid inspection. Thermal district; crop moving faster but no carloads in sight yet.

The first pool of walnuts has been sold by the California Walnut Growers' Association.

The organization department of the California Walnut Growers' Association has been placed in charge of H. H. Warner, formerly manager of the office of the United States bureau of markets in Los Angeles. A membership campaign will be pushed.

The Whittier Walnut Growers' Association is planning to erect a new packing plant which will have two grading, bleaching and packing units.

Diamond Brand walnut meats will be sold by the association to retailers in air-tight cans which will keep the nuts fresh for a long period.

California has planted to watermelons this year 2225 acres. Georgia is the big watermelon state with nearly 22,000 acres.

From present indications this state will have planted to tomatoes 36,166 acres.

The United States bureau of crop estimates reports a probable yield of 15,676,000 bushels of peaches in California this year. This will be more than 4,000,000 bushels larger than the crop of 1918.

Regular shipments of cantaloupes started from the Brawley district about the 20th of the month.

About half the onion crop of Coachella Valley is now shipped.

Stockton has begun shipping stock of dry onions in sack. Ice house stock is exhausted.

Reports from onion growers in Southern California indicate less seed stalks, splits, and scullions than last year, but they are numerious in certain fields.

The prune output of the Northwest will be much less than last year's. It is estimated that Washington and Oregon together will produce from 30,000,000 to 35,000,000 pounds.

The Canners' League of California has decided to increase all term contracts for pears $10 per ton up to a maximum of $47.50 per ton.

The Canners' League of California will give a $10 a ton higher price on freestone peaches for which contracts were made prior to the entry of the United States into the war.

A minimum wage scale for women workers in canneries has been announced by the industrial welfare commission. It prescribes a minimum of $13 a week or 28 cents an hour.

The Fullerton district of Orange County is shipping about 30 carloads of cabbage a week, prices $50 to $60 per ton to growers. The Huntington Beach Association and the Orange County Association are handling practically the entire output.

Recent revisions of Imperial Valley cantaloupes acreage indicate total grown this year 14,600 acres. Acreage divided by shipping points by percentage as follows: Brawley 43 per cent; Heber, 18; Westmoreland, 14; Imperial, 8; Poppy, 6; Rockwood, 4; Calexico, 4; Grape, 3.

Carload shipments of cantaloupes from Imperial Valley average 336 standard crates per car. This is the heavy loading requested by the railroad administration.

Cantaloupe inspectors in Imperial County receive $3.50 a day and transportation from the county; the distributors pay another $3.50.

JERSEYS AVERAGE $391

At the dispersal sale of the herd of Clifford F. Reid of Portland, Oregon, forty-one Jerseys brought an average of $391. The top cow was Goldie's Nehalem Beauty who was purchased by Dr. H. W. Hand of Orland for $1700. This Jersey has Register of Merit record at three years four months: Milk 365 days 12,367.7 pounds; butter fat 750.51 pounds; (World's record in class when made.) Register of Merit record at four years six months: Milk 365 days, 15,323.5 pounds; butter fat, 904.91 pounds. (Butter fat record for two years world's record at age when made.) Dr. Hand is president of the California State Jersey Breeders Association. Two other cows brought $1200 each, another, $1050. The sale was held on the state fair grounds, Sacramento on last Tuesday, May 27. It was conducted by the California Breeders Sales and Pedigree Company. Full report of the sale will be given next week.



Goldie's Nehalem Beauty 283330

FARMER PUTNAM ON SILOS

With Apologies

I reckon I might as well tell the truth and admit that silos has their bad points. Now when I first put up a stave silo on my farm at Stockbridge, Missouri, before comin' to Arizona, one of my customers, a particular old lady down to St. Joe, kicked about the butter havin' a nutty flavor. Fur a while I didn't know what to make of it, but by and by I set a watch on my feed lot, and I seen them durn woodpeckers was swarmin' around the top of the silo. On climbin' up I seen they had pecked a lot of holes all around the top and they was droppin' acorns through them holes thinkin' they was storin' 'em up fur winter. Nachually the cows et the acorns in the silage and that give the butter the nutty flavor. If they was any acorns out here in Arizona I'd put up a stave silo and sell nut butter at a high figger. Another bother about feedin' silage was that the cows liked it too well; they just about quit eatin' roughness and I had to build two silos to keep 'em satisfied. This made the milk flow so durn strong that I had to increase my milkin' force, makin' me more trouble and work. I finally give up and come out here to Arizona to rest. My advice is, don't build a silo onless you're prepared to handle more income.—Thomas Jeferson Putnam in Press Letter, Arizona College of Agriculture.

Phoenix, Arizona, is contemplating an addition to the city water supply from the Verde River. This will necessitate piping the water for a distance of about 35 miles.

WEATHER CONDITIONS

San Francisco, California, May 24, 1919.

Stations.	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.74	35 47	41 42	58	50
Red Bluff	.00	20 18	24 36	94	52
Sacramento	.00	17 29	19 21	96	50
San Francisco	.00	22 04	21 96	67	50
San Jose	.00	14 87	16 57	80	46
Fresno	.02	6 82	9 46	88	54
San Luis Obispo	.07	17 97	20 18	79	49
Los Angeles	.14	8 56	15 50	79	54
San Diego	.27	7 79	9 91	66	56

LIBERTY BEET TOPPER



BEETS PULLED AND TOPPED IN ONE OPERATION

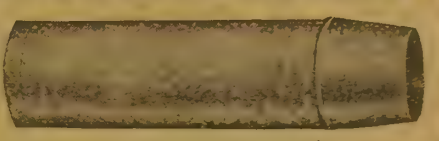
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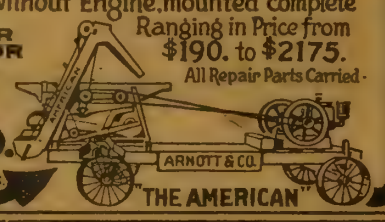
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The One Hundred Hen Farm Flock

By Jean A. Koethen

THE farm flock is in a position essentially different from that of either the commercial flock or the fancier's flock. The commercial flock is the poultryman's living. He puts his capital into it and must get a reasonable living income from it. In order to do this he must use the most efficient feeds, regardless to some extent, of the cost. The fancier, on the other hand, is working for size and perfect development and must spare neither pains nor expense to secure them.

The farm flock is a side line. It must be well nourished, but there is more actual profit for the owner, in spite of a slightly smaller number of eggs, in using the feeds that are at hand or may be easily raised than in buying expensive feeds. And this is not saying that the feed raised on the farm is not, more often than not, the very best that can be had at any price. It is simply to remind us that profit is the margin between cost of production and selling price and that he who produces eggs most cheaply is making the most money.

Bran Is Essential

The farm flock is the special care, and usually the property of the farm woman. She must plan for feeding with the least labor and must use the things at hand and what she can induce the men of the family to raise for her. One important mill feed she will have to buy is wheat bran. It may be possible to raise chicks and feed laying hens without bran, but I do not know how it can be done. A good grade of bran has a nutritive ratio of 1:3.4, which means it contains one part protein for every three and four-tenths parts of starch and sugar. It contains more protein than wheat and twice as much corn or barley. What is especially important to the growing chick is its ash content of 5.16 per cent. Ash is the mineral matter—lime, phosphorus, etc.—which would remain if the grain were burned and is absolutely necessary to the building up of the chick's frame. All grains contain ash, but bran contains twice as much as ground barley, nearly twice as much as rolled barley, and more than three times as much as corn or corn meal. Over 56 per cent of wheat bran is starch and sugar, which must form the largest part of the ration of all fowls, and so we have in this one mill feed nearly everything a chick needs for growth and a most important part of the ration of the adult fowl.

All commercial mashes, I suppose, contain bran, the quality and amount depending on market conditions, but the farm woman will be more certain as to quality and will find it easier to change her ration from week to week if she buys her bran and whatever ground grain she wishes to use with it, and mixes her mash herself. I have had satisfactory results from bran alone, with about 10 per cent of beef scrap or fish meal added, kept in hoppers before both laying hens and young stock, but it is better to add another ingredient. Corn meal is only less important in a chick's ration than bran, but it has been too expensive recently for constant or indiscriminate use, and the birds can manage without it. An ideal mash for growing stock consists of equal parts bran, corn meal middlings and beef scrap (by measure, not weight), but a mash of three parts bran, one part corn meal and one part beef scrap is nearly as good. If corn meal is not accessible, and you have ground barley, try three parts bran and one part ground barley.

The Best of All Feeds

On the farm I have in mind there is a cow as a matter of course. A farm presupposes a few pigs, and pigs presuppose cows. The woman who has a good supply of sour milk to fall back on is the best equipped person in the world for poultry raising. Edward Brown quoted a Belgian woman, who, when she was asked why she kept only 100 chickens when she had room for 200, replied, "But I have only two cows." To keep more fowls than she could provide with milk was to her mind an impossibility.

The woman who can feed sour milk ad libitum will not need to buy beef scrap or fish meal, though she will probably have a larger egg yield if she does use one or the other in her laying mash at least a part of the time. Most commercial poultrymen use a mash containing animal protein and moisten it once a day with some form of buttermilk. For her baby chicks she may moisten the mash with the milk almost from the first. Bran and rolled oats moistened with clabbered milk and fed four times a day makes a splendid growing ration for little chicks, and they might do very well on bran alone moistened in this way.

Very few scientific feeders set the milk before either chicks or hens. They prefer to use it with the ground grain in the mash, or to feed it as cottage cheese. Any liquid set out in pans is bound to be wasted and filled with filth and it is generally believed that milk fed in this way is conducive to intestinal worms, perhaps because it is not clean. Fed as cottage cheese, either in the mash or out of it, it is eaten up quickly, and the birds get the protein and lactic acid without the water which is 90 per cent of all milk.

Sour milk is the best preventive of white diarrhoea in chicks and the only cure for coccidiosis. It produces "milk fed" fryers and broilers, and is the ideal turkey feed. The woman who has sour milk at her disposal need not be afraid to undertake any poultry enterprise.

The Vegetable Mash

Most women, I believe, like to feed the warm morning mash of cooked vegetables and ground grain, and the farm woman is fortunate in having a larger supply than most of us of vegetables that can be used in this way. Unmarketable potatoes, all kinds of vegetable skins, apple skins, outside leaves of cabbage and cauliflower, squash, carrots, turnips, practically all kitchen waste save orange and lemon peel, banana skins and pea pods may be used in this way. Cook them together in the morning if you have dinner at night, or in the afternoon if your dinner is at noon. Thicken with bran or rolled barley or corn meal or all three. Add the scrapings from the mush kettle, cut-up outside lettuce leaves or other greens and a handful of beef scrap if you happen to have it, and you have a dish fit for the finest bird in the world.

When both vegetables and sour milk are available, as they are on most well equipped farms, there will be some question as to how vegetables should be used. The milk is best used in the moist mash, and one could hardly use both milk and vegetables at once, even if the mash were not more easily mixed with milk. Where such a plethora of riches is at hand it is probably better to cook the potatoes and vegetable skins quite dry and feed them by themselves. Some of these vegetables and vegetable waste, like the outside cabbage and cauliflower leaves, can be thrown into the run without cooking, but I have never been able to induce my hens to eat raw potatoes or vegetable skins, except those of tomatoes. When they are not needed for the mash, these things must be fed in the easiest way, but they must be fed, for they contain valuable nourishment and save the more expensive grains.

Use a Dry Mash

The main dependence for egg production must be the dry mash, no matter how many hens are kept or what else they are fed. This need not be complex. It may, as I have hinted, consist of bran and beef scrap and nothing else. Hens that are on good range may lay well on a moist mash once a day, but hens that are confined should have the moist mash supplemented by a hopper of dry mash from



which they may help themselves at any time.

On a farm where corn and milo are raised there would be economy in having a small power mill such as I saw in the feed house of a fancier recently, so that corn meal and ground milo could be prepared at home. With these two feeds and wheat bran, the farm woman has all the ground grain she really needs. Milo contains a little less fat than corn, but can be used in its place with bran in the mash. Possibly the chief reason why farm hens do not produce as egg farm hens do is that the dry mash is so often neglected.

Feeding Barley

The scratch grain for the farm hen will not differ materially from that used on the egg farm, save that the farmer's feeding should be limited to what he raises. In most cases this will be barley, milo and kafir, but there is no reason why it should not in many cases include wheat and Indian corn. Barley is the most common grain used on California farms, and it is a mighty good feed, quite as good as wheat, many poultrymen think, if properly fed. Its nutritive ratio is a little wider, being 1:7.7, while that of wheat varies from 1:5 to 1:10, but it contains more ash than any but the shrunken wheat, more fat and about the same amount of crude protein.

The only objection to barley is its hull, which makes it hard to digest if fed whole, but there are so many other ways of using it that it rarely needs to be fed whole. It may be clipped ("scoured" means the same thing, I think), that is, have part of the hull removed; or it may be hulled entirely. Most frequently the farm woman feeds it in the form of "rolled barley." This is better than feeding the dry, whole grain, especially if the barley is steamed by soaking in hot water over night. Better still is sprouting, which is easily done and makes the grain more palatable than rolling besides adding at least a green flavor.

To sprout barley, soak the whole grain in cold water 24 hours or longer, then turn into a tray or box with holes in the bottom for drainage, set in a shady place, cover with a burlap sack and keep moist till the white roots begin to show. In warm weather it is necessary to wet the barley once a day while it is sprouting. In cloudy, damp weather, it needs no attention. Hens simply go wild over barley sprouted in this way and can consume a large amount of it.

With a meal of sprouted barley at noon, milo (a quart to 15 hens) at night and the moist mash in the morning; dry mash before them during the day, and green feed in between if they are not on range, farm hens are as well fed as any hens in the country, and if they are not a profitable crop it is the fault of the ration.

EIGHTH NATIONAL EGG LAYING CONTEST

By T. W. Noland, Director at Mountain Grove, Missouri

Six thousand eighty-four eggs were laid during the month of April by 300 hens, making an average of 20.28 eggs per bird. Pen 4, S. C. Rhode Island Reds, from Alabama, again wins the cup, having laid 139 eggs during April.

Following are the leading pens of each variety for April: S. C. Reds, Alabama, 139 eggs; Brown Leghorns, Kansas, 125; White Wyandottes, Illinois, 124; White Rocks, Missouri, 122; Black Langshans, Missouri, 122; S. C. White Leghorns, Missouri, 120; R. C. Reds, Missouri, 119; Barred Rocks, Missouri, 118; R. C. White Leghorns, Missouri, 118; Buff Leghorns, Missouri, 116; Anconas, Missouri, 114; R. I. Whites, Connecticut, 113; Silver Wyandottes, Missouri, 112; Buff Wyandottes, Vermont, 106; Buff Orpingtons, Missouri, 105.

The ten leading pens to date are as follows: R. I. Whites, Missouri, 643 eggs; Buff Orpingtons, Missouri, 623; R. I. Whites, Connecticut, 619; R. C. White Leghorns, Missouri, 608; R. C. White Leghorns, Missouri, 591; Buff Orpingtons, Missouri, 576; White Wyandottes, Illinois, 575; Silver Wyandottes, Missouri, 566; Silver Wyandottes, Missouri, 550; Black Langshans, Missouri, 538; White Rocks, Missouri, 538.

Bees Help Cotton Growers

The lack of some cotton plants setting their bolls caused an investigation, and a specialist in charge of the work was the late Roland M. Meade. An account of his investigations recently appeared in the Journal of Heredity:

"Although the writer's death prevented any further investigation, his preliminary notes on the subject are very suggestive, and may lead to further studies on this line. As far as information goes, it does not appear that any experiments of the kind described below have been as yet undertaken in the cotton growing islands of the West Indies. Such experiments and their results will be well worth recording. Much of Mr. Meade's paper is reproduced below.

"The percentage of cotton flowers that develop into mature bolls is generally low. Even under the most favorable conditions many of the buds do not reach the blooming stage, and many flowers that open fail to set bolls.

"Inadequate pollination may be considered as a possible cause of the shedding, when the flowering stage had been reached.

"The cotton flower is a large, cup shaped blossom; it is borne in an upright position on the upper side of the fruiting branch. The pollen grains are very large, and have moist spinose surfaces, so that they tend to cohere when freed from the anthers and are not carried about by the wind.

"The period during which fertilization is possible lasts only a few hours. The flowers open soon after sunrise, commence to wither as the temperature rises in the middle of the day, and close in the evening when the stigma is dry. The second or third day after blooming, the petals, stamens and pistils separate from the rest of the flower and fall from the plant.

"In some types the relative position of the stigmas and stamens is favorable for self pollination.

"Most of the flowers with long stigmas projecting above the stamens do not become completely self fertilized, as the anthers and stigmas are too widely separated. The flowers of many of the long staple varieties are of this type, the stigmas often exceeding the anthers by 15 millimeters. The bolls resulting from such flowers have 23 to 45 per cent of aborted seeds, and it seems not unreasonable to attribute this abortion in part to the lack of perfect pollination. Flowers with short stigmas imbedded among the upper stamens are readily self fertilized. Erect stamens, either long or short, are also favorable to self fertilization, since they bring the anthers in close proximity to the pistils.

"Cotton bolls have three to five locks or compartments, each containing from six to eleven ovules, the number varying with the type of cotton. Few locks of long staple types contain more than nine seeds, while most of those of big bolled, short types have at least eight seeds.

"It was found by preliminary investigation that the bolls failed to set unless at least 25 grains of pollen were applied to the stigmas; even with this number, only one or two seeds matured in each lock. As each lock contains from six to eleven ovules, it is necessary for at least 25 to 55 grains of pollen to reach the stigmas in order that all the ovules of a four or five locked boll be fertilized.

"It is evident from increased yield of bolls secured in the long pistiled Durango variety through artificial pollination that the presence of additional pollinating insects would aid in reducing the high percentage of shedding. The value of honey bees in this connection is recognized in some localities, and it would seem that growers of long stapled varieties might find bee keeping a distinct advantage to the cotton crop."

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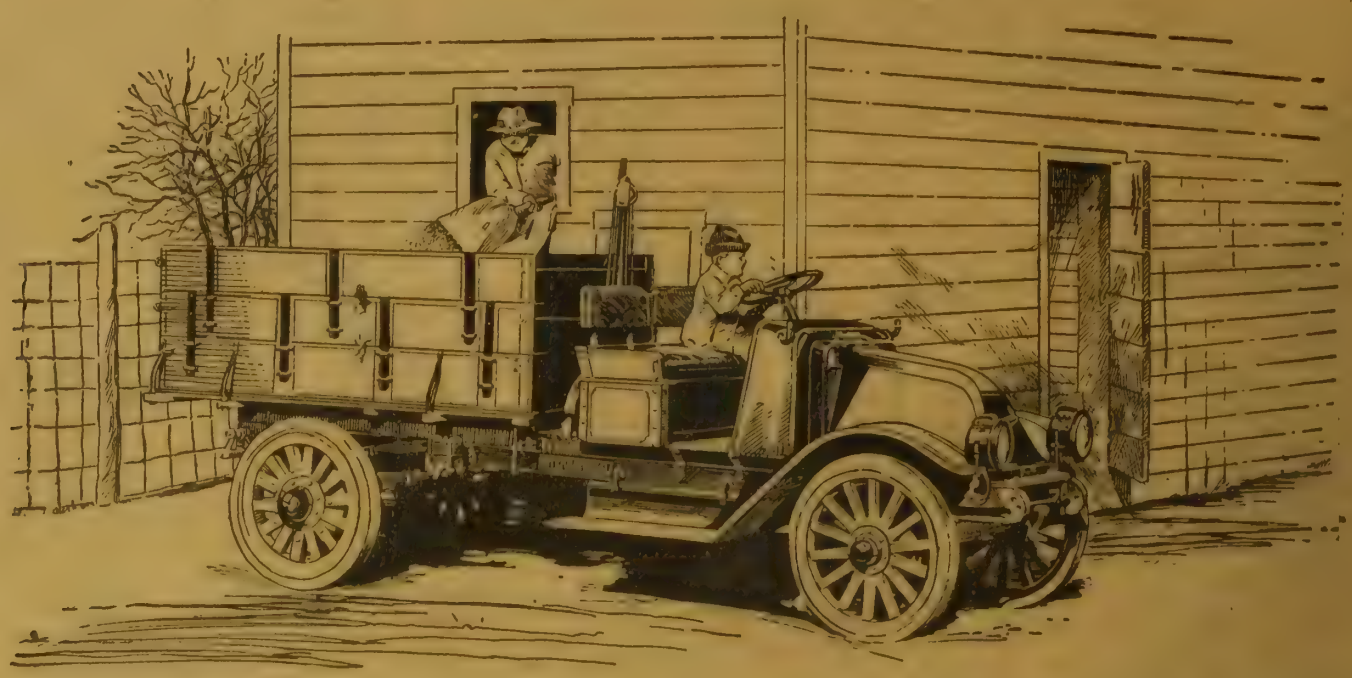
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Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — June 7, 1919 — No. 23

Plain and Pleasant Talk About Fruit, Flowers and Farming

WE MODERNS sometimes think we have a copyright on modern ideas. We observe more accurately the processes of nature and study more deeply into her mysteries than did the farmers of the last century. Our foredads swung the cradle, raked and bound by hand, and were content to work sixteen hours a day; and without such necessities as the telegraph, the telephone, the phonograph, the flying machine, or even the auto. But perhaps they did think of some of nature's deepest problems more than we ordinarilly give them credit for. This point was brought out in his welcoming address by Mayor Horace Porter of Riverside before the fifty-first State Fruit Growers Convention last week. Mayor Porter quoted from "A Plain and Pleasant Talk about Fruits, Flowers and Farming," written by Henry Ward Beecher in the columns of The Indiana Farmer in 1835. Mayor Porter remarked that the little town of Indianapolis, then with less than 4,000 inhabitants, afforded an indifferent living for the talented young preacher and he was compelled to increase his subsistance by writing for the columns of the farm paper. The quotation made by Mayor Porter sounded so like an editorial which we would write if we could that we are glad to give it in full.

By Henry Ward Beecher

We understand very well that every region must fashion its system of agriculture upon the nature of its soil, its climate, etc. The principles of agriculture may be alike in every zone, but the processes depend upon circumstances. It would be folly for a new country, without commerce, to imitate an old country with an active commerce; it would be folly, where land is cheap, abundant, and naturally fertile, to adopt the habits of those who are stinted in lands, who have a redundant population, and who find a market for even the weeds which are indigenous to the soil. The husbandry of Holland is suited to a wet soil, and of England to a humid atmosphere and a very even annual temperature. But our soil is subject to extreme wet in spring and dryness in summer, to severe cold and intense heat. A farm whose bottom lands are reinvigorated by yearly inundations, may thrive under an exacting husbandry that would exhaust an upland farm in a few years. Modes of agriculture must be suited to circumstances. Nevertheless, the experiments and discoveries and practices of every land are worth our careful attention. We do not import clothes—but we do cloth, to be made up to suit our own habits and wants.

The two extremes of husbandry are, the adoption of every novelty and every experiment indiscriminately, and the rejection of every new thing and every improvement, as indiscriminately. Wisdom consists in "proving all things and holding fast that which is good." We do not advocate large outlays for expensive machines—for fancy cattle, for every new thing that turns up. But when, after full trial, it is ascertained what are the best farm horses, the best breed of cattle, the best milch cows, the most profitable breed of hogs and sheep, and the most skillful routine of cultivation, we think our farmers ought to profit by the knowledge. It is never a good economy to have poor things when you can just as well have the best. This, then, is

OUR CREED

We believe in small farms and thorough cultivation.

We believe that soil loves to eat, as well as its owner, and ought, therefore, to be manured.

We believe in large crops which leave the land better than they found it — making both the farmer and the farm rich at once.

We believe in going to the bottom of things and, therefore, in deep plowing, and enough of it. All the better if with a subsoil plow.

We believe that every farm should own a good farmer.

We believe that the best fertilizer of any soil, is a spirit of industry, enterprise, and intelligence—without this, lime and gypsum, bones and green manure, marl and guano will be of little use.

We believe in good fences, good barns, good farmhouses, good stock, good orchards,—and children enough to gather the fruit!

We believe in a clean kitchen, a neat wife in it, a spinning-piano, a clean cupboard, a clean dairy, and a clean conscience.

We firmly disbelieve in farmers that will not improve; in farms that grow poorer every year; in starving cattle; in farmers' boys turning into clerks and merchants; in farmers' daughters unwilling to work, and in all farmers ashamed of their vocation, or who drink whisky till honest people are ashamed of them.

Agricultural News Notes of the Pacific Coast

Northern California

Colusa County has begun harvesting its big grain crop.

Vacaville estimates that the prune crop in that vicinity will bring in $600,000.

The Farmers' Union is holding meetings in Modesto, June 6, and in San Jose, June 7.

There are 475 farm bureau centers in California with a membership of over 22,000 farmers.

Arbuckle, Colusa County, almond growers have decided to enlarge their warehouse.

Shearing is well under way in Mendocino County; many sales are being made at 60 cents.

The United States biological survey is preparing for a big ground squirrel "drive" in Butte County.

Some rice growers of Yuba County it is feared may lose their crops because of delay in putting on water.

The Broughton bill authorizing irrigation districts to develop, distribute and sell electrical energy has been signed by Governor Stephens.

Governor Stephens has signed the bill which provides a public camping ground in Placer County at Tahoe City, on the shores of the lake.

Peach growers now under contract with canners are preparing to ask for higher prices to keep pace with the increased cost of labor and materials.

The Penobscot Farm Company of Eldorado County has stocked with milch goats 3000 acres near Cool. The milk is to be used for making goat cheese.

That the government price on rice will be maintained until the 1918 crop is cleared up is the positive statement of J. J. Crowley of the United States Grain Corporation.

The Glenn County farm bureau is seriously taking up the problem of drainage of rice lands and lands adjacent. Orchards are said to be suffering from the rising water table.

Tuolumne County will soon have a horticultural commissioner. The appointee, it is understood will be Mr. Gilkison, who has been teaching agriculture in the Sonora high school.

Sheepmen of northern Sonoma and southern Mendocino Counties are being offered 60 cents and better for their wool clip. Sheep have wintered well and the clip is excellent.

The Butte City district of Glenn County has asked the state land settlement board to consider it as a site for a second settlement colony similar to that now established near Durham in Butte County.

George P. Weldon, for several years chief deputy state horticultural commissioner, has resigned from his state work and will take a position in Ontario, San Bernardino County. He will also direct the work of the experiment station of the Chaffee Union High School.

That the extermination of ants in Alameda should be undertaken at once and that a campign to this end is soon to be launched under the direction of the University of California extension department is a recent announcement. So prevalent have these pests become, it is claimed, that damage amounting to thousands of dollars is done yearly in the city, to say nothing of the annoyance they cause householders.

Central California

Lodi, San Joaquin County, is sending out carload shipments of lettuce.

The cantaloupe outlook in the Turlock section is of the best.

The California Peach Growers, Inc., has announced prices on "Practically Peeled."

Clovis, Fresno County, claims to be the largest shipper of table grapes in the valley.

The recent hog auction sale at Corcoran, Kings County, showed a decided slump in prices.

Santa Clara prunes are reported as practically all sold at prices ranging from 12½ to 22 cents.

Selma spinach growers are very pleased with the result of their first venture in raising this crop.

The berry special train is now making daily trips from the Santa Clara berry fields to the Bay cities.

Currant "ringing" was demonstrated at the Fresno high school last week by a government viticulturist.

The melting snows in the mountains are sending a big flow of water through the rivers and irrigating canals.

Harvesters have begun work on the west side in Stanislaus County. Prospects throughout the county are of the best.

The J. C. Forkner fig gardens at Fresno has completed arrangements for the installation of a preserving and jam plant.

At the fat hog auction sale at Tegner, conducted by the farm bureau marketing association, the top price was 18½ cents.

Practically all fruits in San Joaquin County will this year give a 100 per cent crop; almonds and pears are running a little light.

Stockmen of Tulare County are planning for the live stock show to be held this fall at the new live stock pavilion in Tulare.

Salinas Valley warehouses report a heavy demand for damaged beans which have been overflowing the warehouses for months.

Hollister, San Benito County, reports great activity in orchard real estate since 1919 prices for prunes and apricots were announced.

The last farm bureau sale at Visalia, Tulare County, showed drop in price for tops to $17.85 as against $18.90 for tops of practically the same grade at the sale of the previous week.

Kings County raisins are to be labeled, "Packed in Kings County," when handled by any plant of the Raisin Association. This action was taken after a campaign was made by the Hanford board of trade.

Order has been made for reduction in the freight rate on empty lug boxes, which are used by the packing houses and returned for reloading. The reduction will be 17½ cents per 100 pounds to 9 cents per 100 pounds. The minimum weight was stated to be 12,000 pounds on a 36 foot car

The South San Joaquin irrigation district has completed plans for a bond issue of $500,000 for its new irrigation system and the building of the Hilts Sag flume in the Stanislaus River. It was the largest wooden flume in the world and is now being replaced by concrete. They plan to finish the work in five years.

Southern California

The Riverside County Milk Producers' Association has 30 members.

Redlands is planning its first fall flower show since November, 1916.

Date growers of Coachella are planning the building of a new packing house.

The Charter Oak Citrus Association has this year handled 324 carloads of navels.

Beaumont will celebrate Cherry Day when its cherries are at their height of production.

Several sales of Durango cotton at 37 cents are reported from Blythe, Riverside County.

The Puente Walnut Association estimates that section will ship this year in the neighborhod of 2000 tons of walnuts.

Orange County is moving her biggest Valencia crop. The Orange County Fruit Exchange is at present shipping 15 to 20 carloads a day.

Rabbit raisers of Riverside County have formed the Riverside County Rabbit Breeders' Association. J. E. Copeland has been elected president.

The recent cloudy weather is feared by some apricot growers as starting a fungus which will redden the fruit and, if continued, injure it for canning.

At a meeting of the Riverside County farm bureau held at Riverside last week it was voted to ask the supervisors to appoint a fire warden for the months of June, July, August and September.

The California Walnut Growers' Association has announced that it will give a prize of $10,000 for an acceptable machine or idea which would enable the stamping of its Diamond Brand on each walnut in the pack.

To satisfy the need for trained teachers, a course in school and home gardening will be offered from June 30, to August 8, by the University of Southern California at the agricultural center of the Los Angeles city schools.

Secretary W. W. Van Pelt of the Southern California fair to be held at Riverside announces that he has received half of the necessary certifications for the Duroc-Jersey futurity show. These are from Riverside County, Chino and Van Nuys.

The directors of the Yucaipa Apple Growers' Association have assumed the responsibility of raising the valley's portion of Inspector Taylor's salary. Instead of assessing each member the plan adopted is to solicit subscriptions from all orchard owners at the rate of 10 cents per acre.

At a recent annual meeting of the Riverside County farm bureau the following officers were elected: President, J. E. Wherrell; vice-president, A. Rohrbacher; secretary-treasurer, Miss Gladys Waddell; auditor, William Babel; directors at large, J. L. Bishop, Mrs. H. E. DeNyse, C. R. Brown, Mrs. Carol McConnell, George Thomas, O. K. Kelsey and F. A. Langdon.

The San Jacinto district of the Cleveland national forest is now in charge of Ranger S. A. Boulden. He is stationed at Keen Camp. During the coming season Assistant Ranger F. E. Walker will be on duty at the San Jacinto ranger station, D. G. Spence at Vista Grande, Dexter T. Jones at the Stone Creek district and John F. McDonald as lookout on Tahquitz peak.

The Coast and General

Fifteen thousand sheep will be sheared in central Oregon this year

A considerable new acreage in Clatsop County, Oregon, is being set to cranberries.

The Columbia River packers have fixed 11¼ cents per pound as price to fishermen for Royal Chinook salmon.

The Hood River Valley, Oregon, has subscribed its quota of $1000 to the Pacific International Live Stock Exposition.

A summer course in gardening and poultry for women is to be given by the Ohio State University from June 23 to July 19.

The Salt River Valley Water Users' Association, Arizona, has fixed the assessment for water service at $1.60 for the first two acre feet.

Commercial fishing for salmon on the Columbia River opened May 1 The fishermen are demanding 11½ cents a pound for salmon.

A new classification of the state lands of Arizona is being made by the state land commission. This will classify lands owned by the state into agricultural land and four classes of grazing lands.

At a bond election held May 17, Maricopa County, Arizona, voted to issue $4,000,000 for building about 200 miles of hard surfaced roads. Other roads are being built as a part of the state highway system.

The Santa Fe has asked for a raise in rates on live stock between the Salt River Valley, Arizona, and Middle Western points. The new rates on cattle will be about $20 higher on a carload, and on sheep about $35.

A thrasher school is being held on the experiment station farm at Mesa, Arizona. This will take up repairs and adjustments of grain separators, the purpose being to show how adjustments may be made in order to save grain.

The forty-seventh annual reunion of Oregon pioneers will be held in Portland, June 19, Nathan H. Bird, 1846, vice-president, presiding. The annual address will be made by George W. Riddle of Douglas County, a well known pioneer of 1852.

Marita Butler of the Lehi district near Mesa, Arizona, has won the county championship of the Boys' and Girls' club work through her work in canning fruits and vegetables. She canned 700 quarts of fruits and vegetables during the season.

An orphan lamb club with over 40 members has been organized by the Farmers' Savings Bank in Walla Walla. The lambs were secured along the Snake River by the bank's agriculturist, C. L. Jamison, and were distributed by the county club leader. The lamb club members will hold meetings occasionally this summer and will exhibit their stock at the county fair this fall.

Air mail service has been established daily except Sundays between Chicago and Cleveland. This will advance the mails from Pacific Coast states to Cleveland, Ohio, and Boston, Massachusetts, 16 hours, and to Albany and New York, six hours from connections at Chicago. Mail intended for airplane service shall be prepaid at six cents per ounce and shall be marked "air mail."

The Use of Frozen Fruits in the Manufacture of By-Products

By E. M. Chace, Chemist in Charge Citrus By-Products Laboratory, United States Department of Agriculture

LIKE most problems connected with the frost injury of citrus fruits, that dealing with the utilization of the injured fruit for by-products presents many discouraging features. At the outset it is very desirable to have a quick but accurate estimate of the extent of the injury to the grove. The fruit on the trees may be fit only for by-products; it may be in part available for sale at a higher price than by-product factories can pay, and it may be so slightly injured that the better policy would be to leave all the fruit on the trees.

Even where accurate estimates can be obtained, in many cases the trouble has just begun. Where the injury is very great, especially in the case of lemons, the fruit should be gotten to the by-product factory as soon as possible after the freeze, in order to get the greatest returns from it. Immediately after a severe freeze, however, it is manifestly impossible to harvest any considerable part of the crop of the state, no matter how quickly or how crudely the work is done. Picking, hauling and even storage room will be inadequate, and further, the by-product plants, as at present organized, do not have sufficient capacity to handle the burden which would so suddenly be thrown upon them. Where a part of the fruit has been untouched by frost, it can sometimes be decided from experience whether it is not best to harvest the fruit at once in the low cold spots and on the outside of the trees for by-products, and permit the rest to remain for drying out. Any method of operation which saves handling the fruit in the packing house, of course, saves money for the grower. Where frost injury has been but slight, it is undoubtedly the best policy to allow the fruit to stand upon the trees for a month or six weeks in order to facilitate its drying out, and thus aid the elimination of the frosted material as much as possible, for this, at best, is rather an unsatisfactory job. Where this plan is followed, the value of the frozen fruit is considerably diminished, but the average returns from the whole will, of course, be much higher.

Taking up the specific uses to which frozen fruit can be put, we find that lemons which have been very badly frozen are still available for making citrate of lime or citric acid. Where drying out has taken place, the yield may be somewhat lowered, but in most cases a fair recovery can be made. Thomas, Young and Smith, in their paper upon the composition of frozen oranges and lemons recently published in University of California Bulletin Number 304, show that even two months after the freeze of 1913, frozen lemons contained as high as 4.79 per cent of anhydrous citric acid in the juice. With many frozen lemons, however, decomposition is rapid and the sooner they reach the factory the better.

So far as oil is concerned, our own experience convinces us that, where there is no serious surface injury, the oil content is not diminished, and the oil itself is somewhat more easily recovered than in the case of unfrozen fruit. Where surface injury has not been too great, the peel can be used for candying, drying or packing in brine. Where the pulp is not injured in flavor, it is available for use in marmalade. Past experience in Florida on grapefruit should teach great caution, however, in bottling juice from frosted fruit, even where it apparently is of excellent quality at the time of bottling.

Oranges, frozen or unfrozen, are not available for the manufacture of citric acid or citrate of lime as the acid content of the juice is not sufficient to pay for its recovery. If the surface injury is not great, the oil recovery will not be curtailed, and surface injury, with oranges, is not usually very serious. Candied, dried and brined peel can be produced from the rinds. As shown by Thomas, Young and Smith, there is a loss of sugar in the juice of frozen oranges. In our experience, there is also a considerable loss of flavor in the juice, although the pectin in the peel, which is valuable owing to its jellying properties, does not seem to be greatly decreased.

Where the fruit has not dried out to too great an extent, it can be used for vinegar making; loss of sugar in the juice, however, lessens its value as vinegar material. It is not possible to produce even with the roller process a standard vinegar where the juice contains less than 8½ per cent of sugar. With rapid process generators, the content must be even higher. The bitter flavor, sometimes present in the juice from frozen fruit, does not seem to affect the vinegar made from it. Where bottled juice is being made, it is best to steer clear of frosted material.

Grapefruit is probably more frost resistant than either of the other citrus fruits commonly grown in this state. Its uses in by-products, however, are limited. Citric acid is not present in its juice in sufficient quantity to make its recovery profitable. It contains an insufficient amount of sugar to make a standard vinegar, and while the juice can be satisfactorily bottled. it is best not to use frozen material in its preparation. The peel from frozen grapefruit is satisfactory for the preparation of candied peel, and there is no reason why the pulp cannot be used as usual in the preparation of marmalade.

It is not possible in the time allotted to go very far with the description of the manufacturing processes by which the by-products already mentioned are made. More detailed information can be secured at any time by applying to the institutions where the work has been done.

The manufacture of citric acid cannot be recommended on a small scale, the equipment being too expensive and the technical knowledge required too great. Citrate of lime can be produced with a very modest installation, however, although it hardly seems to be an economic proposition to install even this equipment for the purpose of utilizing this year's frozen fruit. There are a number of citric acid and citrate manufacturers who are in the market to purchase cull lemons at prices which could hardly be realized by the small producer from the sale of citrate alone. Information concerning the apparatus, etc., will be furnished, however, on application to the Citrus By-products Laboratory, 142 South Anderson Street, Los Angeles.

Apparatus for the manufacture of oil from both oranges and lemons is now under construction in more than one place in the state, but has not been sufficiently developed just yet to be available to the small producer. Some oil will undoubtedly be produced from frosted lemons this year, however. Just how much will depend upon the rapidity with which the machines can be perfected.

The market for lemon peel in brine, candied or dried peels, seems rather limited at present, and none should be produced unless contracted for in advance.

The question of the disposal of the unsalable frozen oranges has largely been solved by their use in marmalade, enormous quantities of which are being manufactured. Professor Cruess of the University of California has recently suggested, in the California Cultivator of January 11, 1919, a method of canning orange marmalade stock. This can readily be done, but it would seem that there is some question as to whether this country will readily absorb the large amounts of marmalade which the California companies propose to make in the next six months. It is true that this amount is probably not excessive when compared with some other preserves already on the market, but it must be remembered that orange marmalade must make its way by displacing to some extent other material more or less firmly established in the menus of American homes. The increase in production of this commodity in California this year is estimated at approximately 500 per cent and would be more than double that if all the frozen fruit were taken care of in this way.

It is also possible to produce canned pulp and frozen sliced oranges for use of marmalade manufacturers. We have recently shipped to Chicago several lots of frozen pulp for experimental purposes and have produced excellent marmalade from this same material in the laboratory at Los Angeles. Whether pulp in this form has any advantage over canned pulp is yet to be proven. The possibility of using it for soda water flavor and in the manufacture of ice cream and water ices is also being investigated.

The question of the information which should be given the purchaser on the label of marmalade made from fresh fruit, canned pulp, or frozen stock is not discussed here, since it is beside the purpose of this paper.

The department of agriculture has had for several years recipes for the preparation of marmalades and jellies from citrus fruits which will be gladly sent to any one making application for them at the laboratory.

Equipment for making vinegar on either a large or small scale is very simple and comparatively inexpensive. We have descriptive matter for distribution along this line also. The question of manufacturing on a large scale to compete with Eastern cider vinegar is a matter for consideration in the future. At the present demand for culls, however, together with increased freight rates and cost of cooperage, there seems to be no chance of competing in middle western or eastern markets with cider vinegar. Here in California, however, there is opportunity for the production and consumption of a high grade vinegar for sale to the better class of trade. There is little reason why this product should not largely replace cider vinegar in California with this trade. The vinegar can be made of excellent quality, of fine fruity flavor, but it has not a characteristic orange flavor.

The conditions existing with lemon oil are also applicable to orange oil, so that no time need be taken in discussing them.

There has been some demand for dried orange peel for use in mince meat, and also it has been rumored for use in chewing tobacco. Several carloads went East in 1917 and the demand will probably continue until the Italian product reappears on the market, when it will be a question of cheaper production or a protective tariff.

Candied peel can readily be made and should be pushed in the local markets. A fine confection can be made either plain or chocolate coated, and the only reason why it is not in every first class local grocery or confectionery is lack of introduction and pushing.

We have nothing to offer in the way of orange juice recipes, having never developed a method that would produce a first class merchantable article.

Frozen grapefruit can be used in the preparation of marmalades, a very desirable product being made to contain as high as 33 per cent.

Satisfactory candied peel is also easily produced on a large or small scale. The equipment is inexpensive and easily obtained. Now that the scarcity of sugar no longer curtails the output, I look for a considerable expansion of this trade, for it is the most easily prepared of any of the candied peels and is of unsurpassed quality. Where large quantities are put up, the time can be shortened very materially by the use of the vacuum pressure method. Here an autoclave is used for heating the peel under high vacuum, followed by a heating in syrup under pressure. The impregnation is hastened in this way and a clear article is produced. This candied peel can be cut into very thin strips and used in marmalade very satisfactorily. Directions for making candied peel can be obtained from the laboratory.

It is possible to prepare a satisfactory beverage from grapefruit, although I question the use of frozen material in its preparation. The great trouble with California grapefruit is the same difficulty that gives California grapefruit itself its generally poor reputation, i. e., immaturity. Few California grapefruit growers are willing to allow their fruit to mature before harvesting it. A. D. Shamel of this department, has repeatedly called attention to this fact and pointed out the many advantages accruing from holding the fruit until summer before shipping it. Taken late enough, the fruit produces a fine juice that can be bottled after sterilization and remains in good flavor for months. We have bottled several combinations of grapefruit with other fruit juices and like two of these blends very much. Both pomegranate and loganberry juices make fine blends. We use about 20 per cent of the blending juice to 80 per cent of grapefruit juice, and sometimes sweeten until the solids are raised to 20 per cent. This gives a

(Continued on Page 779.)

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Most of us cannot write of things of today so that they will live and be bright and fresh, and sound as if just from the pen a hundred years from now. But on the cover page of this issue is a poor preacher's attempt at helping out his living on the side by writing some stuff for a farm paper, and this back in the days of the ox team, the tallow candle and other similar conveniences. It's worth reading by the modern farmer, that creed written by Henry Ward Beecher.

BEANS UP

Beans which were only a few weeks since a drug on the market are now nearly all sold. Six or seven weeks since the market was flat. Warehouses were full, price was going down, growers were discouraged, ruined.

This gave oportunity for cooperation. Cooperation gave opportunity to protect the trade. The price advanced. The higher the price the greater the demand. The bean grower is happy.

Moral: Co —But is it necessary?

ENFORCE PEACE

There is continual asking: "Will the League of Nations really enforce peace or create a condition looking toward further warfare and unsettled conditions?" But let not this country grow faint-hearted or encourage any consideration of the question other than some definite action which will prevent another world war. The constitution which the League of Nations recommended may not be perfect, but it has been characterized as one of the greatest documents in the history of the world. In any case it is an honest endeavor to create conditions making for the world peace we all so earnestly desire.

BOY SCOUTS

The Boy Scouts of America desires to have 50 per cent of the boys of the nation within the membership and is starting a campaign to that end which will be in full swing the week of June 8-14. There are 10,000,000 boys in the country between the ages of 11 and 21, and 5,000,000 of them in this organiaztion will mean much for patriotism and even for efficiency amongst the boys. They were the best of gleaners in the Liberty Loan campaigns. Millions of dollars worth of bonds were sold by them after other organizations had done their biggest work.

It is a clean, wholesome organization, making for upstanding, square youngsters, and with it all teaching efficiency and service. Boys throughout the rural sections have been especially attracted to its membership.

LABOR

At the recent Fruit Growers Convention Frank B. McKevitt referred to the labor situation as it confronts the farmer and the labor situation as it confronts the young man returning from service. The papers are filled with plans and alleged plans for giving the young man an opportunity of getting his old job back, or a better one, and while these plans are being advertised the farmer is doing his best to get sufficient help to carry on his work, and the fruit grower who expects within a few weeks to be in the midst of the harvest season, the magnitude of which has seldom been equalled, feels helpless when he sees the difficulty of securing help or rather the promise of any help at that time. It has been claimed that if the farmer and fruit grower will pay better wages he can secure help. It is probably impossible for the producer to pay a dollar a day or even the more reasonable prices which ship builders and others were able to pay under government guarantee, but farmers have been offering forty and fifty cents per hour and, as Mr. McKevitt said in the convention; "It is an impossibility to secure the help needed." He felt that in view of this crying need of special effort the starting of great labor employing projects at this moment would prove disastrous to the producing interests. Allow the present crops to be harvested with the available labor. Many hundreds of thousands of tons will waste of the best of the fruit unless this need is met.

$50-$500

This would be a much more delightful world if the fool killer, or some other polite sort of an executioner, would start out and lay low all those who make mistakes. This might, however, be rather drastic and lead to desperately lonesome conditions, for we all do make mistakes. Of course, we always pass it on to the other man as being responsible, and no matter how just this action may be, it still does not seem to prevent after mistakes.

For the error we have in mind we are going to pass the responsibility on to the work room where the advertisements are set and the forms are made up for the pages of the Cultivator. In the issue of May 31, in the announcement of the International Dehydration Machine there is a line which should have read: "Sold on payment terms at the rate of $500 per ton basis." Some distance above, in the same advertisement is a line which reads: "Save $50 per ton in drying expense by using——, etc." This may or may not account for the distressing error which was made in putting the ad in type, for the $500 per ton basis became $50 per ton.

Dehydration of California's fruits and vegetables will mean the bringing to this state of many millions and the saving of hundreds of thousands of tons which might otherwise go to waste, and the Cultivator would encourage this industry in every way. We hasten to correct the error and to urge our readers to become better informed regarding the advantages of these dehydrators. Neighborhoods may well combine in efforts to save our fruit and vegetables which might otherwise be waste.

ALMONDS

Those who heard George W. Pierce make his address on the Almond Growers Association and the advantages which the association has given to the almond industry could not help but be impressed. When the association was formed a few years ago almond growing was only a side line with most fruit orchardists, with little satisfaction in it even as a side line, but the association has handled the marketing of the product to the end that thousands of acres have been set, and this usually because of very satisfactory returns from orchards planted in favorable sections. By far the greater portion of the almonds produced in this state are grown within a radius of 150 miles from the city of Sacramento. There are now practically 2500 growers, the larger portion of whom are members of the association.

Mr. Pierce characterized those who are not members of this cooperative organization which is making possible the success of this great industry, as commercial parasites, or, as Mr. Thorpe of the Walnut Association reported hearing a banker say: "The grower who remains outside the association and continues to avail himself of its advantages is like the patron of my bank who continually checks on my bank and continually makes his deposits in another." These "outsiders" are willing to take the benefits which the cooperative organizations bring, but they are not willing to pay their proportion of the maintenance of such organizations. Mr. Pierce, who is president of the association, proposes, however, that ultimately one hundred per cent of the almond growers of the state will market their nuts cooperatively. One point made by Mr. Pierce showed the advantages of this association—instead of sending the entire crop of the state to one or two or at most a very few large firms, more than seventy per cent of this state's output is now distributed to dealers who handle less than fifty bags of almonds a year.

PESTERING PRODUCERS

Some time ago we commented on the attack made on the Milk Producers' Association that originated on the floor of the Senate and was later taken up by certain metropolitan and even agricultural papers. It will be recalled that the investigation staged by the agricultural committee of the senate failed to develop anything of importance and that the alleged expose ended in thin air.

We remarked on this page at the time that it was conceivable that the interests that would profit most from an unorganized industry would hardly quit the field without a struggle. Our assumption was evidently correct as it appears now that the attack has shifted to San Francisco and is being made from a different angle.

One of the San Francisco papers led the fight and by rehashing many of the original charges claims to have been responsible for the indictment of a number of association officials and strikes an heroic pose as the friend of the consumer and the sworn enemy of the "milk trust" and "the profiteering dairyman."

The intelligence and familiarity with the problem of milk costs displayed by the metropolitan friend of the pee-pul is of the usual grade dispensed by city papers when they attempt to discuss agricultural questions. One of the wonders of modern journalism is the glib way some editors talk authoritatively on any and all questions.

We make no defense for the indicted officials because we know nothing of the legal aspects of the contract that brought about their indictment, but we do protest the attempt to discredit the efforts of the dairy interests to organize so as to more efficiently handle their products.

Agricultural interests are as much concerned in effecting an organization to protect and make profitable their business as any branch of industry and yet the same papers crying loudest for the scalp of organized producers are afraid to protest organized effort in certain other fields.

A sample of the logic displayed by the paper making the attack on the producers is indicated by the statement that rather than cut the delivered price of milk last year the surplus milk was skimmed and the skim milk poured in the sewer and that the fat was turned into high priced butter, but that this year through more "efficient" (the quotations are theirs) methods introduced by the Milk Producers' Association a skim milk and cheese factory has been built and that now surplus milk is skimmed, the fat churned and the skim milk made into skim milk cheese!

There is slight excuse for pouring skim milk into the sewer—and the very fact that the association has worked out an efficient plan of handling the surplus is sufficient excuse for their organization and but indicates the effective work they are doing. The charge that this surplus should go to the babies, through cheaper channels, rather than be diverted and manufactured into butter and cheese shows how little the white-robed defender of the down-trodden consumer understands the questions it so trenchantly discusses.

At the prevailing price of milk there is no excessive profit to the producer —if the surplus was sold at a lower price than the bulk of the supply, a uniformly lower price would have to be established for the entire supply—a condition welcomed by the consumer, no doubt, but disastrous to the producer, whereas, by efficiently handling the surplus the price can be held up to a point where the producer can remain in business. All that dairymen ask is a fair profit—all would welcome cheap milk—but with labor and feed costs where they are, the bald fact is that they must have a living price for their milk.

The Six Great Conventions at Riverside

Editorial Correspondence

THE last convention to be held under the auspices of the state horticultural commission ended at Riverside last week. These conventions have been held for many years, the first under direction of the state board of horticulture, of which Elwood Cooper was president, later under the state horticultural commission, of which Mr. Cooper was also the first commissioner, and it now has ended at Riverside under the administration of Geo. H. Hecke, whose services as state horticultural commissioner will end as soon as the new law creating the office of director of agriculture becomes effective. This law, passed by the recent legislature and just signed by Governor Stephens, will place many of the matters having to do with agriculture under one head. The former state board of agriculture, which is practically the state fair association, is continued, and some other agricultural activities will be independent of the new organization. It is generally understood that former Horticultural Commissioner Hecke will be made director of agriculture. Other conventions of fruit growers and farmers will be held under a different name and having much larger scope.

This last convention was in many ways the most successful ever held in the state. The attendance from different sections of the state, and from other states, even other nations, was many times over that of any preceding convention. The attendance from Riverside County, as is always the case in the sections where these conventions are held, was limited. Some of America's brightest men connected with investigation or extension of present day knowledge were present at this convention, and California's practical every-day producers should have taken advantage of the occasion more than they did.



Writing the Magna Charta of Pacific Coast Quarantine

Members of committee of Western Plant Protective Board from left to right: Frederick Maskew, in charge of California quarantine; M. L. Dean, Olympia, Washington; C. A. Park, Salem, Oregon; W. H. Lyne, Vancouver, B. C.; H. C. Hagan, Salt Lake City, Utah; W. H. Wicks, Boise, Idaho.

The convention was called to order by Commissioner Hecke, and words of cordial welcome were spoken by Horace Porter, mayor of Riverside, also by Harry L. Boardman, secretary of the Riverside chamber of commerce. Mayor Porter showed himself a genuine lover of things agricultural, also that he had searched the volumes of other days for information as to what agriculture is and how it is conducted. We make on cover of this issue liberal quotation from portion of his address.



Responsible for Many Deaths

Inspector and chemical spray people largely make above group. Reading from reader's left to right: D. E. Luther, of California Spray-Chemical Co.; Donald Penny, Santa Cruz; H. E. Woodworth, San Mateo; M. G. Buhn, Kern; W. H. Volck, California Spray-Chemical Co.; the man with the smile, W. C. Jacobsen, state superintendent of rodent control; W. B. Bell, biological survey, Washington; C. E. Cook, Indio date grower; W. S. England; Bruce Drummond, in charge of government date experiment station, Indio; and A. J. Shamblin.



Mostly Nurserymen

From left:Geo. C. Roeding, M. R. Jackson, A. J. Elmer, Leonard Coates, H. A. Elmer, John S. Armstrong, R. M. Teague, W. R. Wood, Wm. T. Kirkman, J. R. Milligan, Robert J. Baird, J. D. Merriwether, Henry Kruckeberg, Max J. Crow.

The next place of meeting was not discussed in convention as the choosing of the place of meeting is entirely in the hands of the state commissioner. The commissioner announced, however, that it would probably be held in Chico, Butte County, as that city had extended invitation and agreed to give royal welcome if the next spring meeting might be held there. Neither is the time of meeting announced though it is understood that it will be held the coming fall.

The one thought most prominent in the entire convention, it having consideration in every day's discussions, was cooperation, especially with reference to marketing. All of California's cooperative associations had representatives present and had opportunity to present their methods of work, and the strangest part of it is that the methods of the organizations are so entirely diverse, to fit the needs of the various associations, that one cannot help but ask how can these organizations succeed while following methods so absolutely at variance with each other.

It was a convention of young men, and at every gathering of the older members, or those who have attended conventions for the past score of years, the remark was made; "Where

(Continued on Page 778.)



Mostly Bug Hunters

These men are mostly horticultural commissioners. Reading from left to right: F. C. Stokes, Lake County; A. A. Brock, Ventura; F. C. Brosius, Sacramento; Harry Stabler, Sutter; H. H. Ladd, San Joaquin; D. D. Sharp, Riverside; G. H. Hecke, state horticultural commissioner; Wm. Gould, Yolo; E. E. Dutton, Mendocino; C. H. Vary, quarantine; O. E. Bremner, Sonoma; F. W. Waite, Imperial.



Interested In Truck Crops and Things

From readers left: R. G. Risser; F. B. Renard, California Vegetable Union; W. H. Volck; H. L. Musser; M. L. Germain; State Deputy Horticultural Commissioner Weldon; R. C. Wiley, Santa Barbara; Dr. J. T. Barrett, in charge of Southern California Citrus Experiment Station; E. E. Kauffman, United States bureau of crop estimates.

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Citrus Blast---What It Is and How It Works

By Robert W. Hodgson

CITRUS blast has been particularly active during the past spring in Northern California orchards. Reports would indicate that more damage has been done this season than ever before. Orchardists are beginning to be alarmed at the inroads of this new disease, many having never noted its activity until the present season.

Discovery

In the summer of 1912 the writer was engaged in top working some old seedling orange trees situated about six miles southwest of Oroville. In doing this work he had occasion to cut bud wood in an adjoining orchard and while examining the trees observed an apparently new and peculiar canker or lesion on the interior sucker growth. At the time this was given little more than a casual examination. Later in the season this peculiar abnormal condition was found in several places on the other side of the Feather River in Thermalito Colony some eight miles away and it was realized that here was something new and of possible economic importance. Accordingly an attempt to identify the disease was made by the writer, but without success.

As this canker did not spread to any appreciable extent during the next two seasons, due as we now know to unfavorable weather conditions and the actual damage appeared to be slight, no further attention was given to the matter. It was known to exist but apparently was of little importance. On several occasions material was sent for examination to the agricultural experiment station at Berkeley.

On returning to Oroville in May, 1915, the writer was immediately struck by the widespread occurrence of a condition ascribed to a late frost by some growers and characterized by others, where no frost could have occurred, as a "heavy leaf drop." On examination this condition was found to be due to neither of these causes but was apparently the result of the same disease which had been first noticed three years before. The same peculiar canker was prevalent throughout the mature trees on the newer growth. During the remainder of the season the disease was studied, notes were taken as to its occurrence and external manifestations and material was collected for laboratory examination.

In 1916, although found quite generally throughout Sacramento Valley citrus plantings, the activity of citrus blast was such as to cause no particular concern. In 1917 in early spring the writer made a cursory survey of the distribution of the disease and found it very bad in the Oroville section as well as in the neighborhood of Corning and Orland. In 1918 it apparently was not very active as few reports of anxiety regarding its spread came in from growers.



Orchard Showing Citrus Blast

Affected orchard showing resemblance to pear blight. Notice the dead leaves still hanging on the trees.

Causal Organism

From the time of the discovery of the disease all the indications pointed to a bacterial causal organism. In fact the resemblance in its effects to pear blight is very striking. H. A. Lee, formerly of the University of California, and now of the bureau of plant industry at Washington, working on this disease at the instance of Dr. J. E. Coit and using material sent in from various parts of the state, in 1916 succeeded in isolating the causal organism, a bacterium which he calls Bacterium citrarefaciens. He found that the bacteria exist chiefly in the parenchyma tissue, destroying the cell structure, and that they do not ordinarily invade the vascular tissues. He further succeeded in isolating the bacteria from material which spent the summer in a dried condition, establishing the fact that the disease may exist over the summer in the dead wood.



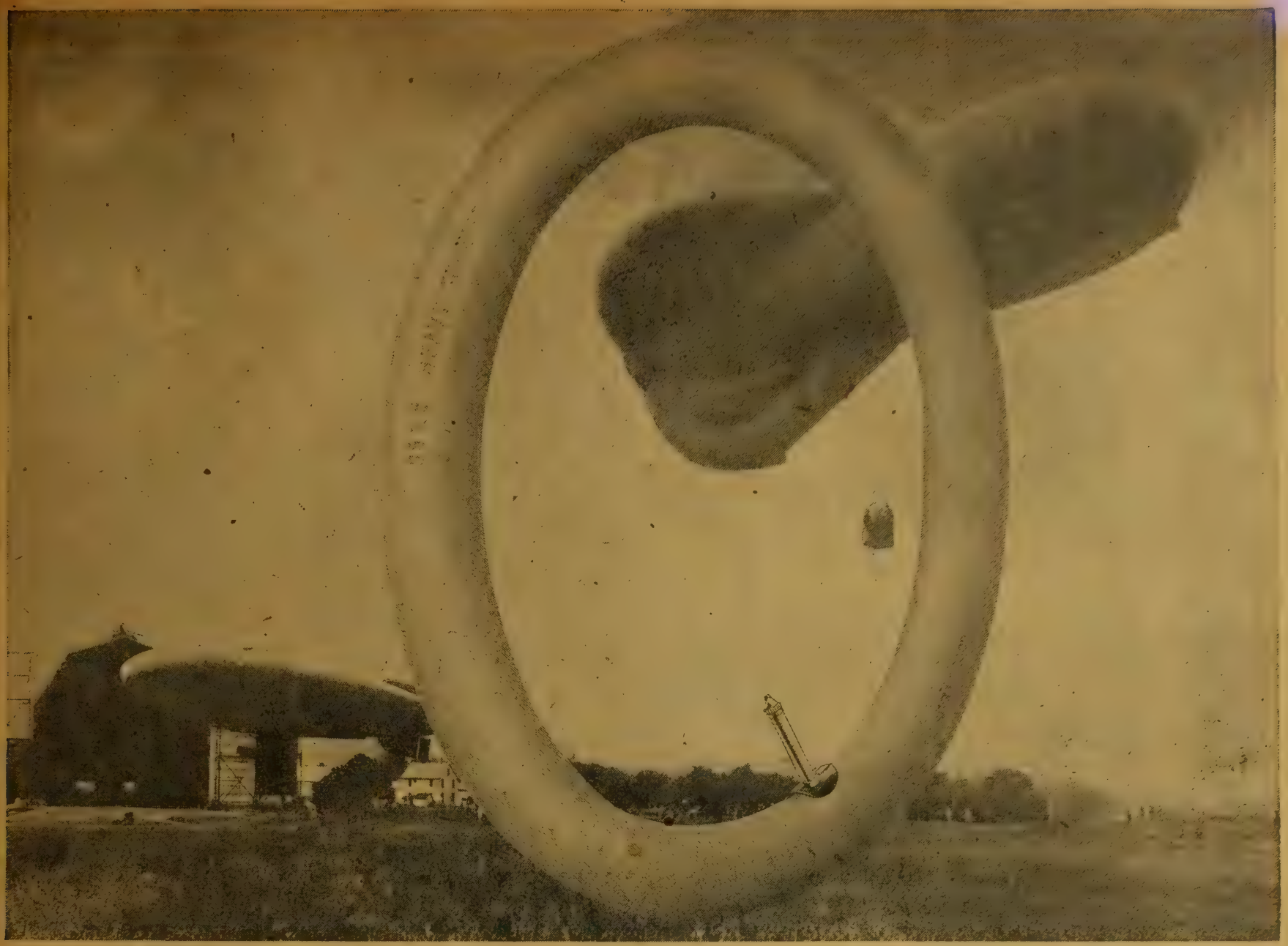
Affected Twigs

Showing the characteristic lesions or cankers produced at the base of infected leaves. Courtesy division of plant pathology.

Disease Characteristics

Infection is apparently confined to new spring growth and seems to occur chiefly at the junction of the petiole and blade of the leaf. However, it appears that infection may also occur at the tips of the very young leaves

(Continued on Page 778.)



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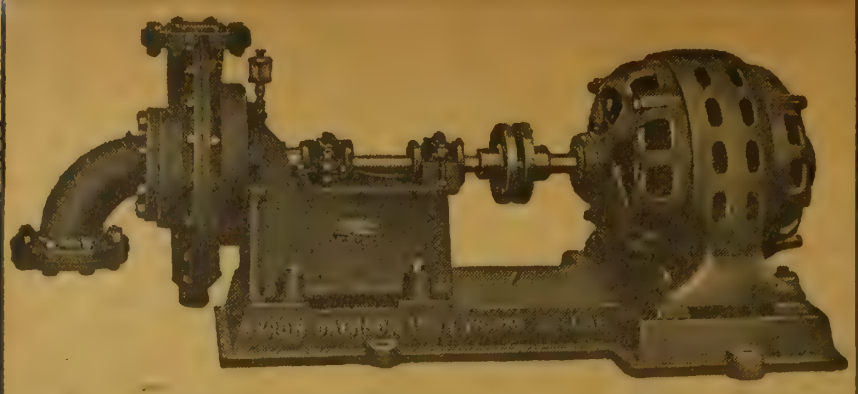
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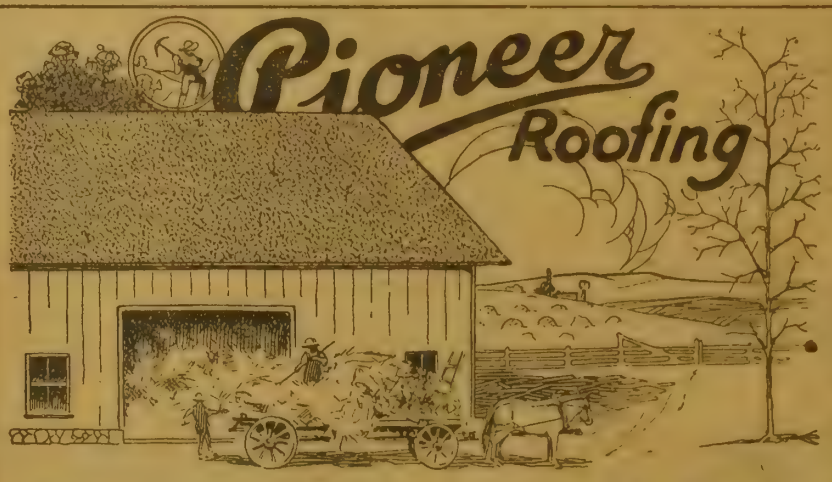
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CITRUS BLAST

(Continued from Page 776.)

and tender shoots. Once established, the disease progresses rapidly down the shoot toward the older wood. The newer and more tender growth is more susceptible to the disease, the older limbs apparently possessing greater resistance. The young shoots are often killed back to the older wood, including a portion of the bark about the base of the infected shoot. At these points the characteristic cankers are formed. It is not unusual to find a branch several feet long with every node affected in this manner. Upon infection the leaf turns pale yellow, then darkens irregularly in spots and wilts in places, where it later shrivels and dries, still hanging to the shoot. If the disease is virulent and conditions favorable, it may attack small branches of the previous season's growth, killing them back to a distance of several feet. The dead area about the base of the infected leaf or shoot varies greatly in size and is ordinarily more or less irregular in shape, frequently extending some distance along the stem. In the case of younger growth, girdling is apt to occur and the shoot dies back to this point. The rapidity with which the disease spreads is remarkable and only a few days of the proper weather conditions are required for serious damage.

As the dry season approaches activity is retarded and in midsummer the disease is apparently quiescent. The wilted shoots and leaves shrivel and dry. At this season these may be attacked by a number of common saprophytic fungi, among which are the common withertip, cladosporium and gray mold. The line of separation between healthy and infected tissue becomes very clear cut and definite. Frequently in early summer a pinkish, resinous gum is exuded from the cankers. These, as well as all the dying or dead tissue, take on a characteristic dark color and are sunk below the surface of the healthy tissue. This dead wood as it dries becomes very hard and tough. The healing process begins and in the wounds callus material is developed which raises the dead tissue up in the form of scabs. These are sloughed off in the course of time, leaving very characteristic scars which may be visible for several years.

A peculiarity noted is that the infection frequently does not seem to penetrate the bark into the wood. Indeed, in some cases the cambium layer is not killed, which is evidenced by the formation of callus material in the center of the lesion as well as about the edges. Where trees containing a large amount of weak, twiggy, interior brush are badly attacked there is a peculiar result. The bark of the twigs rots away, leaving the tree full of dead white twigs which may persist and not decay for several years.

Later in the season the effects of the disease are masked by the new growth. To find it at this time one must examine these branches under three quarters of an inch in diameter for the presence of the cankers.

Climatic Factors Influence Activity

Normal winter conditions for the citrus districts of Northern California are cool weather with intermittent rains, followed by short, dry, clear spells. Under such conditions the disease is not very active. The rains usually cease in February or March and there ensues a hot, dry spring and summer. However, it frequently happens that the winter rains are prolonged and coincide with the early spring growth. Such conditions are ideal for the maximum activity of citrus blast. Leaving its quiescent state, the disease becomes very active and spreads with great rapidity through the orchards, following the direction of the prevailing winds. The appearance presented is that caused by a rapid blight or heavy frost.

Distribution

Citrus blast was reported at Oroville, Palermo, Wyandotte and Orland in 1914. Since that time it has apparently spread rapidly both north and south, having been reported as far south as Porterville.

Inasmuch as this disease first manifested its economic importance in 1915, at which time it was confined to two local areas, its spread must be considered very rapid and, as it is so new and little known to orchardists, it is quite possible that it may have a much wider distribution than is now suspected. As yet no report of this trouble has come from the Southern California citrus district.

Reduces Bearing Area

Citrus fruit is produced on wood of the current season's growth. This puts out in early spring, bearing the fruit buds which open in April. As has been stated above, under favorable moisture and temperature conditions this tender new growth may be very seriously attacked by citrus blast. Depending on the stage of growth in this new wood, the character of the damage varies. Attacks early the season may kill all this fruiting brush back to the old wood, but if weather conditions change it may be killed back only part way.

In the event that the first named condition occurs, new fruiting brush must be grown and this draws on the reserve food and strength of the tree. Blooming is delayed several weeks and the normal processes of nutrition in the tree so weakened and disturbed that the proportion of fruit "setting" may be reduced.

If the new wood is only killed back part way, a resprouting of the uninjured portion occurs which, while not delaying blooming so long, may have the same general effect as the damage in the previous case. In addition, this resprouting may result in an abnormal clustering of the flowers, which is not desirable.

It very frequently happens in northern citrus districts that the trees are in bloom when conditions occur which are favorable to the disease. Sometimes the flowers are attacked and killed, in which case no compensatory growth occurs. Thus, depending on the time of the attack, the blooming may be seriously reduced and the flowers may be killed, all of which reduces the crop to a greater or less extent.

Some agency should most certainly be at work investigating measures for controlling or eradicating this disease. It is of special urgency that adequate measures be taken to control it before it spreads to Southern California citrus orchards. We may expect, however, since the disease is caused by a bacterium that efficient control will be difficult. At the present time the practice most likely to succeed in controlling it would seem to be careful pruning out and burning of infected branches in early summer when the diseased areas are readily seen.

THE SIX GREAT CONVENTIONS

(Continued from Page 775.)

are the old-timers who used to follow the state conventions?" "Where are Hutchinson, Stephens, Blanchard, Maslin, Rogers, Walton, Craw, Cundiff, Markley, Tuohy, Fowler, Dore, and a score of others?" "Gone West, most of them," was the only reply. There were a few, however, of the old-time attendants. Amongst them were Messre. Rixford, Roeding, McKevitt, Ehrhorn, Stabler, Sprague, Read, Coates, Chase, and a few others, but as is shown in the photographs on this and other pages, the great mass of those attending was from the ranks of the younger fruit growers.

* * *

The resolutions committee consisted of Messrs. Geo. W. Pierce, F. B. McKevitt, B. D. Sharp, Carlyle Thorpe, Chas. B. Messenger. Mr. Thorpe was not present, however, when the final draft was completed. The resolutions are:

THE RESOLUTIONS

Whereas, there exists a vacancy on the Board of Regents of University of California be it

Resolved: that in the appointment to fill that vacancy we request Gov. Wm. D. Stephens to give serious consideration to the claims of agriculture.

We congratulate our Commissioner of Horticulture Geo. H. Hecke, for his able, impartial and efficient administration of the duties of his office and recognize the zeal and enthusiasm with which he has grappled many important and perplexing problems constantly arising in connection therewith.

The fruit growers of California in this convention assembled, hereby pledge to the commissioner of horti-

culture their loyal support in all measures intended for the betterment and advancement of our horticultural interests.

Whereas the State Association of Horticultural Commissioners and the California Association of Nurserymen in session this horticultural week, May 26—31, 1919, at Riverside, passed resolutions endorsing the Federal Horticultural Board, which is under direction of C. L. Marlatt, be it

Resolved: That we, the attendants at the fifty-first Fruit Growers and Farmers Convention, endorse the action of the above organizations and urge fullest support of the federal board by Congress and by all the agricultural interests of the country, and to that end we pledge our fullest support.

Whereas, our loyal friend and fellow worker, B. E. Hutchinson of Fowler has recently been called beyond, be it

Resolved: That this convention express its sympathy to the bereaved family. During Mr. Hutchinson's lifetime he was closely identified with horticulture, having shown great interest in conventions of the past. We will miss him from our ranks and with his many friends we will sorrow because of his decease.

To our visitors from the city of Washington, other countries, states and territories—welcome. We appreciate fully your help and the benefit which will come from our intercourse and from the ideas which you have brought us. Here's hoping for a safe trip home and for the future cooperation in advancement of mutual interests.

In recognition of the magnificent fight made by the federal authorities and authorities of the state of Florida

(Continued on Page 782.)

USE OF FROZEN FRUITS

(Continued from Page 773.)

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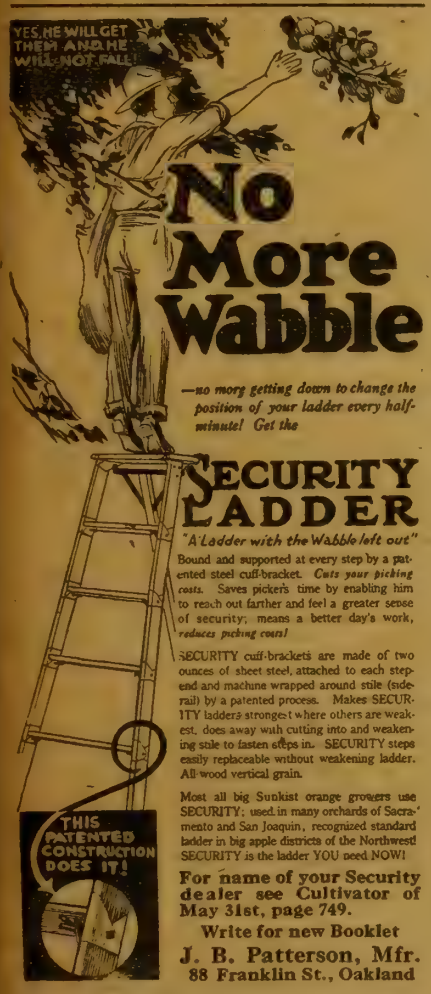
Other blends, with California grape juice, have been tried out but lack characteristic flavor. The Muscats probably do better than the others, but all blends were inferior to the first two mentioned. Eastern grape juice has not been tried, but there seems no reason why it would not blend well with grapefruit juice.

In conclusion, a word on the present status of the citrus by-product industry in California may not be amiss. The Citrus By-products Laboratory of the United States department of agriculture, at Los Angeles, maintains an exchange service through which it is aimed to place citrus by-product manufacturers in California and Florida in touch with consumers. Manufacturers of by-products are requested to list with the exchange service the products which they are manufacturing, and jobbing concerns are requested to make their wants along similar lines known. When requests are received from either producer or consumer, they are sent immediately to all parties interested, in the hope that the whole industry may be encouraged.

At the present time there are fourteen concerns listed as producing five main products. There are four concerns producing citric acid, one producing citrate of lime, seven producing peel in one form or another, five producing juice and three producing oil. It must be confessed that a number of the firms listed are not, as yet, sure of their ground and can hardly be classed as going commercial concerns. The by-product industry has undoubtedly, however, taken great strides in the past two or three years. Two of the citric acid plants are of very large capacity. Both could undoubtedly exceed 10,000 tons capacity per annum, if necessary. Indeed, with no very serious alterations, it would be possible to increase the capacity to 20,000 tons each. The third citric acid plant has a capacity of 2500 tons and the citrate of lime plant a capacity of 8000 tons or more. To what extent the two latter plants could extend their capacity, I am unable to state. A very conservative estimate of the entire capacity for handling lemons of the four plants as they stand today would be from 30 to 40 thousand tons.

Practically all of the oranges being absorbed for by-products at the present time are going into marmalade factories. One concern alone has a capacity of about 5000 tons of fruit and estimates of the other concerns now operating vary from another 5000 to 10,000 tons. Personally, I am of the opinion that the former figure is more nearly correct.

This state of affairs has also been reflected in the price of cull fruit during the past few years. Up until 1915-1916 it was not at all difficult to secure cull oranges and lemons at $5 per ton for sound culls. During the present season, when the crop conditions are possibly more nearly normal than at any time during the past two years, we are asked to pay from $20 to $30 a ton for material of the same grade. Whether these prices will continue in normal times, with normal competition from foreign products, and in seasons when the crops are abundant, is a matter of some doubt, but at the present time I do not hesitate to state that the by-product situation is extremely gratifying.



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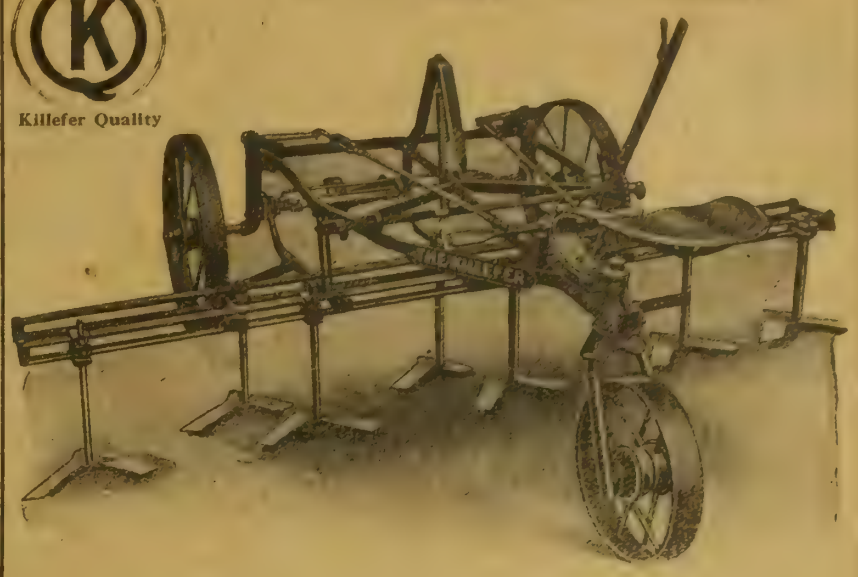
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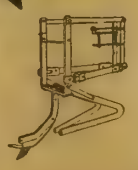
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This Month in the Vegetable Garden

Northern California

By A. R. Gould

WE have been busy preparing and planting for several months now and each month we enjoy more and more the results of our labor which is part of the gardeners reward, then we gain also experience by observation and general practice. Now and again we have failures and if we discover the cause then such serve their purpose, as by them we learn lessons for the future, and it is all worth while. This month should find us as busy as any previous one. We have our successional sowings to make, watering to attend to and weeds to check, not forgetting to keep the wheel cultivator, that very useful labor saving device, at work, or the hoe.

Such useful fertilizers as soot or wood ashes may be applied to the onion bed and an increase in size will be noted in a few weeks. Weekly waterings with liquid manure will also prove of great value. The value of soot as a manure is very much underestimated. It contains besides potash, sulphate of ammonia, a very valuable element. Soot is usually applied fresh as a top dressing to the various crops at the rate of from fifteen to twenty bushels per acre and apart from the fact that it acts as a stimulant it is useful in preventing attacks of many garden pests. Wood ashes are more easily obtained by our readers and should be worked in the surface of the soil before planting the crop or may be used between the rows of existing crops. They are extremely valuable as a general manure and among the principal constituents are potash, lime and soda. They may also be mixed with poultry, horse and cow manure.

Spraying

Many people have an ida that vegetables need little attention in the matter of spraying, but aphis, black and green, are generally troublesome to peas, beans, tomatoes and potatoes, and it pays to use a solution of "Black Leaf 40" on these as soon as they are observed. For the squash bug, which is also troublesome to these plants and respects not even the cucumbers or melons, spray with lead arsenate or Paris green, which will be found effective against any of the leaf eating pests. Thrips and mite or red spider, are generally found on the underside of the leaves of beans, some localities being affected worse than others. Sulphur in liquid form is best to use as a spray with a strong spray pump. While we are not always in favor of looking for trouble it is safest to be on the alert as many a good crop has been ruined by pests while the grower has been asleep waiting for results. The demand for crop productions is too great to allow anything to be lost.

Peas

Most of the early varieties have been picked and the ground may be used for root crops which should follow such a leguminous crop and gain from the nitrogen in the soil. Sowings may still be made of varieties Little Marvel, American Wonder and Stratagem. The seeds should be soaked for a few hours previous to sowing and the rows irrigated a week after germination has taken place. Where wood ashes are obtainable apply a good dressing when preparing the ground.

Beets

Make a sowing, thinly in rows on deep rich soil, fifteen to eighteen inches apart of Crosby's Egyptian or Detroit Dark Red, both of excellent quality. For greens sow Swiss Chard, the Sea Kale beet variety Giant Lucullus. It can also be used for poultry and may be cut a number of times. The seedlings of these should be thinned to at least eight inches apart.

Squash, Cucumbers, Melons.

The bugs have been busy on these and some re-sowings may be necessary. Do this at once and spray as advised above as soon as the seedling has three or four leaves. The Winter Casaba Golden Beauty may still be sown. Draw the soil around the plants now getting established and water at least weekly.

Tomatoes

Watering once or twice during the month will help these establish themselves and cultivating around each plant will do the rest. Where they are to be grown on the trained system stakes should be given the plants for support as soon as they get a few inches high and the axil shoots removed. However, excellent crops are also obtained by allowing them to ramble along the ground when the growth is unrestricted.

Beans

Keep up the successional supply by sowing Stringless Green Pod, Golden Wax and Kentucky Wonder, the last named being a pole bean. Davis White Wax is a dwarf variety best as a shell bean and should also be sown. Tepary is similar to White Navy and should also be grown. It needs very little water. Keep the cultivator at work through the rows and conserve moisture.

Carrots

Sow French Forcing and Danver's Half Long to keep up a successional supply. They may be stored later for winter use. Carrots thive in rich but moderately moist soil. If too much water is given it causes them to split open.

Corn

Sow Black Mexican and Crosby's Early, both fine flavored varieties, and keep the ground well cultivated between the rows of those sown last month.

Lettuce

To keep a constant supply on hand sow May King, a variety which quickly matures, and Los Angeles. Those who prefer the Romaine type should sow White Paris Cos. Thin the seedlings to six or eight inches apart or only small heads will result, and water regularly.

Parsnip

This little known vegetable should be more widely used as it is easily grown and thrives in a deep garden loam. Sow the variety, Hollow Crown, in rows 18 inches apart.

Leeks and Celery

Secure plants of these to plant in well prepared trenches richly manured. Golden Self Blanching and White Plume are good varieties of celery, and Giant Musselburg leek.

Southern California

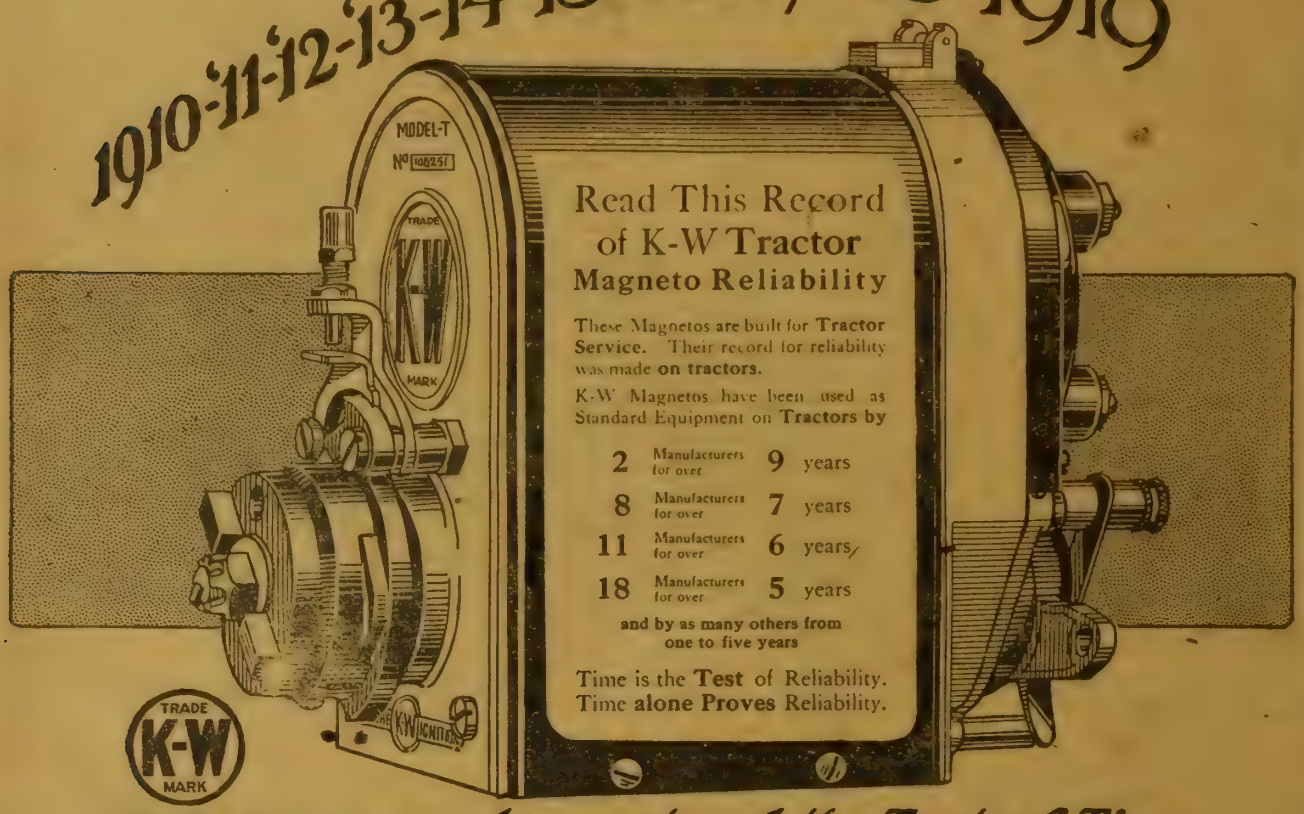
By D. F. Reichard

THE early planted gardens are by this time furnishing fresh vegetables. The cool spring has not been altogether favorable for rapid growth of summer crops but has extended the growing period of the hardy vegetables.

Because the weather is getting warm and the hills are getting brown is no reason for stopping your garden. Soak the ground thoroughly where matured crops have been taken out and work it over in preparation for summer growing stuff.

Plant squashes; June is the best month to put in the winter varieties. Pikes Peak and Banana or Fence Post squash are good keepers and sweeter than the ever popular Hubbard. Of the green squashes the Early White Bush is almost universally used, but those who will plant the Fordhook will find something sweeter and finer of grain.

Plant Prickling and Davis Perfect cucumbers. These will be ready to use in seven or eight weeks. Put in watermelons, muskmelons and casabas



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if your garden is large enough. Plant these vining plants on the edge of wide furrows and train the vines away from them so that the plants may be irrigated and cultivated without disturbing the runners. It is perfectly safe to put in sweet corn and field corn, sorghum and kaffir.

String beans in variety and field beans will do very well planted in June. Pepper, egg plant and late tomato plants will give good results. Carrots, beets, radishes, lettuce, green onions can all be planted.

Anything planted at this season will require more water than the soil ordinarily supplies, therefore the ground should be well soaked before it is worked and planted. Seed put in at this time should be in the damp earth one to two inches even though there is that much dry dirt on top of that. This may seem rather deep but it is necessary during the warm drying weather to keep the seed and young seedlings from drying out before they are large enough to irrigate.

In setting out plants be sure to always pour a pint or so of water at the roots of each plant, or if setting in a field make a furrow, set the plants, then turn water down the furrow, go back and straighten up any of the plants that have fallen. Work the dirt in around the plants and in about two weeks give them another wetting at least four inches from the plant.

When water is needed in the garden apply it by running furrows beside the rows and allow the water to run through slowly. Cultivate as soon as the soil breaks up nicely without sticking to your tools.

Where the plants are backward apply a small quantity of commercial fertilizer to each plant, working it into the soil. At the first appearance of insects or disease apply the proper remedy. For aphis and thrips spray with Black Leaf 40; for chewing insects use an arsenic poison; for wilt, mildew and rust use Bordeaux mixture; for red spider, dust with sulphur.

This Month in the Ornamental Garden

Northern California

By Albert R. Gould

MOST of the replanting and moving of trees and shrubs ere this have been completed for the season, as it is not advisable to take chances with large or even small specimens during the coming hot weather. We have now to devote our time to holding the new plants and getting them established. Of course, it is still possible to plant smaller stock generally grown and sold by nurserymen in small pots as the shock of planting out from the pots is not great, and with this purpose in view many enterprising nurserymen have roses and other subjects on hand in pots ready for the call at all times and for replacement during the season.

Mulching

This is most important, and all newly planted subjects should be mulched with leaves, farmyard manure or some such suitable material; it will help get these established and save watering so often. It will be more than ever necessary this and the following months. The roses, both dwarf and climbing, need it; trees and shrubs of all kinds may be so treated.

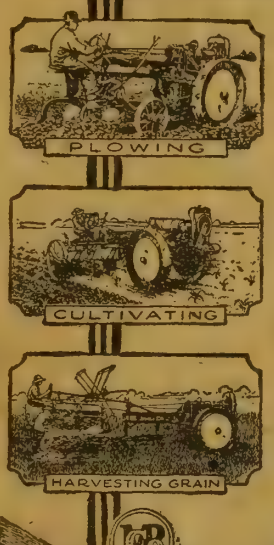
Lawns

These should never be neglected in regard to watering, and the best time to apply the sprinkler is immediately after the grass has been cut. This will encourage thick bottom growth and prevent burning from the sun. Newly planted lawns should not be allowed to get dry at any stage, and it is a good plan to sprinkle these every other day until the young grass has become established. As soon as the grass is firm enough to work on, all weeds should be removed, and if this is taken in hand while they are small lots of trouble in the future will be avoided. No matter how careful you may be there will always be a few weeds in the soil, coming as they do from the weed seeds previously distributed. Some people often blame the grass seed, but the reliable seeds-

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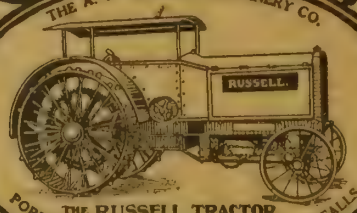
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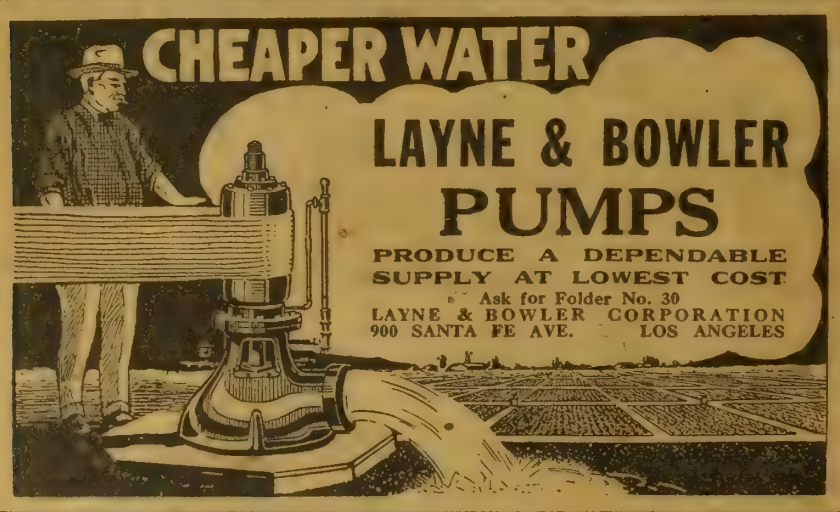
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men have spared no expense to clean their seed and send it out pure. While it is not advisable to plant large areas of lawn at this time, but better to wait until the fall or early spring, bare spots may be covered and small areas sown if covering such as sand or straw is used to shade it. We have found beach sand very satisfactory as a shade cover but it must not be applied too thick. Old lawns should be given a dressing of nitrate of soda, dried blood or sulphate of ammonia to stimulate them for the season. These are all quick acting and only a light sprinkling should be given.

Begonias

For shady situations these are ideal plants and there are now quite a variety of both the tuberous and fibrous rooted types. Of the former, the hanging basket variety, pendulent, to be correct, is especially useful and comes in a range of colors. They are just now getting popular and plants placed in a wire basket filled with soil composed of leaf mould, the bottom of the basket being lined with moss, look very effective, especially if the drooping type of lobelia is used with them. Other varieties of the tuberous type are useful grown as house plants or planted under trees. Started tubers of these may generally be secured from your seedsman and they may be kept from year to year if stored during the winter in dry sand. The fibrous rooted varieties and species are numerous. These are especially suitable for bedding planted in masses, and may be left in the ground from year to year.

Sweet Peas

Many desire a succession of bloom for the fall, and we would advise sowing the following to be planted at once in well prepared trenches: Royal Purple, Margaret Atlee, cream pink, Helen Lewis, orange, Geo. Herbert, lavender. For winter flowering sow Early Morning Star, Early Melody and Early Snowflake at the end of the month.

Annuals

Those sown last month will soon be ready to transplant to other beds, and in a few weeks some may be planted out to their flowering quarters. For fall use marigolds, African and French types, calendula, calliopsis, larkspur, Emperor Branching. Nemesia and stocks may still be sown. Cosmos, asters and tithonia speciosa, the orange flower from Mexico which lasts so long in the fall, may all be planted out now, and the last named should be spaced at least three feet apart. Mulch with lawn clippings or old rotted manure.

Dahlias

These should be well started this month and stakes may be put to each plant for support, and as the plants make progress the shoots should be tied in. Water these liberally. Seedlings will require transplanting from the seed bed or box to other quarters. Transplant three to four inches apart in fairly good soil and place in the shade for a few days. In three to four weeks they may be planted in their flowering quarters.

Southern California

The weather which has been given this season has permitted some little neglect, and still the flowers have been large and all growth has been luxurious. Foggy mornings have been the rule in all near-coast sections, and interior valleys have escaped drying winds and extreme heats. June will bring warmer sunshine and there must be closer attention to irrigation. Don't sprinkle the surface of the soil but irrigate deeply and thoroughly. Also in wetting the lawn give more copious irrigation than most lawns have secured during the recent weeks.

Dahlias and some of the later bloomers are sending up strong, thrifty stalks, which will need tying to stakes. It is rather late for planting gladiolus or other summer blooming bulbs, but any which are still out of the soil should be planted at once and will give late bloom and still mature their bulbs if given careful attention. Iris, which have been blooming profusely during the last month, are now approaching their rest period, and water may be withheld somewhat, especially later in the month. They should be allowed to ripen the newly formed rhizomes so that they will be ready for replanting in August or September. One may still divide cannas, although it should be done early in the month, and best of care be given to push them along to their wealth of bloom in later summer.

Presumably chrysanthemums have been divided and rooted and slips are ready for setting in open ground. However, the later bloomers may still be divided and planted. One may still plant seed of Shirley poppies and others of the hardy annuals, in fact, these may be planted at almost any time of the year. Sweet peas are now in their glory, and plenty of water, with a bit of quick-acting fertilizer, increases size and abundance of bloom. This bloom may be continued if the cutting of blossoms is persisted in. If the flowers are allowed to remain and the strength of the plant is allowed to go into seed the bloom will be greatly reduced.

Roses should receive some attention, though their glory is largely gone for this season, especially if the old, wilted flowers are allowed to remain and mature seed. Cut all this departed bloom off and reduce the dried and yellowing leaves.

Keep down the aphis and all garden pests if best of flowers are desired. In addition make free use of sulphur. It keeps down mildews, red spider and other pests.

THE SIX GREAT CONVENTIONS

(Continued from Page 779.)

upon the pest of citrus canker, be it

Resolved: That we, in attendance at the fifty-first State Fruit Growers and Farmers Convention at Riverside, May 29, 1919, express our admiration and appreciation and hope that the campaign will result in complete eradication of the pest and the saving of the citrus industry of that state.

Whereas, the fifty-first Fruit Growers and Farmers Convention of California, now closing its sessions in the



From All Quarters of the Globe

Standing, from reader's left: W. H. Wicks, Idaho; O. A. Pratt, Mexico; Geo. P. Weldon, state deputy horticultural commissioner; A. Pellegren, Mexico, who, with Mr. Pratt, represented the state of Lower California and its President Cantu; C. H. Vary, state quarantine, Los Angeles; Geo. M. List, Colorado; Harry S. Smith, state insectary; W. A. Jacobsen, California rodent control; H. M. Armitage, Southern California insectary; O. W. Newman, northern field deputy; Harold Hagan, Utah quarantine officer; S. C. Mason, bureau of plant introduction, United States department of agriculture; Dean Thos. F. Hunt, University of California; and the last man, who almost escaped the camera, is Andrew Kimball, Arizona plant board. Seated, left to right: D. B. Mackie, state deputy commissioner; M. B. McKay, potato specialist, Corvallis, Oregon; E. M. Ehrhorn, entomology, Hawaii; A. L. Strauze, state horticulturist, Montana; M. L. Dean, quarantine official, Olympia, Washington; Frederick W. Maskew California state quarantine.

city of Riverside, has afforded opportunity for every attendant to secure great benefit amidst surroundings of comfort and pleasure and these comforts have been greatly enhanced by the work of the Chamber of Commerce, the city government and the people of Riverside. Therefore be it

Resolved: That we express to Frank Miller and the management of the Mission Inn the fullest appreciation for the use, even to the ownership, of the Inn, during the entire week. No keys were turned over to us but the Inn became our home with all doors wide open. In addition we express our appreciation for the special efforts put forth in our behalf by the Chamber of Commerce and the city government. We further express appreciation to the press which has so fully reported transactions and news of the convention to the end that valuable information has the quicker reached and benefited agricultural interests.

Another resolution was passed in which it was urged that if any action is to be taken on the recommendation of President Wilson that the prohibition war measure, which will go into effect on July 1, should be annulled, that such action should be taken quickly in order to allow vineyardists to make plans accordingly.

NURSERYMEN'S ANNUAL

THE keynote of the Annual Convention of the California Association of Nurserymen was "Closer Cooperation with each other and with horticultural commissions and inspectors." In turn the commissioners were free in expressing their desire for closer cooperation and even affiliation to the end that California horticulture may be advanced.

Another advanced step taken resulted in appointment of a committee which shall devise method and establish rules as to standardization of nursery products, at least of deciduous nursery trees. This committee consists of Messrs. Gandier, Shamel, Roeding, Coates and Coolidge.

The work more particularly of the committee has to do with settling one point over which some nurserymen have been unable to agree, that is as to height and caliper standardization. Some contend for one plan, some for the other. The caliper folks maintain that by planting very thickly and growing tall spindling trees a "3-4" or a "4-6" foot tree is much more cheaply grown but that it has not the future possibilities of a tree of large caliper.

The committee has some job, but the nurserymen are bound to work harmoniously.

The officers elected for the next year are: President, Wm. Kirkman, Fresno; vice presidents, M. R. Jackson, Fresno; A. L. Wisker, Grass Valley; Charles W. Ward, Eureka; D. W. Coolidge, Pasadena; and Edward H. Rust, South Pasadena; secretary and treasurer, Henry W. Kruckeberg, Los Angeles; executive committee, George L. Otto, San Diego; W. P. Clarke, San Jose; J. D. Meriwether, Gilroy; C. W. Gandy, Modesto.

The decision as to the next meeting place of the convention, after considerable discussion, was left in the hands of the executive committee. Invitations from Modesto and Fresno were communicated to the members of the association. It is probable that a meeting will be held next fall.

Ladies Auxiliary.

Much pleasure has been added to the gatherings of the California Association of Nurserymen by the organization some three years ago of the ladies auxiliary. The membership of this organization is made up largely of families of the nurserymen. It has blocked out for itself no particular line of effort along nursery lines but has afforded opportunity for activities for the ladies during convention week. At the Riverside convention officers were elected for the coming year and other business transacted. The officers are: President, Mrs. John Valance; first vice-president, Mrs. J. S. Armstrong; second vice-president, Mrs. H. Plath; secretary, Mrs. Max J. Crow; treasurer, Mrs. Chas. Jackson. The executive committee consists of Mrs. Wheeler, Mrs. Bennett and Mrs. Hills. The membership now totals about fifty.

In regard to the federal quarantine the nurserymen were emphatic in support of the country's fruit interests. Here are

The Resolutions

The California Association of Nurserymen, representing in its membership about 70 per cent of the total annual volume of nursery products in the state, in convention assembled in Riverside May 27-28, 1919, begs leave to call attention to the following facts:

The annual production of economic and ornamental plants in California aggregates about four millions of dollars, and the total investment in land and improvements totals something like ten millions of dollars.

Fruit growing and commercial plant growing has reached a higher development and a greater exploitation in this state than in any other American commonwealth, representing an annual turn over of about one hundred and seventy-five millions of dollars, covering a wide diversity of orchard and vineyard products, of plants and flowers, than is enjoyed by scarcely any similar geographical area.

In the development and prosecution of this industry plants from all portions of the world have been drawn on, resulting in the introduction of many species and varieties of injurious insects and diseases, calling for large expenditures of time and money in their eradication and control, entailing an annual expenditure of money of something like three million dollars for materials alone, to which must be added an additional three millions for labor and application. This applies more largely to deciduous fruits. For citrus pest control in single counties, from $50,000 to $250,000 are expended, while the cost of inspection and quarantine regulations represents correspondingly large sums.

For the most part these injurious insects and plant diseases have been imported on plants, seed and fruit from foreign countries and adjacent states; now therefore be it

Resolved, That the California Association of Nurserymen, in convention assembled, hereby heartily endorses the federal quarantine recently promulgated by the federal department of agriculture, effective June 1, 1919, and hereby gives its undivided support to the efforts of the federal horticultural board in its endeavors to enforce this quarantine along lines that are protective in character, practical and just in application, and scientific in conception; and be it further

Resolved, That we deprecate any and all efforts on the part of special interests to have the same repealed, or so amended as to vitiate its force and effectiveness, excepting under such safeguards as the federal department of agriculture shall promulgate from time to time.

NEXT WEEK

Much of the good "copy" and some of illustrations of the personnel of the Riverside Conventions are necessarily held over till next week. Because of this and other features the next California Cultivator will be of special interest.

Red spider is reported showing up in many citrus orchards.

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Thousands of consumers are already using substitutes and many more will do so.

Substitutes are persistently advertised—dairy products are not.

California Dairy Council will advertise them if You will furnish the money.

Send in your subscription voluntarily—don't wait.

If the money of those who have already subscribed is spent in sending solicitors to see those who have not there will be just so much less to spend in getting new business.

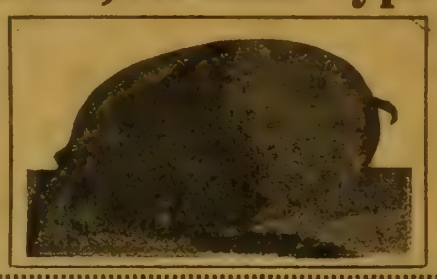
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268 Market Street, San Francisco
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Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



M. Bassett

Hanford, Kings County, Cal.



ANCHORAGE FARM BERKSHIRES ARE PROFITABLE



Select Now Your Future Herd Sire

A young boar pig carrying the blood of that world's famous boar— Star Leader will add the necessary quality to your herd. These young boars are ready for shipment and priced reasonable. Let us send you full particulars. Write us at once.

Anchorage Farm, Orland, Calif.



Wakeen Herd Polands

Wakeen—the stamp of quality—Our big type Poland-Chinas are true to type. Get a son of the famous King's Big Bone Leader to head your herd.

Les McCracken **Ripon, Calif.**

GOOD BOARS ARE SCARCE

We can offer one or two that have been pronounced real prospects. Our Duroc-Jerseys represent the best blood of the breed. Priced within reason.



Allen Thompson **Tulare, Cal.**

Live Stock News Notes

SALE CALENDAR

Shorthorn Cattle

July 10, W. M. Carruthers, Sacramento.
August 2, Butte City Ranch, Butte City.
October 16, Dr. H. M. Elberg, Woodland.

Poland-China Swine

September 17, John M. Bernstein and W. L. Haag & Son, Hanford

Berkshire Swine

August 2, Butte City Ranch, Butte City.

Shropshire Sheep

August, Butte City Ranch, Butte City.

Pig Club Sale

The Lemoore Union High School District Pig Club holds its first annual sale of registered Poland-China and high grade Duroc-Jerseys on Saturday, June 7, 1919, at 1 o'clock sharp. Thirty-eight head will be offered, including tried sows, open gilts and young boars, which are some of the best ever offered in Kings County, as they have had individual attention during the best part of their growing period. This sale is held under the advice of the consulting committee, W. Bernstein, and M. Bassett of Hanford and H. D. McCune of Lemoore, all members of the Kings County Poland-China Association.

A Record Sale of Guernseys

A total of $180,275 for 83 Guernseys tells the story of the combination sale of Guernseys held at Florham Farms, Madison, New Jersey, on May 15. Sixty-one cows averaged $2003.69; 14 heifers averaged $946.43; eight bulls averaged $5600, and the average for 83 head was $2172.

The sale was topped by Florham Leader 55682, a two months' old calf, consigned by Anderson T. Herd, New Hope, Pennsylvania, and was purchased by the Oaks Farm and Hugh Bancroft of Massachusetts for $25,000. This price sets a new record for the breed, being $10,500 in excess of any price previously reported for any Guernsey.

Florham Leader was sired by Ne Plus Ultra, the sire of 23 Advanced Register daughters, and is out of Langwater Nancy, the fourth cow in Class A. Langwater Nancy has four Advanced Register records, the largest of which is 18,783.5 pounds of milk and 1011.66 pounds of butter fat.

Shattuck Will Judge Polands

Chas. W. Paine, secretary of the California State Fair, announces that he has secured Thomas Shattuck of Hastings, Nebraska, to act as Poland-China judge. Shattuck, who was one of the pioneer breeders of the big type Polands, is rated very highly as a judge and has tied the ribbons at many of the leading shows, including the National Swine Show.

Lovejoy to Judge Berkshires.

Wyman N. Lovejoy, Roscoe, Illinois, has accepted the invitation of Secretary Chas. W. Paine to judge Berkshire swine at the California State Fair. Lovejoy is a national figure in live stock circles and is one of the most sought after swine judges.

Oregon Breeders at Sacramento Sale

The Reid Jersey sale held at Sacramento May 27, attracted a number of prominent Jersey breeders from Oregon. Among those attending the sale and who were buyers, were: C. C. Dickson, Shedd; Chas. Bushman, Sherwood and G. W. Dammeier, Portland. The visiting breeders were generally impressed with the future for Jerseys in California and several expressed the intention of showing at the coming State fair.

A New Shorthorn Record

Live stock price records have been broken so persistently the past few weeks that one almost ceases to marvel at the new values established with each week. When on May 15 H. C. Lookabaugh of Watonga, Oklahoma, sold 38 head of Shorthorns for an average of $2943 he established the highest sale record ever made in America on Shorthorns of Scotch breeding. In that remarkable sale three bulls, all sons of the dead Fair Acre's Sultan, averaged $10,316 each—the top, Fair Acre's Sultan, Jr., selling for $17,250. Sixteen sons and daughters of Fair Acre's Sultan sold for a total of $59,700, an average of $3731.

Youngsters

Greenwood Farm, Live Oak, reports the following sales of its popular Duroc-Jerseys; two sow pigs to W. T. Bandy of Briggs, a boar pig to M. J. Newcom, Yuba City and three sow pigs to Harvey Berglund, Dixon.

Guernseys Make History

While Shorthorns were making new sale records in the West, Guernsey breeders met at Florham Farms, Madison, New Jersey, and paid $180,275 for 83 head of cows and bulls—an average of $2172. The top price of the sale was fetched by Florham Leader, a 67 day-old bull calf, that sold for $25,000 to Hugh Bancroft, Cohasset, Massachusetts.

California breeders will be interested to know that W. H. Dupee of Santee was the runner-up. Mr. Dupee selected three of the choice females, paying $5500, $3400 and $2250 for Pearl Rose of Beaver Ridge, Maxixe of Annandale and Duchess of Maple Hill, respectively.

The highest priced female of the offering was Follyland Nancy, purchased by Herdlea Farms, New Hope, Pennsylvania, for $12,500—a new record for the breed. The sale was the second annual event held under the auspices of the American Guernsey Cattle Club.

Blackhawk Shorthorns Arrive

E. Lovell, manager of the Blackhawk ranch, Diablo, who has been in the East selecting a collection of Shorthorns, reports that the cattle are now at the ranch.

Practically the entire lot represent desirable Scotch tribes and include a number of choice granddaughters of Villager and the bull, Roan Radiant, by Radium, the sire that has made a notable record in the Bellows herd.

Radium was sired by Double Dale, who was by Avondale, the best son of Whitehall Sultan.

The Blackhawk herd will be one to reckon with in the future.

Promoter of Hog Syndicate Arrested

David H. Riker, fugitive president of the Associated Swine Breeders, Inc., one of the many hog-raising syndicates that flourished a few months ago in San Francisco, has been arrested in Kansas City, Missouri. Riker is alleged to have misappropriated $50,000 money invested by city people anxious to get rich in the hog business.

DESERTING IN STYLE

One morning, a short time before the armistice was signed, a company of Italians were astonished by the sudden appearance of an Austrian private who, with hands up, tumbled into their trench.

When questioned, he insisted that he was the body servant of an Austrian officer, who, intending to desert, had sent the man ahead with his personal belongings.

Sure enough, a few minutes later the master appeared!—Youth's Companion.

Holstein Bull Sells for $125,000

C. L. Hughes of the California Breeder's Sales and Pedigree Company, Sacramento, states that all records were smashed when the Holstein bull, Rag Apple the Great, sold in the Oliver Cabana sale at Elma, New York, for $125.000. Robert E. Pointer, Detroit, was the buyer. During the first three days of the five day sale 160 head of bulls and females sold for $661.600, an average of $4,135. Rag Apple Korndyke 8th., sire of Rag Apple the Great, sold for $60,000. Segis Hengerveld Fayne Johanna sold for $40,000 and her yearling daughter, Superba Segis Fayne Rag Apple sold for $22,000. Fairview Korndyke Mata, a daughter of King of the Pontiacs, sold for $35,000.

Rag Apple the Great was sired by Rag Apple Korndyke 8th., and his dam was Segis Fayne Johanna the first cow in the world to make fifty pounds of butter in seven days.

Segis Hengerveld Fayne Johanna, whose record is 47.35 pounds butter in seven days, is also a daughter of Segis Fayne Johanna.

When a son, daughter and grand daughter sell for a total of $187,000, an opportunity is afforded for wide speculation as to the value that might be placed on the dam. The dam, however, was not offered for sale.

Another instructive feature of the sale is the fact that Rag Apple Korndyke 8th the sire of the $125,000 bull and the $22,000 heifer was purchased a few years ago for $25,000. It is therefore made plain how a basis can be found for heavy investment in animals of extreme breeding.

Animal Parasites

By E. R. de Ong

IT IS not possible to compute the annoyance and suffering of animals from attacks of insects and parasitic pests. With the best of care it is impossible to escape these entirely, but a bit of thought and preparation on the part of the stock owner will save much loss. We are glad to give from the pen of E. R. de Ong hints on control of the fly pest. Later he will give us other articles touching upon buffalo gnats, bot flies, sheep ticks, lice, ticks, round worms, tape worms and liver flukes. All these subjects are worthy of more attention than has been given them.—Ed.

* * *

Flies

There are three different flies, which rather closely resemble each other, that are commonly found about the stable: (1) The common house fly, with which we are all familiar. This is not a biting insect. (2) The stable fly, of a similar size to the house fly, but of a lighter gray color and with a horny mouth-part bent up under the head. This fly pierces the skin of the animal it is feeding upon and sucks the blood. The stable fly seldom enters the house, unless on rainy days, when it is said that the flies are biting. In reality it is a different fly which we fail to distinguish from the house fly. (3) The horn fly, considerably smaller than the house fly, which feeds by piercing the skin and sucking the blood. These cluster around the horns or on the flank and rump of the animal fed upon. A serious pest of cattle.

The house fly deposits its eggs on fresh or at least damp manure, horse manure being the most attractive, although other kinds are used freely. The unmixed manure, if of a coarse or strawy material or the ground-up particles mixed into the corral floor make satisfactory breeding material for this fly, providing there is sufficient moisture present and the heat from fermentation is not too high. Both of these points are important. The stable fly breeds almost entirely in decaying vegetable matter, the waste around the feed racks, decaying straw piles or very coarse manure. The horn fly deposits its eggs on freshly dropped cattle manure. Dried cakes or small particles exposed to the sun and air are alike unfavorable. The logical control for all these flies then, is the proper handling of the manure. A concrete pit, for each stable, into which the fresh manure can be dumped each day and the scrapings from the corral, once or twice a week, is the ideal way for storing manure. Drains from the stable should carry the liquid manure into the pit, and when necessary the entire mass can be wet down often enough to prevent it from burning. This pit may be screened to prevent the flies from depositing eggs on the manure or it may be kept so wet that they will not breed in it. The pit should be built large enough to receive the manure for two or three months at a time, allowing about one and one-half cubic feet of manure and bedding daily for each horse. If a concrete pit is too expensive, then the manure should be piled in a compost heap at least five or six hundred feet from the barn, adding each fresh lot of manure to the top of the pile, until it is built up to the desired height. Manure piled in this way will ferment, thus generating sufficient heat in the interior of the pile to kill fly larvae, while in most situations in California the sun and wind soon dry the surface so that flies cannot breed in it. If a little water can be added occasionally to the compost heap, it will prevent overheating and thus secure a better grade of manure, but this is not necessary from the standpoint of fly prevention. If water is used it must be only in small quantities just sufficient to lower the temperatures and not to saturate the heap.

Besides the two methods of manure handling just mentioned, there are two other practical ways for California conditions; first, hauling direct from the stable, every four or five days, and spreading the load in a thin layer in the field. The manure spreader is the best for this type of work. If the accumulation is allowed to lie more than a week, the larvae hatching from eggs laid the first day or two, will have matured and bored down into the ground to pupate and in a few days will be out as mature flies. The second method, is leaving the manure scattered on the floor of the corral. Then if there is enough stock running over it, the large lumps are soon ground up sufficiently to dry out. As long as manure remains in a fine powdered condition, flies cannot breed in it, but with the addition of moisture, breeding conditions become ideal. Fly larvae, in wet places in the corral or in stables with dirt floors, can be held in check, fairly well, by dusting these places freely with crude borax, powdered.

Stable flies favor decaying vegetation for breeding places, so rotting straw piles should be burned or scattered and plowed under. Horn flies, breeding almost entirely in fresh droppings, can only be checked by frequently cleaning the corral and hauling the manure to the compost pile or breaking up the lumps so that they dry in two or three days. This may be acomplished as has been suggested by the number of stock in a corral, especially with hogs following cattle or by the use of a slant tooth harrow or brush harrow used every three or four days.

If flies become very abundant before control measures are attempted, large numbers may be killed by spraying them with a 20 or 30 per cent oil emulsion, while they are clustered on the sides of the buildings early in the morning or late in the evening. Use an oil which evaporates readily such as engine distillate or kerosene to prevent the walls from becoming soaked with oil. The amount of oil used varies with the temperature. In very cool weather, weak emulsions are effective, the percentage of oil being increased as the flies are more easily disturbed. To make the emulsion, combine two or three gallons of oil with one or one and a half pounds of soap (dissolved) and then add sufficient water to make ten gallons. Pump this material through the nozzle back into the mixing barrel and in a few minutes a milky white emulsion is formed. If the oil still floats to the top of the water add more soap and agitate again.

Repellant mixtures to be sprayed

Now is the best time to buy a

DE LAVAL

CREAM SEPARATOR



THESE are the days when the farmer is getting the most milk, and with butterfat at its present high price he should be sure to get all the cream.

Many "claims" are made for various cream separators, but the most convincing proof that the De Laval is the cleanest skimming machine is the fact that 98% of the large creameries the world over use the De Laval.

Even if you do not separate as much cream as the large creameryman, you can no more afford to waste cream than he can.

DE LAVAL DAIRY SUPPLY CO.

The Largest Dairy Supply House on the Pacific Coast

61 Beale Street San Francisco

THE ECONOMY OF FEEDING CHOPPED HAY----

ACME Feed Cutters

The Combined Silo Filler, Hay Chopper and Alfalfa Meal Machine.

Cattle invariably pick out and eat the finer and most palatable portions wherever fed ample rations of bulk hay. The coarse hay and stems are nosed out and discarded—wasted.

Common feeding methods in use entail much loss by trampling feed under foot.

These losses are too big to be neglected. They range from 10 per cent. to 25 per cent. of your hay. With hay worth 15.00 a ton in the field the average waste of 15 per cent is equal to $2.25—actual loss in dollars and cents on every ton of hay you feed.

Why continue to stand this loss? You can prevent it by running your hay through an Acme Feed Cutter.

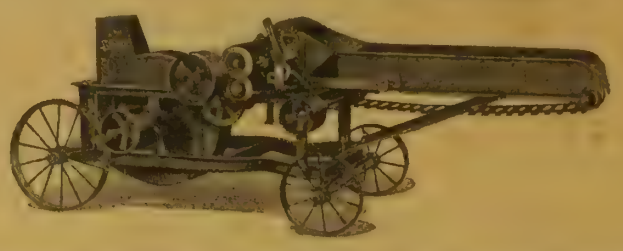
Chopped Hay Prevents Waste

Chopped hay will feed more cows ton for ton than bulk hay. Chopped hay requires less barn space. It's easily handled and protected from the weather and is eaten up clean by the stock.

With a light-running Acme Cutter you can begin saving feed right away.

Chop this year's hay crop and blow it into the barn, bins or a silo with an Acme Cutter.

Every pound of feed saved adds to your profits.



The Durable Steel Frame Acme will pay for itself the first season

Nos. 11 or 13 for small acreages—No. 17,19,20,24 and 40 cover all feed cutting requirements

COMPLETE ACME CUTTER CATALOG UPON REQUEST

De Laval Dairy Supply Co.

61 Beale St., San Francisco

Superb Shorthorns

On Thursday, July 10

Carruthers Farms

Owned by W. M. Carruthers, Live Oak, California
Will Sell at Public Auction, to the highest bidder without reserve or limit

45 Scotch Shorthorn Cows Heifers and Bulls

including about a dozen great matrons with calves at foot. This is universally conceded to be the greatest offering of Scotch cattle ever made on the Pacific Coast.

Carruthers Farms

W. M. Carruthers, Prop. Live Oak, Cal.

The sale will be held on California State Fair Grounds, Sacramento, where part of the cattle may now be seen. After June 7 nearly all of the cattle will be on the sale grounds and visitors are cordially invited to call and inspect them.

Auctioneers: Reppert and Milne
Sales Managers: California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

over the body of cattle are of small value. The more durable ones, such as contain fish oil, soon become sticky and retain so much dust as to make them very objectionable. Weak solutions of carbolic acid and water may be used without this objection but are effective for only a few hours.

Horse Flies

Large, gray and black or green headed flies. One-half to one inch long. These are also known as gad flies or deer flies. The female fly feeds on the blood of horses, cattle and deer, its strong, sharp mouth parts being capable of piercing the skin of any of these animals. The males feed on plant secretion. The eggs are deposited on leaves and grass overhanging water. On hatching the young larvae drop into the water and there remain until ready to change into flies, feeding in the shallow water or mud along the bank, on other insects or crustacea. The larvae live in this situation through the summer, emerging as mature flies the following spring. The horse fly larva is much larger than that of the house fly, almost white and with 11 distinct segments to the body. They possess strong, piercing mouth parts, as do the adults, capable of causing a severe wound to the hand.

There is no satisfactory control for these blood thirsty flies, except destroying their breeding grounds. The drainage of swamp land and the cleaning and deepening of permanent water ways will aid in reducing their numbers. Keeping stock in dark sheds or barns through the middle of the day will lessen the annoyance from this fly.

SCOURS AND THUMPS IN PIGS

Perhaps the most common troubles caused by lack of proper attention to the feeding and care of pigs are scours and thumps, according to L. A. Weaver of the University of Missouri college of agriculture. Scours are usually caused by changing the feed of the sow, overfeeding, dirty pens and troughs, or exposure of either sow or pigs to cold rain or cold weather in such a way that they become chilled.

Since the cause of scours is something which causes indigestion, the thing to watch especially is the feed. Changing from sweet to sour milk will often cause the trouble, as will also the feeding of too much of the high protein feeds, such as tankage or linseed oil meal, when the animal is not used to them. If the sow is fed too much, her milk flow is so stimulated that very young pigs will get more than they can utilize, thus causing them to scour. Pigs should always be kept in dry, clean quarters and fed in clean troughs. They should not be allowed to run out in cold rain or allowed to become chilled in any way. Sows running through filth and then being suckled will often cause pigs to scour.

There are a good many remedies used for this trouble. The first thing to do is to cut down on the sow's feed and clean up her quarters if they need it. A tablespoon of sulphur in the sow's feed for two days is also good. If the sow is given a good physic such as Epsom salts, good results will follow. Scalded milk is also a good remedy. Each pig may be given a good physic, such as a teaspoon of castor oil or Epsom salts. Charcoal is also good.

There is also a contagious form of scours, white scours. The cure is to clean and disinfect pens and give a good physic.

Thumps often occur in young pigs. It results from lack of sunshine and exercise, and from high feeding. The remedy is to cut down the sow's feed and force the pigs to take exercise out in the sunshine. Thumps may also occur in large pigs after they are weaned, but when old pigs have it, it is usually caused by some infection of the lungs or bronchial tubes.

FRESNO POLAND-CHINA BREEDERS

Breeders of Poland-Chinas in Fresno County recently gathered and in the course of the banquet perfected an organization which will boost for Poland-China interests. There are nearly 30 charter members, beside several associate members, with promise of material increase.

(Continued on Page 795.)

SALT FOR COWS
THEY MUST HAVE IT

Experiments Prove that Without It Their Vitality Suffers and Their Milk Runs Low.

Simplest Method of Supplying Needed Amount Is to Salt Hay While Stacking or Baling

(From Pacific Rural Press)

Salt is such a common thing that the very important part it plays in the health and milk yield of the dairy herd is perhaps not realized by many farmers.

Experiments conducted at the Wisconsin State Experiment Station prove conclusively that salt should be supplied to dairy cows unless the ration furnishes a sufficiency thereof. It is calculated that the minimum quantity in the food to keep a cow of 1000 pounds live weight in flourishing health is that which is equivalent to ¾ ounces of salt per day, and that a cow in milk needs as much more as will restore the proportion removed in the milk, namely, a little over ½ ounce of salt for every 20 pounds of milk.

The conclusions from these experiments are briefly as follows:

"In every case the cows exhibited an abnormal appetite for salt after having been deprived of it for two or three weeks, but in no case did the health of the animal, as shown by the general appearance, the live weight, or the yield of milk, appear to be affected until a much longer time had elapsed. This period of immunity varied with individual cows from less than a month to more than a year. There was finally reached a condition of low vitality in which a sudden and complete breakdown occurred. This stage was marked by loss of appetite, a generally haggard appearance, lusterless eyes, a rough coat, and a very rapid decline in both live weight and yield of milk. If salt was supplied at this period recovery was rapid. In one case potassium chlorid was given instead of common salt (sodium chlorid). Considerable of the potassium salt was eaten, though cows ordinarily refuse to touch it, and recovery followed as quickly as when common salt was supplied—evidence that not the lack of the sodium but the lack of chlorin was responsible for the troubles. The breakdown due to the lack of salt usually occurred after calving, when the milk flow was heavy, and generally the cows giving the largest amount of milk were the first to show distress."

Farmers who salt their hay when stacking or baling have found the plan an excellent and profitable one. The salt more than pays for itself in the increased weight of the hay, and besides improving the feed, it removes the danger of musting by checking the growth of molds when the moisture content of the hay is high. This is particularly true of alfalfa hay.

Twenty pounds of salt to each ton of hay should be used, which should be sprinkled on by hand as each three feet of the hay is stacked.

Polands for Profit



Booking orders for spring pigs sired by Long Jumbo and Yates' Big Orphan and out of prize winning sows. Strictly big type at reasonable prices. Complete satisfaction guaranteed.

R. J. Yates, Orland, Cal.

Beef Cattle Specialist

For 30 years I have been devoting my entire time to pure bred beef cattle. I know the kind of cattle California needs and where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited.

R. M. DUNLAP, Hotel Land, Sacramento, Cal.

Florida is selling her tomatoes in the New York markets at excellent prices.

REMCO
Pipe, Tanks and Silos
Made in California of California Redwood

WE CARRY in stock all sizes of Remco Tanks from 500 gallons to 10,000 gallons and will ship inside 24 hours from receipt of your order. These Remco Tanks are made from clear air dried Redwood and every one guaranteed.

With our tank we will furnish you, without charge, complete instructions for its erection and blue prints of the proper tower or foundation.

We will ship you any size Remco pipe from two inches in diameter up to twenty-four inches, and for any pressure up to 500 feet, in four days from your request, and we will guarantee it for an overload.

We carry the famous Remco Silos in stock and will ship you any standard size inside one day from receipt of your order.

REDWOOD FOR DURABILITY
REMCO FOR MECHANICAL PERFECTION

Redwood Manufacturers Company
1608 Hobart Bldg. San Francisco

SANTA ANITA RANCHO

Anoakia Breeding Farm

Arabian-Thoroughbreds

Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion and Don Castano, five gaited saddle stallion, winner in many prominent shows.

Mammoth Jacks

We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

Poland China and Berkshire Boars

Sired by the World's Fair winners, BANKER'S BOY and KINTYRE LAIRD, and by others of our herd boars of equal breeding.

Correspondence Invited

Anita M. Baldwin
Santa Anita Calif.
W. H. Taylor, Supt.

Attention Buyers

For Sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.

Hannon Bros.
Care Geo. Irwin
Third St. Lankershim

BERKSHIRES

Grand Champion Berkshire

Introduce this blood into your herd by the purchase of young pigs—a sow or daughter of

Ames Rival 70th

the grand champion of the state. We breed for pork and prolificacy. — We sell at reasonable prices and guarantee satisfaction.

James Mills Orchard Corp.,
Hamilton City, Cal.

Pacific Coast Duroc Breeders!

What are the possibilities for the pure-bred DUROC-JERSEY HOG on the Coast? READ F. F. DeVore's famous article "DUROCS OF THE GREAT WEST" in the May 15th Duroc Bulletin and see.

DUROC RAISERS! It is time to ACT! THE DUROC BULLETIN has for its slogan, "FOR MORE AND BETTER DUROCS" and it stands at "Attention" to help Western Duroc men put the Duroc in the front rank in Western States. Write for free copy containing the article mentioned.

Send $1 for 1 yr. THE DUROC BULLETIN Chicago, Illinois

Remember July 10th

On the above date I will sell the most select offering of

Shorthorn Cattle

ever offered in the West. Practically the entire lot will represent the choicest of Scotch breeding. Watch for future announcements.

W. M. Carruthers
Live Oaks Cal.

Some of the finest

GUERNSEYS

in the West are at

Hollow-Hill Farm
Colton, Cal.
Only Bull Calves For Sale

When Writing Advertisers, Mention the Cultivator.

A Record Jersey Sale

On May 27, at the State Fair Grounds, Sacramento, some new and encouraging pages were added to the history of Jersey cattle in California. On the above date Clifford F. Reid of Portland, Oregon, dispersed his entire herd, consisting of 41 bulls and females, which included Goldie's Nehalem Beauty, who as a junior 3-year-old held the world's record, and the following year as a senior 4-year-old produced 904.91 lbs. fat, the world's record at the time. It was the first time a world's record cow had ever been offered at public sale, and when she was purchased by Dr. H. W. Hand, Orland, president of the California Jersey Cattle Club, for $1700, she became the highest priced Jersey cow ever sold in this state, and the first cow of the breed to sell in California for more than $1000.

The $1000 mark was passed four times. The 9-year-old India's Goldie, dam of the world's record cow, was purchased by Charles Buchanan of Sherwood, Oregon, for $1200. One of the best buys of the sale was made by J. E. Thorp, Lockeford, who bought Eminent's Wardress for $1200. This cow is one of the rarest types ever sold in any sale. She has a long list of show ring honors, and in addition has a Register of Merit record of 439.3 lbs. fat made at the age of 1 year and 11 months. Goldie's Catillon Beauty a 2-year-old daughter of Goldie's Nehalem Beauty, was purchased on order for Ayer and McKinney, Delhi, New York.

The top price for a bull, $850, was paid by E. F. Smith, Haywards, for Goldie's Nehalem Gold, the yearling son of the record cow and sired by a son of hers. Dr. H. J. Belknap, owner of the Jersey Queen Farm, San Jose, was the heaviest buyer, securing six of the choicer females for a total of $3095. The doctor was the contending bidder on Eminent Wardress. Guy M. Bougher of Orland selected five head.

The sale totaled $16,040, an average of $391, considered highly satisfactory in view of the fact that a large part of the offering was made up of calves.

The sale was under the management of C. L. Hughes of the California Breeders Sales and Pedigree Company, Sacramento. Col. Ben A. Rhoades of Los Angeles was the auctioneer.

A complete list of sales follows:

BULLS

1. Goldie's Golden Eminent—September, 1914; George P. Robinson, Sacramento, $100.

8. Goldie's Nehalem Peerless—September, 1918; A. B. Purvine, Petaluma, $65.

11. Goldie's Nehalem Fox—July, 1918; Dr. J. F. Tapley, Marysville, $250.

13. Goldie's Nehalem Financial—October, 1918; George P. Robinson, $100.

14. Goldie's Nehalem Eminent—June, 1918; W. B. Mordecai, Petaluma, $175.

18. Goldie's Nehalem Lad—December, 1918; Guy W. Bougher, Orland, $195.

23. Goldie's Nehalem Gold—E. F. Smith, Haywards, $850.

24. Fussy's Fern Noble IX—April, 1916; E. E. Greenough, Merced, $225.

FEMALES

2. Goldie's Nehalem Beauty—May, 1912, 904.91 lbs. fat; Dr. H. W. Hand, Orland, $1700.

3. Goldie's Catillon Beauty—November, 1916; Merridale Farm, Delhi, New York, $1050.

4. Goldie's Princess of Reid Farm March, 1917; E. R. Strain, Bolinas, $390.

5. India's Goldie—February, 1910; Charles Bushman, Sherwood, Oregon, $1200.

6. Goldie's Nehalem Fern—November, 1919; A. W. Nolan, Forestville, $165.

7. Fern's Nehalem Goldie—October, 1918; J. M. Dickson & Son, Shedd, Oregon, $500.

9. Goldie's Catillon Princess—May, 1918; Guy W. Bougher, $175.

10. Goldie's Golden Princess—March, 1919; E. E. Greenough, Merced, $130.

12. Goldie's Nehalem Lassie—September, 1918; C. A. Arwedson, College City, $175.



R. F. Guerin

R. F. GUERIN BUYS K. P. TOLA

R. F. Guerin, breeder of Holsteins and Poland-Chinas, Visalia, was in attendance both days of the McAlister dispersal sale and secured several as additions to his present large herd.

When the cow K. P. Tola, with a record of 33.98 pounds butter in seven days and 140 pounds in 30 days, was driven into the ring it seemed from the way the bidding started off that there were several there desirous of owning her.

It finally narrowed down, however, to Mr. Guerin and Mr. Magruder of Ripon, Mr. Guerin finally securing her for $3950, the top price of the sale.



K. P. Tola
Butter seven days, 33.98 pounds; 30 days, 140 pounds.



Kreso Dip No. 1

(STANDARDIZED)

Parasiticide. Disinfectant.

USE IT ON ALL LIVESTOCK

To Kill Lice, Mites, Fleas, and Sheep Ticks.
To Help Heal Cuts, Scratches and Common Skin Troubles.

USE IT IN ALL BUILDINGS

To Kill Disease Germs and Thus Prevent Contagious Animal Diseases.

EASY TO USE. EFFICIENT. ECONOMICAL.

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We will send you a booklet on the treatment of mange, eczema or pitch mange, arthritis, sore mouth, etc.

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Animal Industry Department of

PARKE, DAVIS & CO.
DETROIT, MICH.

Holstein-Friesian Cattle

Registered young bulls from best families.

Registered Berkshire Pigs

Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes—we pay registration fee.

Careful attention given to mail orders.

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Whittier, California



Feeding Qualities

The Holstein-Friesian breed requires an ample supply of food, but it is by no means choice as to the quality of the food. They freely consume roughage and transmute it into valuable products—milk, butter, veal, beef.

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HOLSTEIN CATTLE

Send for our booklets—they contain much valuable information.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA, Box 120 Brattleboro, Vt.

The Leading Live Stock Auctioneers

Col. Ben A. Rhoades
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Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References: The leading breeders in the state. Write or wire for dates and terms.

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R. D. No. 4, BOX 735
SACRAMENTO, CALIF

15. Catillon Boy's Maggie, May, 1918; Guy M. Brougher, $200.
16. Goldie's Nehalem Cowslip, September, 1917; J. E. Thorp, Lockford, $360.
17.—Goldie's Nehalem Bell—May, 1918; C. A. Arvedson, $160.
19. Goldie's Nehalem Lucy—August, 1918; Jersey Queen Farm, San Jose, $310.
19½. Heifer calf—E. E. Greenough, $125.
20. Goldie's Nehalem Onota—June, 1918; Peter J. Shields, Sacramento, $300.
21. Goldie's Nehalem Rose—December, 1917; Guy M. Brougher, $175.
22. Goldie's Nehalem Lilly—December, 1918; Dr. J. F. Tapley, $200.
25. Onota's Golden Cowslip, August, 1907; C. A. Arvedson, $250.
26. Onota's Eminent Wardress—August, 1916; C. A. Arvedson, $245.
27. Onota's Queen of Reid Farm—November, 1916; Jersey Queen Farm, $350.
28. Onota's Maggie of S. B.—June, 1914; Jersey Queen Farm, $400.
29. Onota's Fairy Girl—June, 1916; Jersey Queen Farm. $500.
30. Onota's Lady of S. B.—June, 1914; J. H. Sawyer, Galt, $495.
31. Fussy's Fern Beauty—February, 1916; Hugh Dodd, Orland, $275.
32. Fussy's Fern Lecq of S. B.—July, 1915; Jersey Queen Farm, $500.
33. Fussy's Fern Cowslip—September, 1915; G. W. Dammeier, Portland, Ore., $280.
34. Fussy's Fern Lucy—February, 1916; Jersey Queen Farm, $510.
35. Rower's Golden Primrose—January, 1915; Jersey Queen Farm, $525.
36. Imp. Lady La Sowice—September, 1910; Dr. H. W. Hand, $300.
37. Eminents Wardress — September, 1914; J. E. Thorp, $1200.
39. Cowslip's Financial Maid—August, 1914; Dr. H. W. Hand, $350.
40. Peerless Camika—March, 1911; Guy M. Brougher, $350.
42. Eminents Cream Rose—December, 1914; H. S. Kirk, Sacramento, $235.

A SHORTHORN SALE OF RARE QUALITY

There is much activity in the various Shorthorn camps of California, and 1919 promises to be a record year in more ways than one. Not only will there be more sales held this year than any previous two years, but new standards of quality and values have been and will be established. Shorthorn interests are determined to not only hold their position but to strengthen it in every way possible.

Just now all eyes are turned to the offering that W. M. Carruthers has in preparation for his sale to be held at the state fair grounds, Sacramento, June 10. Carruthers has long held a commanding position in the breeds' affairs on the coast and has been responsible for the production and distribution of some of the most valuable cattle in the state. For the approaching sale he has selected what is generally conceded to be the choicest lot of cattle ever offered in any one sale held on this western coast. The cattle have been selected with the idea of furnishing established breeders and those about to engage in the business an opportunity to buy at auction females and bulls of a character, both as regards breeding and individuality, that will prove attractive material for any herd.

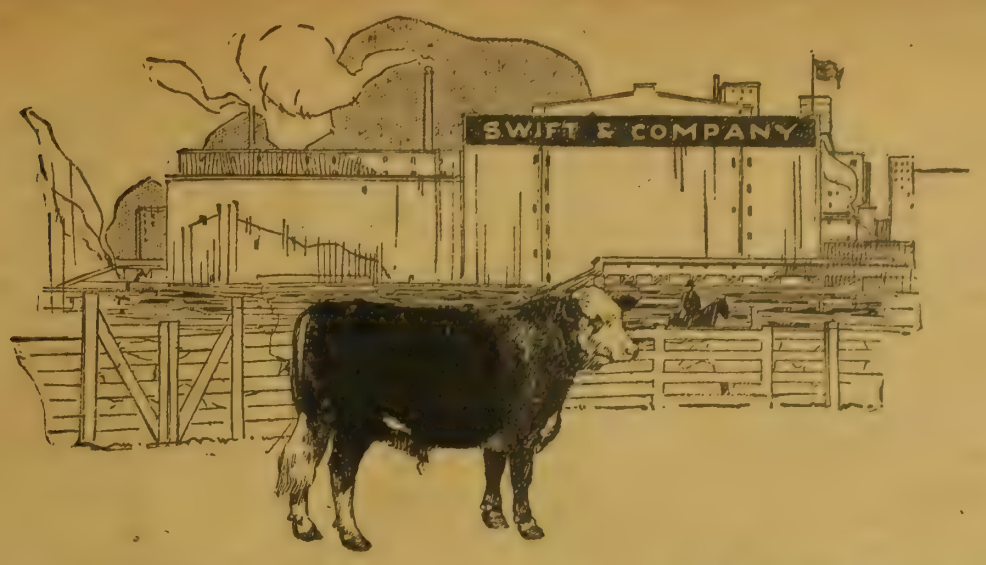
A feature of the offering will be the selling of most of the show herd that was out last year, as well as some of the top females of the herd

A distribution of such a class of cattle will mean much to the Shorthorn interests in this state.

From time to time more detailed announcement of the offering will be made.

The sale will be by the California Breeders Sales and Pedigree Company, of which C. L. Hughes is manager.

The same company will manage the Shorthorn sale to be held August 2 by the Butte City Ranch, Butte City, and October 16, by Dr. H. M. Elberg, Woodland, notices of which will appear in due time.



A steer is worth $1.02 to Swift & Company

That amount is profit

Cattle raisers received an average of $92.70 apiece for live cattle in 1918 from Swift & Company.

But Swift & Company made a profit of only $1.02 on each animal. Think of the work involved—dressing, distributing, selling, using the by-products, financing, and maintaining mighty plants—done for only $1.02 profit on each $92.70 steer. Only by dressing over 3,000,000 a year can we afford to do business on so small a margin.

This $1.02 profit per animal made by Swift & Company includes all that was cleared from each animal on its cured hide, tallow, fat, bones, and other packing-house by-products, as well as the meat.

Here are the figures:

	Average per head
Paid for live cattle (all grades)	$92.70
Received for meat	$81.45
Received for by-products	22.06
Total receipts	103.51
Amount remaining for expense and profit	10.81
Expenses	9.79
Profit (interest not deducted)	1.02

What other system or organization of the packing industry can bring about a higher price to live stock raisers and at the same time a lower price in the sale of meats?

Serving the cattle raiser and the public at a cost of only $1.02 per steer is rather economical, isn't it?

Swift & Company, U. S. A.

Founded 1868

A nation-wide organization owned by more than 25,000 shareholders

ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.

Reduces Bursal Enlargements, Thickened, Swollen Tissues, Curbs, Filled Tendons, Soreness from Bruises or Strains; stops Spavin Lameness, allays pain. Does not blister, remove the hair or lay up the horse. $2.50 a bottle at druggists or delivered. Book 1 R free.

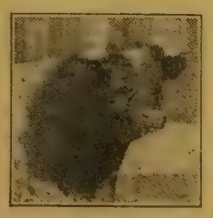
ABSORBINE, JR., for mankind—an antiseptic liniment for bruises, cuts, wounds, strains, painful, swollen veins or glands. It heals and soothes. $1.25 a bottle at druggists or postpaid. Will tell you more if you write. Made in the U. S. A. by
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The ONLY Calf Meal using pure dry milk solids as a base: feed
Red Horn Calf Meal
Wean calves from milk in four weeks. Send for free literature
GLOBE MILLS, LOS ANGELES

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

What is a Shorthorn Bull Worth?



If a registered Shorthorn bull during his life sires 100 calves worth $50 more per head than calves from the same dams by a scrub bull he is worth $500. If they sell for $10 more he is worth $1,000. If $20 more, he is worth $2,000.

But suppose they sell for $50 more—what is he worth? He is actually worth $5,000 in gold.

It will pay you to use a high class Shorthorn bull. He will cost much less than his value.

You get paid for quality and pounds both at the beef markets. Many a 1,600 pound Shorthorn cow yields from 7,000 to 10,000 pounds of milk per year.
AMERICAN SHORTHORN BREEDERS' ASSO'N.
13 Dexter Park Ave., Chicago, Ill.

Brighton Farm Herds
Registered Shorthorns
and
Berkshires—Both Sexes
H. L. & E. H. Murphy
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In San Diego County
Great Model
The Most Popular Sire in the West
Winsor Ranch
Bonita, Calif. Address R. K. Walker

AYRSHIRES
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Herd Sire, Dairy King of Arizona
CHOICE BREEDING STOCK FOR SALE
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Col. W. C. Lookingbill
Auctioneer
"Specialist" in Pure Bred Stock, Dairy Cattle and Real Estate
Will Appreciate Your Work
Address: Riverside, Calif.
P.S.—Will buy any good Dairy Herd or Beef Cattle

A squirrel drive is planned for the Livermore section, beginning Sept 1.

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The direct selling method from producer to consumer, and a clearing house for over 33,000 readers, weekly.
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TREES

For Sale — Budding Cloth 50c yard; also leading varieties citrus nursery stock. Selected and pedigreed buds. Order quick for early delivery. Cyrus W. Wilhite, Citrus Nurseries, Glendora, California, Box 154.

For Sale—6000 Orange, Lemon and Grapefruit trees, ½ to 1 inch caliper. 50,000 fine sour orange seedlings. Sales Yard, northwest corner East Colorado and Huntington Drive, Pasadena, Paul B. Magee Nurseries.

Florida Sour and California Sweet Seedling Orange Seed-Bed Stock. The time to plant is propitious; order now. SOUTHLAND NURSERIES, 1941 E. Colo. St., Pasadena, California.

For Sale—1000 Late Valencias, one-year-old on three-year old roots. Enterprise Nursery, 1197 N. Fair Oaks Ave., Pasadena, California.

For Sale—3000 select orange trees. Also 3000 lemon trees; first class trees; 20,000 seed bed stock. A. R. Rideout, Whittier.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—Choice, young, thrifty Citrus Trees. W. W. Burns, 631 Security Bldg., Los Angeles.

For Sale—Eureka Lemon Stock well rooted 2-year buds. Charles Brooks, Sierra Madre, California.

20,000 Extra Fine Sour Orange seedlings, sandy soil, $25.00 per M for lot. A. D. Paxton, Phone 502J2, Orange, R. D. 1.

BUDDED AVOCADOS
MATHER'S AVOCADO NURSERY, 137 N. Fair Oaks Ave., Pasadena, California.

MISCELLANEOUS

Before Selling or Buying land procure a soil analysis from a competent expert. If the report is good you can sell for better prices; if bad the buyer can save and pass it up. One party, after getting my report sold his grove for $6000 more than he had asked for it and could not sell. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles. Phone Pico 843.

For Sale — 20,000 ft. of new guaranteed garden hose, ½-in. and ¾-in. Regular 18c and 22c hose—OUR PRICE 13c and 16c per ft. Mail orders promptly attended to. If not satisfactory, money refunded. Hayward Iron and Bottle Yard, 529 Watkins street, Hayward, California.

Look, Tobacco—Homespun, chewing or smoking, mild or strong. Lb. 50c; 10 lbs., $4.50 postpaid. One order will convince what real tobacco is. Write for particulars. RANDOLPH TOBACCO FARM, PADUCAH, KENTUCKY.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 816 Washington Building, Los Angeles, California.

Bees For Sale—Golden Italians in patent hives. Address John G. Mee, St. Helena, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 816 Washington Building, Los Angeles, California.

ENGINES

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale—40 H. P. Fairbanks-Morse gas engine in first-class condition—used two seasons. P. O. Box 251, Santa Ana, California.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 South Los Angeles Street, Los Angeles.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC.
The Yellow Front. Established 1892
112-118 S. Los Angeles St. Los Angeles.

For Sale—1 Bateman 4-row sprayer $40; 1 Planet Junior 2-row riding cultivator $75; 1 Little Giant Potato Digger $50. All nearly new and in good working order. McMillan, 349 Indiana Ave., Riverside, California.

12-24 Nilson Tractor Practically New with P. & O. three bottom tractor plow; a real bargain. Jas. W. Parks, Colton, Washington.

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BEST OF BUSINESS TRAINING
Munson School
for
Private Secretaries.
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Send for Catalog.

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WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

TURKEYS

Eggs From Mammoth Bronze Turkey utility stock, 25c and 50c; show stock, $1, $2, and $3 each. White King Pigeons, $3 a pair. Paradise Valley Poultry Ranch, National City, California.

PIPE

For Sale—5000 feet No. 14 10-inch riveted steel pipe; 2500 feet 11-inch; 2500 feet 12-inch; 1500 feet 4-inch. L. B. Vollmer, Monrovia, California.

SEEDS AND PLANTS

The Garden Beautiful in California by Ernest Braunton, a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant, also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

Seed Corn—Fancy selected Seed Egyptian, Jerusalem, Dwarf Milo, Common Milo, Hickory King, Iowa Gold Mine, Iowa Silver Mine, King Phillip, Amber Cane, Honey Drip Sorghums, Sudan Grass, etc. Write us for samples and prices. FARMERS' UNION WAREHOUSE, Box 420, Tulare, California.

One Row Pays the Extra Cost, Garden Grove, Kansas, variety real Dwarf Milo maize, 6100 pounds threshed corn to the acre grown here last year. 15c per pound. 100 pounds or over 12½c; express paid. D. M. K. Co., distributors, Holtville, California.

For Sale—Fancy Recleaned amber Sorghum and Sudan grass. Also hand-picked Seed beans; any quantity. Stock pumpkin seed 20c per pound. Aurora Seed Mill, Stockton, California.

Box 501, Fowler, California. Write for circular, prices on seed and plants, Sudan, Dwarf Milo Maize, Honey Sorghum, Amber Cane.

Millions of Tomato, Pepper, Celery and other plants for sale. L. C. Johnson, Pomona.

Sweet Potato Plants — Yellow Jerseys, $3.00 per thousand, F. O. B. E. W. Van Gorder, Santa Ana, R. 5, Box 91.

MACHINERY

SPECIAL BARGAINS
THAT SHOULD INTEREST YOU OR YOUR NEIGHBORS.
GALV. SURFACE IRRIGATING PIPE
4-in., $16.50; 6-in., $24.50; 7-in., $31.90; 9-in., $38; 10-in., $43. 6 hp. Lambert gas engine, $115; fine 8-in. double acting cylinder new, $150; 4-in. hor. cent. pump, $69; 5-in., $88; 6-in., $125; No. 3 Ames double acting plunger pump, $275; pipe and rods extra.
WINDMILLS-TANKS-STEEL TOWERS
8-ft. mills $29 up; 10-ft., $39 up; 12-ft., $65 up; 16-ft., $135.
STEEL WINDMILL TOWERS
$35 TO $45.
NEW, USED REDWOOD, GALV. TANKS.
Used Redwood Tanks Guaranteed.
1000 gal., $19.50; 2000, $28.50; 3000, $35; 5000, $48; 25,000, $125; 40,000, $185; 50,000, $250; 15,000, $95.
NEW, USED GALVANIZED TANKS.
Used 1000 gal., $28; 3000, $55; 6500 with cover, $115; 7000 with cover, $125; new 1000 galv., $42.50; 2000, $53.
SHALLOW SQUARE & OBLONG IRON TANKS
FINE FOR WATERING TROUGHS
RANCH MACHINERY.
10-ft. Hoosier grain drill, $95; 4 row beet drills, $35 to $45; 3 and 4 gang disc plows, $95 to $125; bean, beet cultivators, $35; potato planters, $75; 4-ft. Fresno scraper, $14; 5-ft., $16; 6 galv. tanks about 1000 gal., $28; cider mill, $17.50; cable. Nearly new Bean spray outfit cost $75 for $35.
Many other bargains. Trade tools you don't need for material you do or pay with Liberty Bonds. Also want to buy. Material guaranteed as represented or money refunded. DEMMITT CO., 120 N. Main, upstairs, Los Angeles.

For Sale—Complete Pumping Plant, $2800. No. 38 Pomona Head—260 feet 10 inch column pipe, rods, cylinder—25 H. P. motor—12-inch leather belt. All in fine shape. Has seen very light duty. Well gone dry reason for selling. Orange, California. Phone 502R1. Hugh T. Thomson.

Corn Harvester — One man, one horse one-row, self-gathering. Equal to a corn binder. Sold to farmers for twenty-three years. Only $25, with fodder binder. Free catalogue showing pictures of harvester. PROCESS CORN HARVESTER CO., Salina, Kansas.

3-Inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2

RABBITS

New Zealand Reds — The better kind, a fine lot of them in all ages now ready for delivery at right prices. The Oakland Farm, F. Anton, owner, 1617 San Pablo Avenue, Oakland, California.

New Zealand Reds—Improve your stock with a good Buck. Extra fine Breeding Bucks at reasonable prices. Armstrong Rabbit Farm, Petaluma, California.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

FERTILIZER

EARL A. HOLCOMB
SOIL LIFE
Fertilizer and materials mixed to balance every soil. Bureau of testing and advice free on all horticultural and agricultural subjects. 1022 Washington Bldg., Los Angeles. Phone 62907; res. 16116.

For Sale—Chicken manure in carloads. Cheapest and best fertilizer. MacDonald Sons Phone 101 Watsonville

DUCKS

Mammoth Pekin Duck Eggs for hatching $1.00 per dozen, $7.00 per hundred. August Surtman, Merced.

SHEEP

Sheep For Sale—500 ewes with lambs by side. Have rented my ranch and want to sell. A good buy for a small place. John M. Cox, R. F. D. No. 1 Box 160, Brawley, California.

HOGS

CASTLEVIEW
Giant Type Berkshires.

We are booking orders for spring pigs from Grand Champion sows and sired by Mayfield Rockwood, sire of Champion barrow at 1919 Western Berkshire Congress.

Castleview Ranch, Santa Rosa, Calif.

BERKSHIRES BERKSHIRES
ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son, Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

TWO SOWS AND A BOAR
$100 the trio.
Two sow pigs from ten raised, sired by Baron Duke 201st, 780-pound $1100 Grand National Champion, from Rival B. Princess, a prize winner at San Francisco, Sacramento, Oregon, and Omaha National Swine Show, and a boar sired by the Grand Laurel Champion Boar from Symboleer Belle, and of Superbus blood lines; a boar from a litter of ten raised, big, long typy, stretchy pigs. Sandercock Land Co., in charge of Natomas Land Sales, 23 Montgomery Street, San Francisco, California.

Billiken Chester Whites. Not many left now; one 1917 fall boar; one 1918 fall boar; both cholera immune. All pigs farrowed to date are booked for sale excepting 10 boar pigs. Have 10 sows yet to farrow during May, June and July; will book orders from these litters, delivery to be made when weaned. C. B. Cunningham, Mills, California.

Grape Wild Farm Berkshires. A few fall Boars by Big Leader Grape Wild Farm Leader and Majestic King, also spring pigs. A. B. Humphrey, Prop., Escalon, California.

Weanlings Sired by Trailblaizer, son of Pathfinder, Derryfield Col. and Derryfield Wonder Boy—King's Col. Boars ex Burke's Good Enuff, Golden Model and Model Col. sows. Bred gilts. Service boars. Derryfield Farm, Capital National Bank Bldg., Sacramento.

For Sale—Registered Duroc-Jersey pigs, McKee Bros., Pilot Defender blood, owned by C. T. Thompson, Bishop, farrowed April 3rd, 1919. Very fine. For particulars and breeding, write: W. E. Detrick, Bishop, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Have Sold All the Pigs advertised recently. Will have fine pigs from spring litters for sale in June. Fine Shropshire ram lambs, pure bred, for sale. J. J. Prendergast, Redlands, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego Co., Address: R. K. Walker.

Duroc-Jersey Swine For Sale, best blood lines. Bred sows and gilts, service boars. Jersey Queen Farm, San Jose, California.

Duroc-Jerseys — We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson. Box 724, Sacramento, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

MULEFOOT HOGS, LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLETS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

WANTED

Wanted—Salesmen and Agents. Exclusive territory granted. Powerene is equal to gasoline at 5c a gallon. Is guaranteed to be harmless, to remove and prevent carbon, doubling the life of all gasoline motors, saving repairs, adding snap, speed and power. An amount equal to 20 gallons of gasoline will be sent to any address in the U. S. for $1.00. W. Porter Barnes, Santa Rosa, California. Dept. A-11.

Wanted—Poultryman, thoroughly successful, particularly turkeys; will take equal financial interest with owner, large grain, alfalfa ranch, establishing turkey, egg and poultry plant, suitable location. Build, equip, run same. Can show 40 per cent. net annually every dollar invested. Further particulars at interview. C. T. Johnston, 831 S. Flower, Los Angeles.

Wanted — About 10 pure bred Holsteins of milking age. Send description and pedigrees to Cornelius Van Vuren, Santa Ana, California.

If You Want to Sell or exchange your property, write me: John J. Black, 116th Street, Chippewa Falls, Wisconsin.

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

Feeder Hogs Wanted. R. B. & N. Ranch, Waukena, Tulare Co., California.

POULTRY

THE MISSION HATCHERY
Does not claim that June is the best month to raise chicks. You've got to know how to do it right. We have them—and good ones—stamina and vitality top notch, and we can pack them to travel safely; and will also send customers our circular on raising summer and fall chicks successfully.
FIRST COMES QUALITY—no use wasting time on scrubs, if you mean business. Then comes price—you can pay high or low, and get stuck both ways. A reasonable price with a reliable firm beats both bargains and humbugs.
WE CAN SUPPLY LEGHORNS—White-Brown-Buff—large or small lots, promptly. R. I. Reds, Barred, White Rocks, Black, White Minorcas, Anconas — that are the cream of their kind. We sell what we hatch—no rehandled or second hand chicks—and our hatchery is one of the most efficient plants in the state—capacity 15,000 chicks weekly. Why not get acquainted? Circular and prices for the asking. THE MISSION HATCHERY, Box 27, Campbell, California.

Baby Chicks For Sale—250,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock. 25, $3.50; 50, $7.00; 100, $12.50. Special prices, 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Shipped safely anywhere West of Rockies. Finest hatchery in the world. Established 1898. Must Hatch Incubator Company, 488 Seventh Street, Petaluma, California.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGAINIZED hens. Safe delivery of full count live chix guaranteed. Prices per 100; February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks, Hatching Eggs, Breeding Males, Barred Rock, Ancona, R. I. Red, Black Minorcas, White Minorcas, White Orpingtons, Black Orpingtons, Light Brahmas, Buff Leghorns, Brown Leghorns and Macfarlane White Leghorns, CHICKS and EGGS. Duck, Geese, Turkey eggs. Circular free. POULTRYMEN'S COOPERATIVE HATCHERY, D. E. Doke, Mgr., 732 S. Spring, Los Angeles.

It's like groping in the dark to attempt raising poultry successfully without some knowledge of the business. Poultry for Profit tells you how to house, feed and raise chickens, ducks and turkeys successfully in California. It contains 225 pages with 18 pages of illustrations and bound in cloth $1.00 postpaid. Cultivator Publishing Co., 115 N. Broadway, Los Angeles, California.

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for 20 years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs, $2.50 per 15 eggs. Chicks 30c each; 7 pullets May hatch, laid 12 dozen December, 10 dozen January. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California.

Baby Chicks from my thoroughbred, heavy-laying strain of S. C. White Leghorns. Am booking orders now for May and June delivery at $11.00 per 100, $100.00 per 1000. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Poultry for Profit—A 225 page book, with 18 pages of illustrations, tells you how to successfully house, feed and raise chickens, ducks and turkeys in California. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 N. Broadway, Los Angeles.

S. C. White Leghorn Chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockerel at Pacific Coast Land Show. Order your chicks for June 10th delivery. A. O. & P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—Barred Plymouth Rocks, R. I. Reds, Buff Orpingtons, Black Minorcas, Brown, White and Buff Leghorns from Hoganized stock, bred to lay. Tobener Hatchery, Washington Avenue, San Jose, California.

Baby Chicks—We guarantee full count of live chicks that will please you. Hoganized White Leghorns exclusively. Send for prices. White Leghorn Hatchery Ranch, Pomona, California.

White Leghorn Baby Chicks every week, good strong youngsters from fine layers. Also other varieties. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

"Eastman's Bred-to-lay" Hoganized and trapnested Barred Plymouth Rocks. SEPTEMBER CHICKS. Fairmead Poultry Farm, Fairmead, California.

Chix — Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Model Poultry Farm — White Leghorn Specialists. Our fifteenth year in business. Baby chix and hatching eggs for sale. Our prices are right. W. C. Smith, Prop., Corning, California.

For Sale—Standard bred S. C. White Leghorns; 3 breeding yards left, including the yard winning 2nd at Cal. Liberty Fair. Eggs one-half price for one week. Allessandro Poultry Yards, 523 Rosemont Ave., Los Angeles, California. Tel. 53511.

POULTRY

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Can supply for June delivery
WHITE, BROWN, BUFF
LEGHORN
Baby chicks of quality breeding, hatched right, and priced right, and shipped to arrive safely. Express or parcel post. Large or small lots. Also booking orders. Barred and White Rocks; Black and White Minorcas, R. I. Reds, Anconas. Circular and prices for the asking. The Mission Hatchery, Box 27, Campbell, California.

Black Minorca and Buff Wyandotte Eggs $1.50 per setting. Chicks 20c each. Thoroughbred stock, none better. A. G. Moore, 432 Ulysses Street, Los Angeles.

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo Schmitt, Box 263 Corcoran, California.

Black Orpingtons Lay. Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARMS, San Leandro, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

FARM LANDS FOR SALE

British Columbia—Choice of three mixed farming ranches in Central British Columbia, partly improved. GOOD ARABLE LAND. (1) 160 acre, including two buildings and one-fifth acre in town, 2 miles away. IDEAL DAIRY RANCH. RY. & STEAMBOAT. (2) 330 ACRES, will grow ALFALFA, TIMOTHY, on lake. Plenty RANGE SURROUNDING. Ry. and steamboat. (3) 524 ACRES. Small house and barn, on lake front. 48 ACRES MEADOW, IDEAL STOCK RANCH. 30 miles from Grand Trunk Ry. Big game and best fishing. Plenty grass and extra cattle range from B. C. Government at low rental or for purchase. Owner is experienced British Columbia Land Surveyor in delicate health. He will, in each case, give two years option to purchase at $110. Semi annual rental, in advance, after examination. OWNER WILL PAY TAXES. State in first letter, whether interested in CATTLE, HOGS, SHEEP, Dairy Stock, GRAIN, or a mixture. Also please state your resources. J. H. Brownlee, CANADIAN LAND SURVEYOR, 403 Peoples Saving Bank Building, Sacramento, California.

For Sale—20 acres Oranges, Tulare Co., 10 acres 4 yr. old Late Valencias; 8 acres 1 year old Washington Navels; 2 acres left for building site and garden; over two thousand feet of cement pipe with turn out at each tree row; 6 horse power gas engine with 3 inch pump making an up to date irrigation system. Small house. Large garage and work shop, blacksmith outfit, and all tools necessary for farm: Tractor, plows and disc all go with ranch at $12,000. This place lies against the foothills overlooking the entire valley. One of the beauty spots of California. Terms: ½ cash, bal. to suit. H. Eshelman, Soldiers Home, Box 45.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator, Box B. A. J.

Mountain Ranch—334 Acres, 90 acres under cultivation, 30 acres Bearing Orchard, balance in Timber, Oak and Pine. Free Water, deep, rich soil, eight-room house, 100 tons hay, barn and out buildings. Will subdivide. Price $7500. Terms. Address, Paradise Ranchita, P. O. Box 123, Paradise, Butte County, California.

For Sale—$1000. Clear, 160 acres, 30 mi. N. E. of San Diego. 25 acres tillable, rolling; 15 bottom, 3 plowed, balance grazing. Small new house. Well, spring, abundance soft water; timber. Fine bee, cow, pig proposition. No trades. E. T. Gray (Owner), Petrolia, Humboldt Co., California.

34½ Acres San Fernando Valley land, just the finest ever for alfalfa and hogs — close to good town — city water, all leveled, a beautiful proposition — only a few days left on this one—I must sell. H. L. ALLARD, 410 Security Building, Los Angeles, Phone Broadway 1696.

For Sale—40 acres of land in San Joaquin Co. Am about to make a deal and need the money. 11 miles E. of Lodi. $50 acre. Address C. L. Jones, Newman, Stanislaus Co., California. Box 555.

For Sale—320 Acres Alfalfa Land, including water, located in Kings Co. Price, $100 per acre. Will divide, terms. J. A. Elliott, owner, 130 E. 25th Street, Los Angeles. Phone 63247.

For Sale — Imperial Valley's finest fruit and alfalfa farm for sale at a bargain. 160 acres. Earliest grapes and apricots in the United States. C. A. Myers, 1119 Haas Building, Los Angeles.

For Sale—120 Acres, one mile from Coachella, suitable for DATES, grapes, alfalfa. Partly improved. THIS IS A SNAP. INVESTIGATE. Bargain. Box 624, Coachella, California.

For Sale—90 Acres well improved alfalfa ranch. Best located in San Jacinto Valley. If interested address B. R. Gehart, San Jacinto, California.

100-Acre stock or dairy ranch. Situated north border of town of Lathrop, on highway; suitable for subdivision. Mrs. S. G. Revner, LATHROP, California.

For Sale—34 acres improved and irrigated land, ¼ mile from Newman, Stanislaus County, $260 per acre. Owner, W. L. Bone, Escalon, California.

CATTLE

BUTTE CITY RANCH
SHORTHORN CATTLE, SHROPSHIRE SHEEP, BERKSHIRE HOGS, SHETLAND PONIES. Stock for sale at all times. Second Farm Sale—all breeds—August 2, 1919. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome. Information cheerfully given. T. T. Miller, Hollister, California.

CATTLE

For Sale—35 Head high grade Holstein cows fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch. Hannon Bros., Third Street, Bankershim. Care of Chas. Irwin.

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery Street, San Francisco, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced, California.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Ayrshires — Pure bred bull calves ready for service. Redwoods Ayrshire Farm, La Honda.

MULES

For Sale — Twenty-five young mules, one and two years old. Chas. Hubbard, Riverdale, California.

BEES

For Sale—250 Colonies of Bees, all healthy after the Orange flow. A. Kalzer, Anaheim, California.



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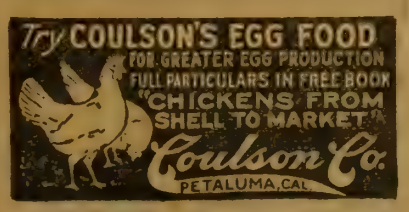
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COOP THE MOTHER HEN

It is not good poultry management to allow the mother hen to range unrestricted with her chicks. With such freedom the hen frequently takes her brood through wet grass and, as a result, some are chilled and die, especialy the weaker ones which are likely to be left behind. The loss of young chicks which follows such a practice is large and mainly preventable. Furthermore, the food which a brood allowed to range with the hen obtains goes very largely to keep up the heat of the body and the chicks do not make as good growth as they otherwise would.

Chick losses of this nature can be largely prevented by shutting the hen in a coop. Any style of coop which is dry, ventilated, and can be closed at night to protect the brood against cats, rats, and other animals, and which, while confining the hen, will allow the chicks to pass in and out freely after they are a few days' old, will be satisfactory. The hen should be confined until the chicks are weaned, though a small yard may be attached to the coop, if desired, to allow the hen to exercise. The fence can be raised from the ground far enough to allow the chicks to go in or out, but not high enough for the hen to escape. By using a coop the chicks can find shelter and warmth under the hen at any time and the weaklings, after a few days, may develop into strong, healthy chicks.

COMBINE UTILITY AND STANDARD QUALITY IN POULTRY

A hen, in order to be classed as a genuinely good one, should be equally capable of going in the show ring and taking a ribbon or of going on the yard and making a record as a layer. And the breeder, in order to get the advantage of the best and broadest markets, must breed for a combination of utility and standard quality instead of following the tendency to become either a fancier or a utility breeder. That is the advice of Robert B. Slocum, a poultry specialist of the United States department of agriculture, and it is based largely on results obtained on the poultry farm of the department at Beltsville, Maryland, where many of the exhibition males used have 200 egg production in their pedigrees.

"Except in a few more or less isolated cases," says Mr. Slocum, "there is nothing in the standard requirements directly opposed to utility, and the buyers during the past few years have shown an increasingly insistent demand for fowls that have egg producing ability back of them."

PRODUCE INFERTILE EGGS

The eggs laid by a hen may be either fertile or infertile, depending on whether or not the male bird has been allowed to run with the female. Egg production is equally great in flocks from which roosters are excluded.

A fertile egg does not keep as well as an infertile one. Infertile eggs are much more likely to reach the table in good condition and there is much less spoilage in shipments composed entirely of them than in mixed shipments of fertile and infertile eggs.

After the hatching season, therefore, the male birds should be cooked, sold or confined. In approximately 14 days after this all the eggs laid by the hens will be infertile. These can be marketed much more successfully under the adverse conditions that frequently prevail in the hot summer months.

RULES FOR HANDLING EGGS ON THE FARM

Heat is the great enemy of eggs, both fertile and infertile. The following of these simple rules costs nothing but time and thought and will add dollars to the poultry yard returns:

Keep the nests clean; provide one nest for every four hens.

Gather the eggs twice daily

Keep the eggs in a cool, dry room or cellar.

Market the eggs at least twice a week.

Sell, kill, or confine all male birds as soon as the hatching season is over.

Where chicks are raised with hens, they are likely to become infested with lice. If the lice get very numerous, they greatly retard the chicks' growth and may even cause their death. The hen should be powdered thoroughly with some good insect powder before she is put in the coop with the chicks, and at intervals of several days or a week thereafter. The baby chicks should be examined for lice, particularly on the head, under the wings and about the vent. If any are found, a little grease, such as lard, should be rubbed on in those places. Apply grease moderately, as too much will injure the chicks. The chicks should be examined frequently and the treatment repeated if lice are found on them

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Avoid overcrowding growing chicks. A coop, brooder, or colony house that was large enough to hold the baby chicks is not large enough after two or more months, depending on the breed and growth. It is absolutely necessary that growing chicks have plenty of room to grow. Cockerels that are sufficiently large should be disposed of. Chicks that have not shown proper growth should also be separated and leg or wing banded. Many of these chicks, even the pullets, should be marketed. Only the good, strong, vigorous specimens should be retained as breeders and layers, as these are the only ones that can return a profit.

Growing chicks will not eat too much if they have plenty of range so they can get the desired exercise. A good growing mash should be accessible at all times to growing chicks. Such a mash should contain plenty of bone meal, ground very fine, and fine ground oats and barley. Be sure to have the mash ground very fine.

Growing chicks that are kept closely confined need much greater attention along all lines than those that have range. See that they have plenty of green feeds that have not wilted down to almost the decaying point and that the yards are kept sweet. Culling also is more essential when chicks are closely confined.

One of the most important factors in keeping young chicks growing is good, clean, fresh water in vessels. As the days get warmer care should be taken to change the water as often as required to keep it clean and fresh.

CUNNING AS A FOX

While sitting on the bank of a small stream, writes a Companion subscriber, a friend and I heard some hounds baying on the opposite side of the creek. We were guessing what they might be chasing, when all at once we saw a two-thirds grown rabbit come from the weeds and slowly walk into the water until it got so deep that he was compelled to swim. We thought that the little animal was coming across; but suddenly he turned upstream and swam for some two or three rods, and then he climbed out on the bank and disappeared in the weeds and underbrush.

A few moments later the hounds came to the water and lost the trail. If that were not a piece of cunning on the part of bunny, I am much mistaken.—Youth's Companion.

Seashore PACIFIC ELECTRIC Mountains

Vacation Time

is here again and many of us are planning to spend a goodly portion of that time at one of the numerous seaside resorts while others will prefer the mountains—

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Boys, stop straining your arms and back carrying stovewood, heavy sacks of feed and other heavy things about the farm. Get an Auto-Wheel Convertible Roadster—you can speedily carry several hundred pounds without straining a bit. And when you've finished work, coast down hill or on the road—show the other fellows what real coasting means. You can't beat the Auto-Wheel for speed and strength. The Auto-Wheel Convertible Roadster is the newest Coaster Wagon. The patented convertible sides make it two wagons in one—a roadster and a coaster. When you want to coast, turn up the sides and away you go. Turn down the sides and you have a regular Roadster—ready for the heaviest load. If you're a real boy, you'll never be happy without an Auto-Wheel.

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WANT A FREE FELT PENNANT?

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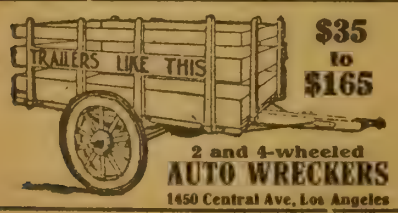
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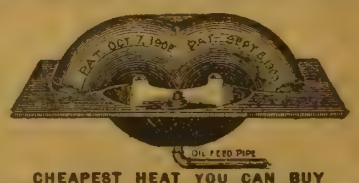
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Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Household Department

A GARDEN WEDDING

Margaret Wentworth Leighton

The Bachelor Button declared
He was tired of bachelorhood,
And if Marguerite was willing,
Marry and settle he should.

And so it came to pass
On a balmy night in June,
The Harebells and the Bluebells
Rang out a marriage tune.

The frisky little fireflies
Their flashing lanterns swung,
And on the spreading bushes
The glowworm lamps were hung.

Each tiny field musician,
With fiddle tucked away,
Came hopping, skipping, flying,
The wedding march to play.

From his home in the lowland meadow
Came Jack-in-the-Pulpit trim,
And the nuptial knot for the bridal pair,
Was neatly tied by him.

The lovely Valley Lilies
All waited on the bride.
Sweet William and the Rose Bud
Walked slowly side by side.

The Pansies, all in velvet,
With Dandelions gay,
Danced and pirouetted
Until the break of day.

The Monks, so tall and solemn,
In hoods of faded blue.
Feasted, frisked and frolicked
All the long night through.

In gowns of dingy yellow
The poor Wall Flowers stood.
No gallant asked them once to dance—
I wonder if they could?

Joe-Pye-Weed waltzed with Lily,
Thistle with Bouncing Bet,
Violet danced with Primrose,
And Clover and Mignonette.

The Sensitive Plant was frightened
(She feared she might be kissed
By bold Snap Dragon as he passed,
With dainty Maid-in-the-Mist).

At last the guests departed,
And Lady's Slipper fair,
Adroitly tossed her moccasin
After the bridal pair.

THE FLOWER DOLLS

THE flower folk live all the year round in California. Here is a story of some of their cousins who live in Michigan in spring and summer. This story was told in the Grand Traverse Herald:

Nothing makes a better flower lady than a lilac leaf. Just fold it over and fasten it with a thorn or bit of stem sharpened, put any sort of floweret on the stem for a hat, and behold you have a grand and stately lady with a sweeping train. She has the narrow, sloping shoulders and the drooping figure considered so graceful a hundred years or so ago.

But trim off her train, bind her waist with a bit of grass, fold the cut-off point of the leaf and stick it on top of the stem and here you have a demure little nun with great flaring cap, such nuns as you see going silently about the streets of any Breton town.

The little morning glory girl as fragile as she is beautiful, must have two toothpick legs inserted, and even then she must stand on a friendly apple or in the soft earth of a flower pot into which the sharp points can stick, where she will stand poised, like a real fairy just alighted for a moment, and ready to take flight at any rude word or motion.

Soon comes the gorgeous golden glow—a ballet dancer is she. Two matches sharpened at the points form her legs, and with a saucy hat of snap-dragon, or a floweret of the humbler butter-and-eggs, it takes but little fancy to see her kicking off the hat of the venerable Mr. Pine, who, with his haughty wife, walks so sedately across the table.

And do they really walk? you ask. Try them and see. The Pine family are great pedestrians. Take a bunch of pine needls on the end of a stem. Holding them in a close bunch, cut them off to form a flat base so that they will stand, leaving enough stem for body and head. My Lady Pine and her children may be dressed in any leaves and flowers you will. Her natural hoopskirt will give any raiment a grand air. For her spouse more care is necessary. A few needles must be trimmed out to give him proper legs, which must then be clothed in two long, narrow leaves—or ideal for the purpose are the large hollow stems of the melon or the gourd vine, or, in early spring, the stems of the daffodil. His coat must be a swallowtail to which a grape leaf lends itself very well. Almost any little green calyx will furnish him with a hat, and with one pine needle left out for a walking stick he is ready for a promenade with his family.

Set the Pine family in marching order on a smooth polished table, get down and blow very softly along its surface, and they will amble along with just the proper gait of any well dressed family out for its Sunday stroll.

Daffodils are gay and frivolous ladies, and fallen tulip petals make the most wonderful coats.

In midsummer the everywhere present Queen Anne's lace, just as it goes to seed, furnishes a wonderful petticoat to be not quite concealed by an over drapery of hollyhock or of petunia. The rugged little seed bunch stands alone and makes a most sturdy if somewhat stocky little dame.

Many other flowers will suggest themselves and will well repay in beauty the little girl or boy who handles gently and skilfully the fragile fabrics that mother nature provides for making flower dolls.

OUR YEAR ROUND GARDEN FAMILY

By Ellen Eddy Shaw

Ally, Di, Sonny, Johnny and William. It is lovely to have a big family, isn't it? The summer flower family is a great big family, oh, so much larger than just the few children of the other seasons. I think any boy or girl can see why it is easier to have a big family in summer. It is because then you can keep them all outdoors, and in other seasons of the year you have to have the children in the house. You know how it is.

Now, who are these children called Ally, Di, Sonny, Johnny, and William? I will tell you all about them. Ally is the nicest little girl you ever saw and never causes any trouble. Mother buys you a small package of dwarf sweet alyssum seeds, as sweet alyssum is our little Ally, and you place the seeds one by one about an inch apart, and one-half an inch deep in your garden bed. By and by up will come little plants, and they will grow about six or eight inches high. In five or six weeks Ally will have a white blossom just like a little white head.

When it gets toward the middle of the summer give Ally a hair cut. Cut little Ally down within two inches of the ground and what do you suppose will happen? She will come up again and will have her same little white head all through the fall.

Who is Di? Di is also a girl, but she is larger than Ally. Her long name is dianthus, and sometimes we call her pink. Di is an old-fashioned child. You plant the seeds of dianthus just as you did those of sweet alyssum, but dianthus grows much taller and has a pink blossom, or a white one, and smells as sweet as can be.

Sonny, sometimes called sunflower, has great big seeds. You pick one up very carefully and you plant it an inch deep in the ground, and you plant another one a foot away. By and by up grows this big, strong boy, and later on in the summer Sonny has a yellow head—a huge yellow head with a Dutch hair cut. Now just you watch and see!

Johnny is a different kind of boy from Sonny. He is a quick little chap, sometimes called little "Johnny Jump Up," and by some people called Pansy. But I like the name of "Johnny Jump Up" best, don't you? Ask mother to buy you some pansy plants and as they blossom, pick the blossoms as fast as you can because then you will have more and more. I think "Johnny Jump Up" is one of the smartest of our children.

We have one child left in our summer flower family, William. Sweet William is a slow boy. He is so slow that he generally refuses to have any blossoms at all until the second summer, and so you have to wait a whole year before you see his face. Plant Sweet William seeds just as you did Sweet Alyssum, and the plants will come up in the spring, but very slowly. By fall Sweet William may have one blossom, but he probably will not have any.

Do you not like these children? I do. Then do not forget to have one or more children this summer. You can choose Ally, Di, Sonny, Johnny or slow little William. Which one are you going to have?

If you are a little city boy or girl and have no outdoor garden, you may plant all of these summer children except Sweet William and Sunflower in a box. Sunflower is too tall and Sweet William is too slow, but Ally, Di, and Johnny will blossom just as well in a window box as in a garden.

SAVING TIME AND MONEY BY HOUSECLEANING EASY AND OFTEN

The United States treasury department is issuing as one of its war savings thrift series of publications some good hints on saving time and energy in housecleaning. Seems a bit odd for the treasury department to tell us how to mop floors and wash windows, but if time is money, then time saved is money saved—and there you are;

Walls

Wipe down frequently with a broom covered with a canton flannel bag, with a long-handled soft brush, or a lamb's wool brush.

Use light, even, overlapping strokes to remove rather than rub in the dirt.

Rub soiled places over radiators, registers, and stoves lightly with cotton batting, changing the cotton as it becomes soiled. Guard against such soiled places by keeping the fixtures and the floor around them free from dust.

Wash oil-painted walls and ceilings like painted woodwork.

Wipe glazed wall paper with a cloth wrung tightly out of warm, soapy water. Do not leave any moisture on the paper; it seeps in at the seams and loosens the paper.

Windows and Mirrors

Rub frequently with soft paper; this keeps the glass clear.

When washing is necessary, use a clean, lintless cloth wrung well out of clear water, or water to which kerosene, alcohol, or washing soda has been added. To get a clear glass work quickly with even strokes and wipe at once with a clean, dry cloth or soft paper.

Glass may be dry-cleaned with a paste made by moistening a fine powder such as whiting. Rub on the glass, let dry, then polish with a cloth or paper.

Woodwork

Dust frequently. For floors, use string mop or broom covered with bag.

Sweep floors occasionally with a soft brush.

Wash when necessary with soapy water. Wring cloth very dry; rub with even strokes. Wipe dry at once. If spots remain after washing, scour, wipe clean and dry.

Wipe off spots and finger marks around door knobs, handles, window latches, etc., frequently, using a dampened cloth. This saves labor and wear.

Unfinished: Beware of using too much water, soap, or cleaning powder. They discolor the wood.

Painted: Use a cloth well wrung out of light suds made with white soap. Soap applied directly softens and dulls the surface of paint.

Enamel Painted: Use hot water. This dissolves grease and frees dirt. It does not harm gloss. Soap dulls enamel.

Oiled, Varnished, and Shellacked: Use oiled duster or mop. When dingy and black, wash like paint. To revive finish, rub with cloth sprinkled with linseed oil or furniture polish.

Waxed: Use dry mops and dusters. Avoid oil; it softens wax so that dirt settles in it.

Carpets and Carpet Rugs

In cleaning indoors, avoid scattering the dust.

Carpet sweepers keep the dust from flying, take up surface dust, and are excellent for daily use. Their brushes do not reach deep enough into the fabric for thorough cleaning.

Vacuum cleaners suck the fine dust out of the interior of the fabric, thus saving hard work and wear on furnishings.

When heavy sweeping is done by hand, use a corn broom with short, firm strokes.

Where possible take rugs out of doors for an occasional cleaning. It freshens them and lessens the danger from moths. Lay right side down on the grass. Beat with a flat, springy beater, sweep, turn right side up, and sweep again. Do not hang on a line to beat, or shake by holding one end or corner. Such treatment weakens the threads, even in small, light rugs.

Matting

Sweep with a soft brush. Wipe with a slightly dampened cloth.

Linoleum, Oilcloth and Cork Carpet

Dust with a dry mop or covered broom. Sweep with a soft brush. Wash with a cloth wrung dry from soapy water, and dry thoroughly with a clean cloth. If too much water is used, it gets underneath and gradually rots the covering and the floor.

Furniture

Dust frequently.

For fine upholstry and carvings, use a soft pointed brush.

For heavy upholstry, and reed furniture, use a medium-soft pointed brush.

For leather, use an oiled duster.

Keep clean rather than make clean.

"For age and want save while you may. No morning sun lasts a whole day."—(Benjamin Franklin.) Buy Thrift Stamps and W. S. S.

BEANS ARE GOOD

Boston Baked Beans

Soak one quart beans and cook until tender, but not so soft that they will fall apart. If desired, one quarter pound of salt pork may be cooked with them. When tender, add one-half teaspoon mustard, one tablespoon sugar or two tablespoons molasses, and one tablespoon salt. Bake in a covered dish for one and one-half hours, leaving them uncovered for the last 15 minutes.

If you have any beans left over why not make a loaf that you can serve for dinner in place of meat?

Instead-of-Meat Loaf

Two cups cooked beans, one cup cooked rice, one cup bread crumbs, one egg, one tablespoon fat, one-half teaspoon salt or one teaspoon if the rice is unsalted, one-eighth teaspoon paprika.

Put the beans through a sieve or grind in a meat grinder. Mix all the ingredients well. Form into a loaf and bake until brown. Or croquettes may be formed, rolled in bread crumbs and browned in the oven. Baste frequently with small amounts of liquid containing a tablespoon of fat to a cup of hot water.

If you don't "know beans" try these recipes and find out how good they are.

SUMMER'S SWEETEST GIFT

Bluff March unlocked the earth's closed door,
And swept the ceiling and the floor;
April, with tears from her sweet eyes,
Washed clear the windows of the skies;
May laid the carpets trim and neat
All blossom strewn for dainty feet;
Gave each gaunt tree a brand new suit;
And trigged him fine from head to foot;
Set mating birds to weaving rare
Heart harmonies upon the air;
Unsealed her hoarded nectaries
To scent the gales and call the bees;
And then, when all seemed sweet to see,
And just as bright as bright could be,
Slow stepping to the brooklet's tune,
In royal progress comes Queen June,
And beauty's wondrous wealth discloses
In Summer's sweetest gift of roses.
—Selected.

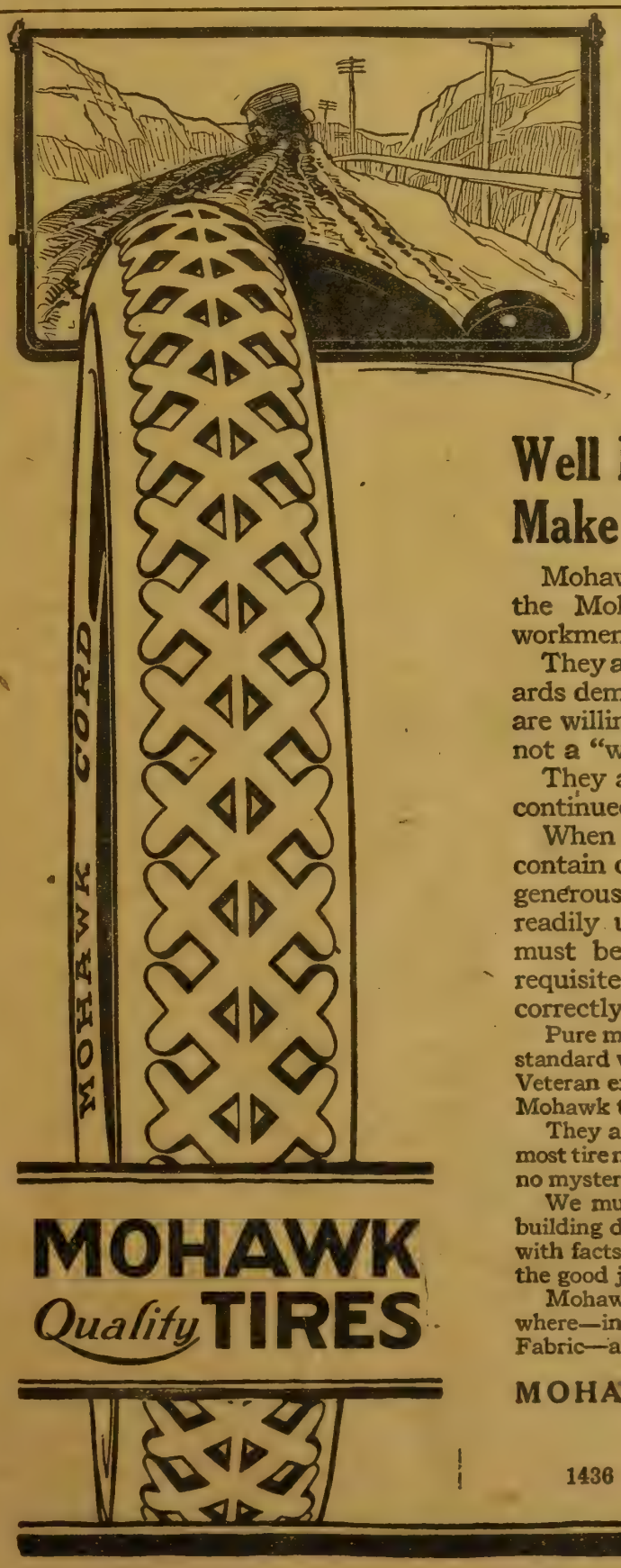
A LITTLE GIRL'S TEA PARTY

I had a little party
This afternoon at three.
'Twas very small;
Three guests in all,
Just I, Myself and Me.

Myself ate up the sandwiches,
While I drank up the tea;
'Twas also I
Who ate the pie,
And passed the cake to Me.
—St. Nicholas.

GOD IN NATURE

"There's part o' the sun in an apple,
There's part o' the moon in a rose;
There's part of the flaming Pleiades
In every leaf that grows.
Out of the vast comes nearness,
For the God whose love we sing,
Lends a little of his heaven
To every living thing."



Most troubles are best eliminated at the SOURCE. Bad roads are the SOURCE of much UNNECESSARY tire expense. ARE YOU BOOSTING GOOD ROADS?



Well Paid Mohawk Builders Make Longer Lived Tires

Mohawk tire builders—the men who make the Mohawk tire *by hand*—are expert workmen and draw expert workmen's pay.

They are well paid because Mohawk standards demand the *best* workmanship and we are willing to pay for men whose trade is not a "work" but a profession.

They are paid well enough to insure their continued, undivided interest and best efforts.

When you realize that Mohawk tires contain only the purest materials and more generous quantities of these — you can readily understand why Mohawk builders must be leaders. Their efficient work is requisite to the satisfactory completion of a correctly started product.

Pure materials. More of them—an extra ply of standard weight fabric, for example. Hand made. Veteran expert builders. Those are the reasons for Mohawk tire quality.

They are not the reasons you hear offered by most tire makers. No secret processes, for example—no mysterious methods.

We much prefer, knowing that secrets in tire building do not exist today, to supplant mysteries with facts, leaving the results of our arguments to the good judgment of the buyer.

Mohawk tires are handled by good dealers everywhere—in ribbed and non-skid treads—Cord and Fabric—and also in extra ply, hand made, Ford size.

MOHAWK RUBBER COMPANY
AKRON, OHIO
Branch:
1436 Van Ness Ave., San Francisco, Cal.

Los Angeles Markets

Los Angeles, June 4, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 59 lb.; prices to retail merchants in 1-lb. squares, 59@60.

Dairy exchange prices last week on extras:

May	21	22	23	24	26	27
'19 ...	60	60	61	60	59	59

CHEESE

Brokers' prices.

California fresh, lb., 30; price to retail merchants, 32-33.

EGGS

Fresh extras, Produce Exchange closing price, 47 doz.; price to retail merchants, 50 doz.; case count, Produce Exchange closing price, 45 doz.; price to retail merchants, 47 doz.; pullets, Produce Exchange closing price, 45 doz., price to retail merchants, 47.

Dairy exchange prices last week on extras:

May	21	22	23	24	26	27
'19 ...	51	51	50	49	49	47

POULTRY

Prices to producers: Hens, 36; broilers, 25@28; fryers, 30; roasters, 40; old roosters, 14 capons, 42; ducks, 27; ducklings, 33@34; geese, 25; turkeys, 35@40; squabs, 45.

Belgian hares, 15.

LIVE STOCK

California steers sold yesterday, June 3, on the Chicago market indicates the degree of weakness throughout the entire country on all classes of beef cattle at this time. Prices paid for these cattle in Chicago being $10.00 to $12.75 would be equal to $7.50 to $10.25 on the Los Angeles market as the shipping charges to that point amount to about $2.50 per cwt. Local market is weak at the prices quoted.

Hog receipts are more liberal than a week ago. The market is bordering on a decline of at least 50 cents per cwt., say the local packers. Feeder hogs are in great demand and the available supply seems to be very scarce.

Lambs are being received on this market in larger quantities than the market can absorb. The market is very weak.

All sheep stock is also weak in sympathy with lambs.

The Eastern markets are paying good prices for California sheep and lambs. Chicago sold today 1000 69 pound California lambs at $18.85; 1100 head 56 pound lambs, $18.50; 231 feeders at $14.75.

Kansas City sold today 1500 California sheep, $10.85 to $12.50 including yearlings.

The following prices represent those paid by local killers f. o. b. Los Angeles. County point prices are usually $1.00 to $1.50 less than these figures, dependent upon the distance from the city:

Cattle:
Good steers .....10.00@11.00
Medium steers .....9.50@10.00
Common steers .....8.00@9.00
Good cows .....9.00@9.50
Medium cows .....7.00@8.00
Common cows .....5.00@6.50
Hogs No. 1, 175-225 lbs. .....18.50@19.00
Hogs No. 2, all other weights..17.00@17.50
Sheep:
Lambs No. 1, 55 to 75 lbs.....13.00@13.50
Lambs No. 2, 65 to 80 lbs ....12.50@13.00
Wethers .....10.00@11.00
Ewes No. 1 .....8.00@9.00

POTATOES AND ONIONS

These are the actual prices obtained June 3 by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Potatoes: Demand and movement slow, market dull. Stockton Burbanks, quality generally good, sacked per 100 lbs., extra fancy 2.75@2.90, Idaho Russets, quality and condition fair 2.50@2.75. Oregon Burbanks, fancy 2.50@2.75. New stock: Homegrown Red Rose and White Rose 1.25@1.35 per lug box.

Sweet potatoes: Lug box best 1.25@1.35.

Onions: New crop, homegrown Green Onions 50 per dozen small bunches. Imperial Valley and Coachella Valley, Wax and Yellow Bermudas, standard crates, best 4.25@4.50, poorer 3.50 up., Stockton Red Weathersfield 6.00@6.50.

Carlots: Coachella district — carlots f. o. b. usual terms—hauling light, market firm, no change in prices. Demand good. Yellow Bermudas, standard crates, and Crystal Whites 3.50@3.75.

VEGETABLES

These are the actual prices obtained June 3, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Asparagus: Northern, green, local fancy, 11@12; fancy, 10@11.

Beans: Local Wax, 9 lb.; Kentucky Wonder, best 9@9½.

Beets, doz. bunches, 25@30.

Cabbage: Sales to retailers, best, cr. 2.25@2.50.

Carloads: Hauling light. Demand slow, market unsettled, prices lower. Quality and condition generally good, mostly medium size, some large. Some sales on wire orders. Carloads f. o. b. usual terms, Charleston Wakefield, Alabama cr., 2.50. Carloads f. o. b. cash track—2.30@2.40, some shipments rolled unsold.

Carrots, doz., 40@45.

Cucumbers, Signal Hill, box of 2½ doz., 1.00@1.25; Imp., 1.00@1.25.

Corn, sweet, per doz., 1.25.

Lettuce: Sales to retailers, best lettuce in cabbage crates, 75@85.

Parsley, doz., 10.

Peas: Local (San Pedro) best, 10@12.

Radishes: Round Red 20 per dozen bunches. Long White, 40 per dozen bunches. Long Red 25 per dozen bunches.

Rhubarb: Local Giant Cherry, 1.25@1.50 per packed box. Strawberry, fancy 1.00@1.35 apple box.

Spinach, doz., 25.

Squash: Imperial, per 4 basket crate, 1.00@1.10.

Tomatoes: Imperial, 4 basket crates, 2.25; small, 2.00; lug, 3.25@3.50.

Turnips, doz., 45@50.

FRUITS

These are the actual prices obtained June 3, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtons, fy. medium size, 4.50@5.00; loose, 9@11 lb. Oak Glen, Rome Beauties and Pearmains, 3.75@4.00.

Apricots: 4 basket crates, 1.50@2.00; bulk lb., 8@19.

Blackberries per tray of 15 baskets, 2.25@2.40.

Cantaloupes: Imperial Green meats, standard 45s, 5.25@5.50; flats, 12s and 15s, 2.00@2.25.

Cherries: Northern Black Tartarians, 13@14; Governor Wood, 9@10; Bings, 17@18; Beaumont district, Black Tartarians, 12@14 lb.

Figs, per 10 lb bx, 1.75@2.00.

Gooseberries, 10@11 lb.

Loganberries, basket, 20@25.

Raspberries, local, 12½@15 per basket.

Peaches: Alexandrias, per 4 basket crate, 1.75; bulk, 9@10.

Pineapple, lb., 17½@18.

Strawberries, 4.50@6.00 per 30 basket crate.

Watermelons; Imp. lb., 5.

Lemons: fy. packed, 4.25@4.50; local pack 3.00@3.50; loose, some tree ripe, 2.00@2.50.

Oranges: Valencias, medium fancy, 5.00@5.50, local pack, 3.50@4.00.

Grapefruit: Local fy., 3.00@3.50 bx.; poorer, 1.75@2.25.

BEANS

Demand and movement moderate, market firm, little change in prices. Carloads f. o. b. usual terms—pool prices, sacked per 100 lbs., choice, recleaned basis, Henderson Bush 7.50, warehouse cash to growers—best, choice recleaned, Small Whites, sacked per 100 lbs., 6.30@6.40; Large Whites, sacked per 100 lbs., 6.00@6.25; Blackeyes, sacked per 100 lbs., demand and movement good, 3.40@3.50; Tepary, sacked per 100 lbs., 2.50@3.00.

HONEY

Too few sales to establish market.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....16.00@20.00
Barley .....14.00@18.00
Alfalfa .....14.00@18.00
Wheat or Barley straw .....6.00@8.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy 26.00
Standard alfalfa .....18.00@20.00
Stock alfalfa .....14.00@18.00
Standard dairy .....21.00@22.00

GRAIN

Prices on local Grain Exchange, carlots:

Egyptian corn 3.25.
Milo maize, 2.70@2.76¼.
Barley, 2.68¾@2.70.
Feterita, 3.05.
Corn, sacked, No. 2 yellow, 3.25; No. 3 yellow, 3.20.
Wheat, 41.50@42.00.

San Francisco Markets

San Francisco, June 3, 1919

BUTTER

Quotations made daily by the San Francisco wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:
Extras 58

Prices extras past week and year ago:

May	27	28	29	30	31	June 2
'19 ...	59½	61	61	..	..	58
'18 ...	45	45	44	..	..	..

Rcts. wk. ending June 2, 425,500 lbs.

CHEESE

Dairy Exchange quotations:
Cal. Flats .....30@31
Cal. Y. A. fy. 34
Ore. Triplets 39
Jack, full cream .....25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 50

Prices extras past week and year ago:

May	27	28	29	30	31	June 2
'19 ...	50½	50½	51	..	..	50
'18 ...	40	41½	40½	..	..	..

Rcts. wk. ending June 2, 12,362 cases.

POULTRY

Hens, 34@39; roosters young, 45@50; old roosters, 20@24; broilers, 29@33; fryers, 36@38; ducks, 35@38; geese, 35@38; squabs, 60@65.

Belgian hares, live, 14@16; Jackrabbits, doz., 2.50@3.50.

LIVE STOCK

Cattle—On foot, gross weight, No. 1 steers, weighing 1000 to 1200 lbs. alive, 11@11½; 1200 to 1400 lbs., 11@11½; second quality, 10@10½; thin steers, 7@9.

Cows and Heifers—No. 1, 9@9½; second quality, 8@8½; common to thin, 5@6.

Calves — Light weight, per lb., 12½@13; medium, 11@12; heavy, 8½@10½.

Lambs, yearling, 11@11½; milk, 13@13½; sheep, wethers, 10½@11; do, ewes, 8½@9.

Hogs—Hard grain fed, 100 to 150 lbs., 18¾; do, 150 to 250 lbs., 19¼; do 250 to 300 lbs., 18¾; do, 300 to 400 lbs., 18¼.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers—Choice, 1000 to 1200 lbs.,

Cattle—Good grass steers, 1000 to 1200 pounds, 11@11½; medium to good grass steers, 950 and over, 9½@10; good heifers, 1000 and over 10@10½; good cows, 1000 and over, 9½@10; good heifers, 1000 and over, 9½@10; good cows, 1000 and over, 9½@10; medium to good cows, 900 and over, 8@9; canner cows, 5@6; good bulls, 6@7; calves, 9½@11.

Hogs — Today's market on top packer hogs, hard and well finished, weighed and delivered off cars at our plant, South San Francisco; 175 to 250 pounds, 18½; 150 to 175, 18; 250 to 300, 18; over 300, 18; under 150, 17½. Usual dock and price discounts for other weights and kinds.

POTATOES AND ONIONS

Price to wholesalers:

Potatoes: Demand and movement moderate, market steady. Quality and condition generally good. Carloads f. o. b. cash track. Garnets, 70 lb. lugs, 4¼@4½, lugs 30 cents extra.

New potatoes, 4.00@5.00.

Sweet potatoes per 100 lbs., 5.50@6.50.

Onions: Supplies liberal. Demand and movement moderate, market steady, little change in prices. Street sales: Crystal Whites, standard crates 4.00, Yellow Bermudas, standard crates 2.75@3.00, Stockton Reds per sack 4.00@4.25.

Garlic, 50@75.

VEGETABLES

Wholesale selling price:

Artichokes, doz., 15@50.

Asparagus, lb., 5@12.

Beans, String, 10@12; Kentucky Wonders, 13@15; Wax, 12@13; pole, 12@13.

Carrots, sack, 4.00@4.50.

Cucumbers, hothouse, box of 30, 2.00@2.25; other, 1.50@2.00.

Corn, doz., 20@40.

Eggplant, southern, 15@20.

Lettuce: Cr., 50@1.25.

Okra, green, lb., 20@25.

Peppers, Bell, lb., 15@30; Chili, 20@25.

Peas, lb., 3@7½.

Rhubarb, Strawberry, bx., 1.25@1.75; Mammoth, 2.00@2.25.

Spinach, 75@1.25.

Squash: Summer, 60@90; Italian, box, 1.00@1.25.

Tomatoes, Mexican, crate, 2.50@4.00; Imperial, 2.50@2.75; Southern California, 2.50@3.00; Merced, 2.50@2.75.

CITRUS

Per bx: Lemons, 3.50@4.50; lemonettes, 2.00@2.50; grapefruit, 3.00@5.00; mandarins, half orange box, 3.50@4.00; tangerines, half orange box, 3.50@4.00; navel oranges, 4.00@5.75; Valencias, 4.50@5.25.

FRESH FRUITS

Wholesale selling price:

Apples: Newton Pippins, 2.50@4.00.

Apricots: Winters, 2.50; loose, 10.

Bananas, 8@8½.

Blackberries. Southern, 2.50@3.00 cr.

Cantaloupes: Crate, 5.00@6.00; pony crate, 4.50@5.00; special, 2.00@2.50.

Cherries, 1.25@1.50 per tray and drawer; bulk, black, 10@12½; do, white, 6@8; Royal Ann, 11@14.

Currants, dr., 75; chest 21.00.

Figs, 1.50@1.75 bx.; Brunswick, 1.25@1.50; whites, 1.25@1.50.

Gooseberries, dr., 75; lb., 6@8.

Loquats, 6@9.

Peaches: Redbanks, 1.25@2.00; Sacramento, 1.75@2.00 cr.; 1.50@1.75 bx.

Pears: Winter Nellis, 3.00@4.00.

Raspberries, cr., 2.50.

Strawberries: Chests, 10.00@14.00; Longworth, 15.00@16.00; cr., 1.75@2.75.

DRIED FRUITS

Price to growers:

Apricots: Opening prices on 1919 dried apricots to the trade:

Sunsweet Quality: Ch., 25; extra ch., 26; fy., 27; extra fy., 29; fy. Moorparks, 29; extra fy., Moorparks, 32.

Growers Brand Quality: Ch., 24½; extra ch., 25½; fy., 26½.

First Quality: Standards, 19; slabs, 21. Other grades on sample.

Peaches: Packers' quotation, basis price: Standard yellow, 16; Muir, 16¼; ch. yellow, 16½, Muir, 16¾; extra fy. yellow, 17, Muir, 17½; fy. yellow, 18¼, Muir, 18¾; extra fy. yellow, 19½ Muir, 20½.

Figs: Calimyrnas, 18@20; Mission, 11@13; Adriatic, 12@15.

Prunes: Packers' quotations basis price: 30-40s, 19; 40-50s, 17; 50-60s, 14½; 60-70s, 13½; 70-80s, 13; 80-90s, 12¾; 90-100s, 12½; 100-120s, and 120s up, no price quoted.

GRAIN AND FEEDS

Barley, (1918 crop): Feed, 2.50@2.52½ per cental; shipping, 2.60@2.65, f. o. b. Port Costa.

Oats: Red feed, 2.20@2.40 per cental.

Corn: California yellow, 3.15@3.40 per cental. Egyptian, 2.75@3.25; Milo maize, 2.50@3.05.

Rye: 3.65@3.85.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.66 1-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.13	3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 1-3



The Sahara Drier

IF YOU grow Fruits or Vegetables our Drier is your Crop Insurance. Banks thrive and grow rich by a small margin of profits. Banks protect themselves against losses. The farmers persist in taking chances of losing their crops and entire year's work. The thrifty farmers are setting about this year to stop these losses and protect their years of labor and investment.

JUST A FEW of the Growers who know what they are doing—these men have just placed orders for "SARAHA DRIERS." Look them over—they are the leading farmers in their respective districts—they make few mistakes:

D. B. Gray, Fowler, Calif.—Raisins.
Chelini & Reith, Sonoma—Prunes.
Sanitary Fruit Co., Red Bluff.—Prunes.
D. D. Erwin, Chico.—Prunes.
Piru Land Co., Piru, Cal.—(5 Driers) Apricots.
Jos. Feige, Healdsburg.—Prunes, Apples.
H. B. Reed, Chico—(8 Driers) Prunes, Apricots.
Geo. W. Clemson, Owensmouth—(6 Driers).
Kelly Bros., Chico.—Prunes.
G. L. Barham, Chico.—(2 Driers) Prunes.
Anderson-Barngrover, San Jose—(2 Driers).
A. R. Friesen, Dallas, Ore.—Prunes.

There are many others. See our Representatives for catalogue and particulars.

Cameron-McDonald, Chico.
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California Dried Products Co.
149 California St.
San Francisco California

Quick-Fat

The NEW FEED
For Hogs Steers & Dairy Cows

Alfalfa and Molasses base.

Concentrated, re-enforced and partially predigested.

The analysis, or feeding value, has been increased to practically the same as barley.

Feed some of it in place of some of the grain you now use.

Trial sack (100 pounds) $2.50, freight prepaid.

I. S. CHAPMAN & CO., Inc.
Chapman Bldg., San Bernardino

MOTOR MEN OMINEE TRUCKS
1 to 5 TON

Commerce TRUCKS
1 to 2 TON

Standard Units Balanced Into One Unit Dump Trucks—All Sizes
Complete Line of Parts for All Models

FREEMAN A. McKENZIE CITY GARAGE (Inc.)
Main 7853
DISTRIBUTORS FOR CALIFORNIA AND ARIZONA
212 Locust Ave., Long Beach 1205 South Olive St. Los Angeles

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran 43.00@44.00; mill run, 42.00@43.00; Rolled barley, 52.00 @54.00. Linseed oil cake meal, nominal; cocoanut cake or meal, 41.00@42.00 per ton.

HAY

Under date of May 31, Scott, Magner & Miller says:

Fancy Wheat Hay
(light 5 wire bales).....19.00@21.00
No. 1 Wheat or Wheat and Oat Hay .....16.00@18.00
No. 2 Wheat or Wheat and Oat Hay .....12.00@15.00
Choice Tame Oat Hay.....17.00@19.00
Other Tame Oat Hay.....12.00@15.00
Wild Oat Hay.....11.00@14.00
Barley Hay .....11.00@14.00
Alfalfa Hay .....15.00@19.00
Stock Hay .....11.00@13.00
New first cutting Alfalfa, in order .....10.00@13.00
No. 1 Barley straw, bale.....50@80

Citrus Markets

Los Angeles, June 4, 1919.

Valencias are being given a royal reception and the navels are being pulled from cold storage and most of them being sold at long prices.

Lemons are rapidly taking on hot weather prices and heavy shipments are being made.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 23,124 cars, lemons 5795, total 28,919. To same date last season; oranges 10,343, lemons 3106, total 13,349. Central California this season; oranges 3158, lemons 354, total 3512. Last season to same date; oranges 2503, lemons 115, total 2618. Northern California; oranges 244, lem. 2; last year same date oranges 202.

AT THE AUCTIONS

May 28

New York: 48 or., 6 lem. Market slightly lower. Nav. 4.10@6.60, Val. 3.80-7.75, lem. 3.20-4.30.

Pittsburg: 9 or., 3 lem. Nav. 3.35-3.95, Val. 3.45-5.80, lem. 2.45-3.95.

Boston: 12 or., 6 lem. Nav. 4.50-5.35, Val. 4.45-6.00, lem. 2.40-4.15, grapefruit 6.20-7.35.

Philadelphia: 7 or., 2 lem. Nav. 2.30, Val. 2.65-6.35, lem. 2.55-3.10.

St. Louis: 7 or., 2 lem. Val. 2.95-5.40, Sweets. 4.80-5.05, lem. 2.70-3.25.

Cleveland: 11 or., 4 lem. Nav. 5.80, Val. 3.30-6.25, lem. 0.70-3.95.

June 2

New York: Val. 4.95-7.00, Nav. 4.10-6.70.

Boston: 34 or., 6 lem. Val. 2.45-6.10, Nav. 4.15-6.80, Seeds. 3.25-3.90, Mikes. 4.00-4.60, grapefruit, 3.75-6.15, lem. 3.50-5.10.

Pittsburg: 9 or., 5 lem. Val. 2.95-5.95, Seeds. 2.65-3.25, Nav. 3.85, lem. 5.30-5.60.

Cincinnati: 7 or., 5 lem. Val. 2.55-5.50, Nav. 4.35, lem. 6.20-7.10.

Philadelphia: Val. 4.05-7.40, Sweets. 4.50-5.50, Nav. 4.20-4.40, Mikes. 3.20-3.60, grapefruit, 2.85-4.75, lem. 3.90-5.45.

Cleveland: 9 or., 3 lem. Val. 3.10-5.80, Nav. 3.95-5.20, lem. 3.55-6.15.

FRESNO POLAND-CHINA BREEDERS

(Continued from Page 786.)

Constitution and by-laws were adopted and the following were elected officers: President, Albert Bucklin, Fresno; vice president, A. J. Van Cleef, Riverdale; secretary-treasurer, Walter C. Ficklin, Fresno; directors, Fred Gatewood, Fresno, and E. R. Eichner, Selma.

The object of the association is the producing of more and better hogs of the Poland-China breed, and to secure the highest market prices for the product. William Bernstein of Kings County at the close of the meeting announced plans for a "Pork Day," to be held at Hanford early in November, which is to be on an elaborate plan, when exhibits of swine will be had from all parts of the valley, and a demonstration given of a grade hog and a pure bred one to show the difference in the value of pure breeding.

Book Review

NEWER KNOWLEDGE OF NUTRITION

"Newer Knowledge of Nutrition, the Use of Foods for the Preservation of Vitality and Health," by Professor E. V. McCollum, School of Hygiene and Public Health, the Johns Hopkins University, published by the MacMillan Company, New York, at $1.50.

There was never so much interest in nutrition and the securing of the greatest values in foods as today. Many Pacific Coast dairymen will recall the recent visit of Professor McCollum, at which time he made addresses on the values of milk, in fact of all dairy products, in the upbuilding of the human race. These dairymen will doubtless be glad of the opportunity of renewing the information given by Professor McCollum in these addresses. This may be done by securing this valuable book of 200 pages which may be secured from the MacMillan Company. Professor McCollum says in his preface:

"The investigations of the last few years have, fortunately, led to great advancement in our knowledge of what constitutes an adequate diet. Such knowledge can, if rightly applied, greatly assist in enabling us to make use of our food supply in a manner which will avoid mistakes sufficiently serious to become reflected in a lowering of our standard of public health. It seems certain that pellagra is a sequel to the adherence to a faulty diet for such a period as to materially reduce the powers of resistance of the body to infection, and reasons are presented in support of the view that there is a much closer relationship between the character of the diet and the incidence of tuberculosis than has hitherto been believed."

There are seven chapters in the book touching upon the biological method for the analysis of a foodstuff, scurvy, vegetarian diet, diseases referable to faulty diet, considerations which should guide in planning diet, etc.

FIG OUTLOOK 1919

The coming season will see the largest planting of figs in the history of the state. Many investors in the southern part of the state are planning fig acreages throughout the San Joaquin Valley from Madera to Bakersfield. Acreages in Madera, Merced and Stanislaus Counties will be very large, while Fresno will maintain its present leading position as a fig producing county. Increases in fig growing are noted in Tulare County and the industry has been given impetus in Kern County.

Eventually California figs will dominate the country, if not, indeed, the world market!

PREPARING FOR DRYING

The California Dried Products Company of San Francisco, manufacturers of the "Sahara Drier", report a great deal of interest developing among the farmers who are setting about this year to protect their crops from adverse weather conditions such as were experienced last year by the California growers.

During the past week some of the most prominent growers of California had placed orders for driers. Among them H. B. Reed, one of the largest prune and apricot growers of Butte County, bought a battery of eight units; Piru Land Company, Piru, five driers; Geo. W. Clemenson, a big peach and apricot grower of Owensmouth, six driers; also A. R. Frieson, a large grower of Dallas, Oregon. Eventually every grower will find need for a drier of some kind as part of his farm equipment.

WEATHER CONDITIONS

San Francisco, California, May 31, 1919.

Stations	Rainfall: Wk.	Season.	Norm.	Temp: Max.	Min
Eureka	.26	39 73	44 99	68	44
Red Bluff	.00	26 18	21.57	102	56
Sacramento	.00	17.20	19.94	98	52
San Francisco	.00	25.64	22.19	80	50
San Jose	.00	18.87	16 71	92	44
Fresno	.06	6.88	9.58	98	56
San Luis Obispo	.08	18.05	20.41	88	44
Los Angeles	.01	8.57	15.57	76	56
San Diego	.04	8.74	9.98	68	58

TEAGUE QUALITY
CITRUS TREES
Orange, Lemon, Pomelo and Lime, bud selected (pedigreed) trees, subject to immediate delivery. Correspondence invited and prices cheerfully quoted
Founded in 1889
R. M. Teague Citrus Nurseries
SAN DIMAS, CALIFORNIA

Register of Merit Jerseys
at Auction
June 16, 1919 at Carlton, Oregon
30 HEAD
St. Mawes-Rosaire Olga Lad Blood Lines

St. Mawes has 20 daughters in the R. of M., including St. Mawes Poppy, 952.28 pounds fat; St. Mawes Susy, 873.60 pounds fat; St. Mawes Koffee Violet, 777.05 pounds fat; Boise Queen, 745.63 pounds fat; St. Mawes Blossom, 713.84 pounds fat. While comparatively a young bull, Rosaire Olga Lad has 31 R. of M. daughters and more qualifying as fast as tested. Among his daughters are St. Mawes Beauty, 773.91 pounds fat; St. Mawes Tisha Baby, 731.36 pounds fat; St. Mawes Susy Olga, 698.49 pounds fat. On our farm we also bred and developed the four highest record full sisters of the breed (daughters of St. Mawes and Susy of Forestdale), as follows:

St. Mawes Susy, 873.63 pounds fat.
Lucy of Pleasant View, 625 pounds fat in 10 months.
Susy's Twin Maiden, 675.75 pounds fat.
St. Mawes Blossom, 713 pounds fat.

Many of their descendants are included in this sale, also many granddaughters of St. Mawes and daughters and granddaughters of Rosaire Olga Lad, many with R. of M. records up to 698.49 pounds fat, and a very choice lot of heifers and heifer calves, as well as our junior herd bull, Poppy's St. Mawes (dam, St. Mawes Poppy, 952.28 pounds fat, sire, Rosaire Olga Lad), who already has eight daughters in the R. of M.

Catalog will be published giving complete description of offering. Those that mention this paper in requesting catalog will also receive picture of the four highest record full sisters. Send catalog request to sale manager.

Ed Cary, Owner, Carlton, Oregon
E. A. Rhoten, Sale Manager, Salem, Oregon
Col. J. W. Hughes, Auctioneer, Forest Grove, Oregon

Sulphur



It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards SIX times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of sulphur, also EAGLE Brand, Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards, the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100 per cent pure, in double sacks, for Dry Dusting and making Paste—(Atomic Sulphur).

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $4 per day for making the solution and applying same.

To create additional available plant food, drill into the soil 100 to 400 pounds per acre DIAMOND "S" BRAND POWDERED SULPHUR 100 per cent pure. This has increased various crops up to 500 per cent.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dry Bordeaux, Dusting Sulphur Mixtures, etc.

And "Anchor" Brand Standard LIME-SULPHUR SOLUTION 33 DEGREES BE., Sulphur Paste, Nicotine, Blackleaf 40, etc. Fungicides and Insecticides.

Carried in stock and mixed to order.

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We are equipped to make immediate shipments. Send for "ILLUSTRATED BOOKLET," also booklet "NEW USES FOR SULPHUR", Price-list, and Samples.

Please state for what purpose you use the sulphur, quantity needed, and date of shipment preferred. Telephone Kearny 811.

NAPIER GRASS

Now is the time of the year to plant Napier Grass.
Now is the time to secure the best rooted plants that are sure to grow.
Water freely.
Price: 100 Plants, $8.00, postpaid; 1 dozen Plants, $1.25, postpaid; ½ dozen Plants, 75c, postpaid.

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Hay, Grain, Potatoes
Cheese, Butter, Eggs
Poultry, Wool, Beans, Honey
and other Farm Produce
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Greenwood DurocS
are not only selected to measure up with the best individually, but care is taken that proper blood lines are used so that their excellence will breed on.
Prepotency Counts!
Greenwood Farm Live Oaks, Sutter Co., Cal.

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Noted for its BERKSHIRES of size and quality. Escalon Majestic, a son of the 1917 G. C. Majestic King 6th, is herd sire. Satisfaction goes with every animal shipped.

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Economy Stock Powder
A general conditioner, a worm expeller and a disease preventive.
Send for FREE SAMPLE and our BOOK on LIVE STOCK.
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Hearst Bldg. San Francisco, Cal.

Angeles and Cleveland Forests Patrolled by Airplanes

THE Angeles and Cleveland national forests in Southern California are now patrolled daily by airplanes. The service began on June 1. On the same day observations covering a large part of the Angeles national forest began from a captive balloon stationed over the army balloon school near Arcadia, in Los Angeles County.

Two routes of airplane patrol work will be operated from March Field, 12 miles southeast of Riverside. Two planes will be used on each route, the routes will each be approximately 100 miles long, and each route will be covered twice a day.

This will be the beginning of experimental work in which the adaptability of aircraft to forest patrol work is to be thoroughly tried out. If the tests should prove successful it is expected that the airplane patrols will be extended before the end of the 1919 season, and that airplanes will become a permanent feature of the ceaseless battle against fires in the national forests.

The airplane routes from March Field, in Riverside County, will afford an opportunity to survey about 2,000 square miles in the Angeles and Cleveland national forests. The airplanes are not equipped with wireless telephone apparatus of such a nature that they can communicate with the ground without the installation of expensive ground instruments. Warnings of fires will be transmitted by means of parachute messages dropped over a town, the finder to telephone them to the forest service; by special landings made to report by telephone; and by returning to the base and reporting from March Field direct to the forest supervisor.

Fires will be located and reported by squares drawn on duplicate maps, one to be in the possession of each airplane observer and another to be in the office of the forest supervisor.

The observation balloon over the Arcadia field is to be maintained at an elevation of about 3,000 feet from 7 a. m. until 2.30 p. m. each day. The student detachment-learning observation, now stationed at Mount Wilson, also will render fire lookout service. Reports of fires from both the balloon observer and the Mount Wilson detachment will be telephoned to the army balloon school and transmitted to the forest service office at Los Angeles.

A fire-fighting truck, with ten enlisted men, will be stationed at Arcadia as part of the fire suppression forces and will be subject to the call of the forest service.

PROVIDING FOR BIG WHEAT HARVEST

The railroad administration writes that it is giving careful consideration to the measures necessary for the satisfactory transportation of the anticipated large crops of grains. The department of agriculture estimates that the yield of winter wheat will exceed 900,000,000 bushels. A fair estimate of the yield of spring wheat approximates 300,000,000 bushels. The total yield of wheat this year will in all probability exceed the total of last year by from three to four hundred millions of bushels. No estimate of other grains is of course possible at this time, but barring unusual climatic conditions, it can perhaps be properly expected that the tonnage in grain that will be produced this year will exceed that of last year by a considerable margin.

The stable price fixed last year by the government on wheat naturally provoked a desire on the part of the producer to realize his earnings as quickly as possible, and since a stable price has again been fixed by the government for this year's crop, it is assumed a similar condition will obtain. Last year this economical condition, coupled with more or less disarrangement in ocean tonnage and consequent disruption in shipping, resulted in such an acute situation at the interior grain markets and at seaports that it became necessary to install the so-called "permit system." And it is expected that the system will again be inaugurated with the opening of the new wheat season, and in view of that probability the railroad administration is already preparing the necessary machinery so that it may be prepared to act without delay at the proper time. Conferences have already been held with representatives of the grain corporation.

BIG GRAIN CROP IN IMPERIAL

By A. M. Nelson

WHEN the Imperial Valley grain harvest starts, then the national grain harvest starts. This year Imperial Valley had a carload of wheat, its first, rolling toward market on May 9 and since then the harvest there has been in full swing, proceeding as fast as the threshing equipment would permit.

The wheat acreage in the valley, which heretofore has been less than 10,000 acres, is this year estimated between 40,000 and 50,000 acres. The wheat shortage has led many flouring mills to close or reduce their outputs, and there have been many buyers in Imperial Valley to contract for the valley wheat as the first which will reach the market. Varying premiums over the government guarantee price have been paid, and the valley ranchers will record this year's wheat crop as one of good profit. Figuring on an acreage of 40,000 with thirty-five bushels as an average, the valley crop this year will bring approximately $3,000,000.

Regarding the varieties planted in the valley, W. S. Wilkinson, director of the University of California experiment station in Imperial Valley, says:

"Nearly all of the early commercial plantings were made with either eastern varieties of wheat, which were poorly adapted to our conditions, or with Sonora, whose origin is in the State of Sonora, Mexico. While these varieties yielded fairly well when given the proper conditions, the quality of the grain was not good and the grain was largely sold locally for feeding purposes. Experiments carried on at the experiment station at Meloland gave results which indicated other varieties as superior to those already being grown. Among these the most promising were the White Australian, Defiance, and the Early Baart, all three yielding a grain which is much more in demand by the millers. Of these three, the Defiance is practically free from the attacks of rust. Of these varieties Early Baart has become the most popular, and it is esti-



The Motor Truck a Farmer Would Build

IF FARMERS pooled their ideas for building a practical motor truck that would best serve their everyday hauling needs, it would offer nothing not now found in the International Motor Trucks.

The reason is plain. The International is the result of a thorough knowledge of farm conditions. This Company knows country roads. Ample provision has been made to withstand the strain and stress of highways that place an unusual tax on parts subject to wear. Only the best materials are used, after thorough test. The truck is simple and durable.

International Motor Trucks

will do the work expected of them at a cost farmers can afford. They give a service that is reliable, prompt and economical in the severest test of all—**steady performance in actual daily use.** They have ample power for any emergency and can be depended upon to keep going every day in the year.

Farmers everywhere find an International Motor Truck a source of profit from the outset. It saves time, labor and distance. Markets are brought to the door and better prices are possible for farm produce, which retains all its freshness. The item of return loads is an important one from the standpoints of both business and convenience.

There are four sizes of International Motor Trucks —1,500, 2,000, 3,000 and 4,000 pounds capacity, with bodies suitable for every kind of hauling.

We have a dealer, a branch house, or a service station somewhere near you, where the line can be seen, or we will send full information promptly if you will write us.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines

Binders Push Binders
Headers Rice Binders
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Disk Harrows
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Planting and Seeding Machines

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Haying Machines

Mowers Side Delivery Rakes
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Tedders Loaders (All types)
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Cream Separators (Hand)
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Manure Spreaders
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Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

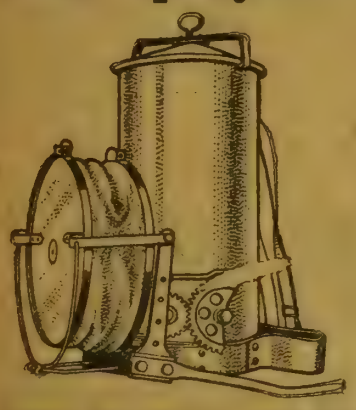
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Standard Size - - $18.00
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BEEMAN

The Inexpensive Tractor For Small Ranches



Motors Equipment & Tractor Co.
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When Writing Advertisers, Mention the Cultivator.

mated that of this season's planting, two-thirds is of that variety.

Among the fields harvested in 1917-1918 season it was not an uncommon occurence to find some which averaged fifteen to eighteen, or even up to twenty-five sacks to the acre, or from thirty to fifty bushels. This season even greater yields can be expected with the greater experience in planting and the obtaining of more and better machinery to harvest the crop. This yield, compared with the average of the state for several years past, fifteen to twenty bushels, shows quite an advantage."

GRASSHOPPER WARNING

The following warning is being sent out by the office of the state horticultural commission:

A general survey of the grasshopper situation shows that this pest is now making its appearance in great abundance. In some of the hills certain species are already flying.

Many localities may expect thousands of dollars worth of crops destroyed if the most drastic control measures are not taken up at once. Special warning is given to the farmers in the counties of Tehama, Glenn, Colusa, Yolo, Trinity, Merced, Tulare, Kern, San Luis Obispo, Placer, Stanislaus, Yuba, Sutter, Plumas, Siskiyou, Shasta, Butte, Fresno, Kings, Ventura and Imperial.

Poison the grasshoppers in fields and orchards with a mixture of the following:

Bran, twenty-five pounds; Paris green, one pound; cheap molasses, two quarts; lemons (ground very fine), one-half dozen; water, four gallons. Spread the wet mixture very thinly where grasshopers are present.

SHAFTER FARM BUREAU BUILDS WAREHOUSE AND ELEVATOR

One of the livest organizations of its kind in California, the Shafter farm center in Kern County near Delano, is taking the lead in the movement for cooperative marketing for farm products for grain and corn. Plans were discussed at a recent meeting of this organization, and a considerable sum of money already has been pledged to build a warehouse for agricultural products and for the erection of a bulk grain handling elevator.

N. E. Vandam is the director of the Shafter center. He has recently gathered some statistics which prove that the Shafter farm center products which can be handled through the elevator are sufficient to pay for the installation of such a plant from the saving it will effect in one year.

Grain growers throughout the state have become more and more interested in the plans being urged by such concerns as the Sperry Flour Company and representatives of the college of agriculture of the University of California and others who have been making a study of the grain handling matter, to change over from the wasteful grain sack to the bulk handling system. Metal grain bins and tubular steel elevator, together with grain tight wagons, can handle the California grain crop as it comes from either the combined harvester or the stationary thresher at a minimum of expense of labor instead of the heavy handling of grain in the old fashioned jute sack. Bulk handling is best.

Sierra national forest, which includes 1,700,000 acres, extending from Kings river to Yosemite park is one of the biggest in California. It is being protected from fire by lookouts on the highest points, overlooking vast areas. At the first sign of smoke in the timber, rangers and guards will gallop to spot threatened and if necessary summon help from all the mills within a radius of many miles. Arrangements have been made with all the mills to render assistance by sending out all available men on call from a forest ranger or forestry official.

Forest Supervisor Benedict announces that heavy penalties will be imposed on anyone caught setting fires in the national forest.

There are four causes for forest fires: tourists who cause ten per cent of the blazes through carelessness in dropping lighted matches or cigars; brush burning settlers, thirty per cent; lightning, forty per cent, and incendiaries, twenty per cent.



Apricot Dryers
Save $50 per Ton in Drying Expense By Using The
International Dehydration Machine

Every FRUIT and VEGETABLE GROWER and all CANNERIES should use this approved method without delay. The establishment of an International dehydrator in any community is a mark of progressive distinction. "Fifty-four per cent. (U. S. Government Report) of vegetables and fruit that come to maturity are lost."

If 46 per cent. of the present crop constitutes the prosperity of your community today, what would 54 per cent. IN ADDITION do for the merchant, the banker, the tradesmen and for the producers themselves?—to say nothing of the increased land values—an increase from the present approximately $50 per acre to $250. No industry will add more to the material good and general wealth of the community than a local International Dehydrating company.

Is it not good business to convert all surplus crops into real money? We are prepared to do our part, the market is ready and waiting.

This machine is not a "toy" or a "hot box." It is a real commercial proposition. We completely guarantee the perfectness of our equipment.

SOLD ON PAYMENT TERMS, at the rate of $500 per ton basis.
MACHINES Made In Five Ton Units up to 100 tons per day capacity.
VISIT OUR DEMONSTRATION PLANT AT SAN GABRIEL.
WRITE OR WIRE FOR LITERATURE. ACT AND ACT TOAY.

International Dehydrator
500 Mission Drive, San Gabriel, Cal. Phone San Gabriel 799-W.

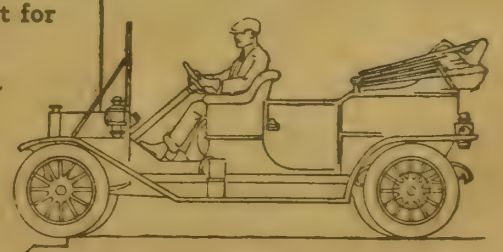


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—because Zerolene meets with scientific accuracy the lubrication needs of the car. It is refined from selected California crude oil. Deposits least carbon. Get a Correct Lubrication Chart for your car.

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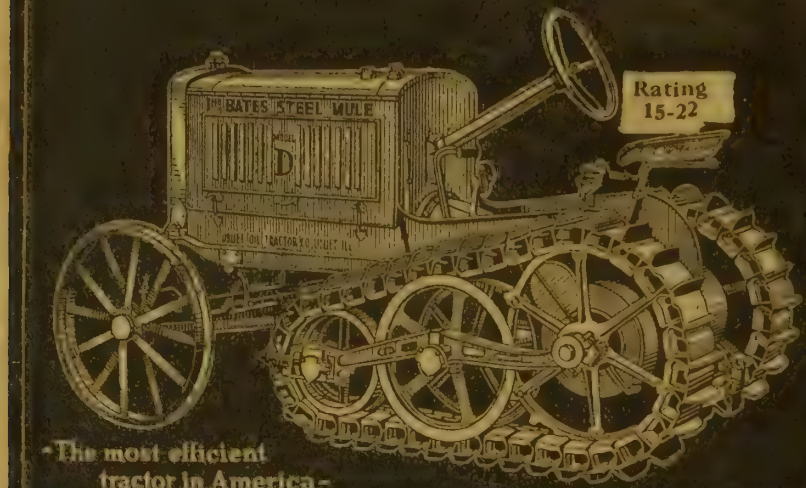
The twin crawlers of the Bates Steel Mule lay a firm runway on the soft ground which runway is held from slipping by twenty-four cleats. This runway has a ground pressure of less than 3½ pounds per square inch and being geared to it, the tractor pulls as big a load on soft ground as it can on firm footing.

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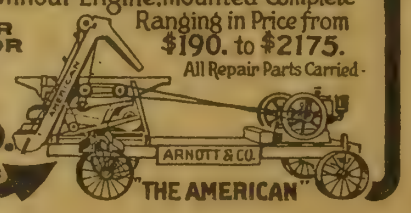
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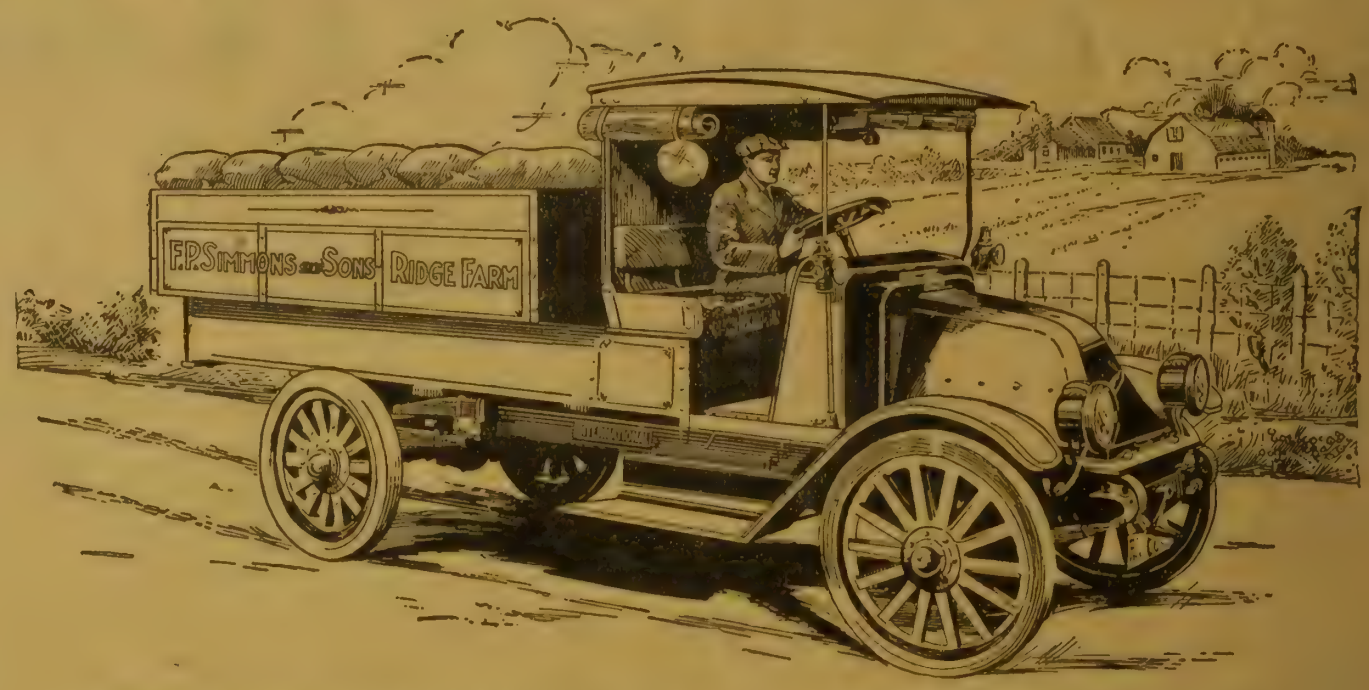
Vol. LII — June 14, 1919 — No. 24

AN IMPERIAL HIGHWAY



There are not many cloudy days in the Imperial Valley even in winter. They give wonder effects when they do come, and are worth a trip across the continent to see. But the best feature of this picture is the highway under the clouds. There are 130 miles of such highway in that valley which less than a score of years ago was absolute desert. A new county bond issue of a million and one-half is contemplated July 1, likewise there will be a $40,000,000 state bond election the same day.

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California Cultivator

Vol. LII, No. 24 | Los Angeles, June 14, 1919 | One Dollar Yearly

Opening Guns for Unified Agricultural Organization

By R. P. Royce

THE opening guns of Organized Agriculture were fired at a meeting of several hundred farmers at Modesto on June 6. The caliber used for the opening attack can be guaged by the men who did the firing. There were A. A. Elmore, president of Washington State Farmers' Union; John A. McSparran, master of the Pennsylvania State Grange; Dr. W. J. Spillman, formerly of the United States department of agriculture; Milo D. Campbell, president of the National Federation of Milk Producers; Charles S. Barrett, national president of the Farmers' Union and Senator Thomas P. Gore, chairman of the senate agricultural committee.

The searching barrage laid down by these hard hitters disclosed the lamentably weak state of the farmers defenses, and at the same time the way was pointed out for the farmers to strengthen their position so as to withstand all attacks and to place themselves in a position to assert and demand a fair deal at the hands of every agency. The answer is simple —organization and cooperation—increased support of the many organizations and cooperation between these various organizations for their mutual benefit.

In other words, it is proposed that the farmers apply the same tactics used by the allies in winning the war —unified command and the bringing of all organizations together under one parent organization. Labor has federated the many specialized unions and created the American Federation of Labor and that organization stands for all labor. It is proposed that the National Board of Farm Organizations serve the farmers in the same way. The idea is big—but agriculture is the biggest industry. To the man who suggests that it will never be possible to organize all the farmers, John McSparran stated that it was not necessary. He declared that organized labor constituted only about 15 per cent of the total, yet that 15 per cent dictated policies for the other 85 per cent, and he further stated that the many farm organizations represented between 10 and 12 per cent.

The trouble is not that the farmers are unorganized, but that they have lacked a central organization that can represent all. The National Board of Farm Organizations was created to fill this need. It is an association of the following organizations.

Farmers' Educational and Cooperative Union of America; Farmers' National Congress; National Agricultural Organization Society; National Conference on Marketing and Farm Credits; National Council of Farmers' Cooperative Associations; National Dairy Union; Pennsylvania Rural Progress Association; National Milk Producers' Federation; Federation of Jewish Farmers' of America; Farmers' Society of Equity; American Association for Agricultural Legislation; Intermountain Association of Sugar Beet Growers; Corn Belt Meat Producers' Association and the Pennsylvania State Grange.

It is expected that eventually practically all organizations will affiliate and then vital problems affecting agriculture can be handled to the interests of all. A knowledge of the power wielded by the American Federation of Labor suggests the mighty influence a big representative farmers' organization would have. Much of the influence of the American Federation of Labor is due to the fact that they are constantly "on the job" at Washington and have erected a permanent building there for their headquarters. The National Board of Farm Organizations plans to build at Washington a "Temple of Agriculture" and have formulated a plan for financing that involves raising a fund of $8,500,000. The fund will be used to erect and endow a permanent headquarters—$1,250,000 to be expended on the building. The money will be raised by popular subscription and it was partially for this reason that the Modesto meeting was held.

Emphasizing the paramount need for an organized agriculture, McSparran declared that the time had come when the American farmer must discard the idea that he is "independent" and has no need for organization.

McSparran gave it as his opinion that the farmers' predicament at the present time is a direct result of this old "independent" attitude of mind and stated that until the American farmer reached a realization that only through cooperation and organized effort could he hope to cope with organized forces he would continue at the mercy of them. American agriculture is at a critical period, he said. The average farmer is not making a financial success and tenancy is increasing at an alarming rate. The hope of the nation has always rested on the clear thinking farmer and unless conditions improve and the farmer is able to secure a higher standard of living, tenancy would increase and the farms be operated by a class of tenants who will be satisfied with a lower standard of living—such a class will not strengthen the nation.

The only way to prevent the evils of tenantry is to make farming attractive and profitable and unless the farmers work and act together they can not expect to receive adequate returns for their labor or investment.

McSparran was followed on the program by Dr. W. J. Spillman, recently resigned chief of the farm management department of the United States department of agriculture. Spillman declared that the farmer was entitled to the same standard of living enjoyed by the city man who operated an enterprise of the same capital investment. Furthermore, Spillman insisted that the farmer's labor return should provide a salary sufficient to insure such a standard of living and that in addition his business should return a fair rate of interest on his investment, and that the man operating on borrowed capital should be able to pay his interest charges and secure a decent profit. Spillman only contended for a fair profit and stated that the purpose of organization should not be construed to mean excess profit.

The only way to insure a satisfactory standard of living for the farmer is to make it possible to market his products on a basis of production cost. Spillman argued that the problem of production costs was the biggest problem the American farmer had to solve and that a knowledge of such costs was fundamental to the structure of agriculture. With a knowledge of the various production costs, and an organization to work through, the farmer would be in a position to inform the consumer as to what it cost to produce his products and to enforce a price based on them.

Using milk as an example, he stated that when the government began this cost investigation about 12 years ago no one knew anything about the cost of producing milk. Four of the best managed dairy farms in Wisconsin, Michigan, Pennsylvania and North Carolina were selected, and when the data gathered was checked up it was found that all four were losing money. Even at the beginning of the war, when mounting feed and labor costs caused the dairymen suplying milk to New York to act for increased prices based on cost of production, no one really knew what would be a fair price. The producers were told by the distributors and consumers that if the dairyman had never gotten cost for his products he was not entitled to it then. It took a strike to educate the public to the justice of the producers' demands.

Spillman urged that the agricultural interests encourage widespread investigation to determine production costs, and then insist that marketing be based on that proposition. Spillman charged that when the government fixed the price of wheat at $2.20, thereby causing a billion dollar loss to the farmer, that the price was not based on production cost, but was established at a figure that would give labor a five cent loaf of bread. Had the farmers been organized and armed with production figures the government would have listened to them.

Senator Gore stated that his experience as chairman of the senate committee on agriculture had convinced him of the advisability of agricultural organization, and he agreed with Spillman that a knowledge of production costs was fundamental to the farmers' welfare. He frankly stated that his observation had been that the farmer was lucky if he got justice, and that one reason why he opposed fixing a price on wheat was because he knew the farmer would get the worst end of the deal. To indicate how unorganized agriculture was at the mercy of organized interests he cited the instance of his attempt to force through a pure feed amendment calculated to protect the buyer and that it was defeated by the organized manufacturers. He also declared that had agriculture been organized "congress would never have passed the fool daylight saving law."

Milo D. Campbell, president of the National Milk Producers' Federation, threw considerable light on the present fight being waged by certain interests against the milk producers of this state. He said the fight was "old stuff" — that the identical fight had been made against similar organizations in other parts of the country. He said that the California Milk Producers' Association was the best organization of the kind in the United States and he urged that the members stand solidly behind the officers and that they be not enticed away by seemingly better prices offered by privately owned competing plants. Campbell said such tactics were employed elsewhere in an effort to break up cooperative enterprises and that the increased prices would be maintained just long enough to accomplish such ends. He paid a very high tribute to James M. Henderson, Jr., president of the Associated Dairymen of California, by saying that while he had never met Mr. Henderson, he knew of his work and he wished that there was such a man in every state.

Campbell said that an effort would be made to amend the Clayton act so as to more definitely exempt farmers' organizations from coming under its operation.

Charles S. Barrett, president of the Farmers' Union, who was sent to the Peace Conference to represent the cause of American agriculture, told of his successful trip.

A resolution was adopted to submit an amendment to the covenant of the League of Nations to establish an international bureau of agriculture.

Other speakers on the program were: J. J. Hardie, president of the California Farmers' Union; A. A. Elmore and Maurice McAuliffe, president of the Farmers' Union of Kansas.



Mostly from U. S. D. A. at Riverside

First gentleman, standing at reader's left, A. D. Shamel, bureau of plant industry; Silas C. Mason, in charge of dates and other plant industry work; Avery C. Hoyt, secretary of state horticultural commission; H. S. Fawcett, citrus experiment station; E. M. Ehrhorn, Hawaiian Islands; Dr. W. P. Kelley, citrus experiment station; G. P. Rixford, bureau of plant industry; C. L. Marlatt, chairman federal horticultural board, bureau of entomology. Other convention photos on page 805.

Agricultural News Notes of the Pacific Coast

Northern California

Alameda County farm bureau announces sufficient labor to meet all needs in that county.

Roseville center of the Placer County farm bureau, is working for unionization of rural schools.

The Solano County horticultural commissioner is destroying weeds along county highways with sprays.

Number one Bartlett pears will command $85 per ton f. o. b. point of shipment is the report from Sacramento Valley.

Escalon, San Joaquin County, is making much of its alfalfa into alfalfa meal. Several hundred tons have been shipped.

Rice growers of Glenn County are taking steps to form an organization to affiliate with the Pacific Rice Growers' Association.

Seven to one is the result of the vote for good roads bonds in Sonoma County; the plan calls for bonding the county for $1,640,000.

Commissioner Gould of Yolo County has reports from various sections of the county that grasshoppers are destroying young almonds.

Yuba County is planning for a general squirrel killing campaign under direction of George W. Harney, county horticultural commissioner.

Livermore Valley, Alameda County, reports immense grain and hay crops. Heads of grain are well filled. "All grain is bright, firm and plump."

Sacramento Valley rice lands have greatly increased in value because of its being shown that wheat does well on such lands rotating with the rice.

The Chico-Nord-Cana irrigation district, proposed for Butte County, is being seriously discussed by producers whose lands come under the ditch.

Sonoma County wool growers report sales ranging from 57 to 61½ cents. There seems to be a slump in the wool market, however, and all buyers have been called off.

Anthrax is the cause of the death of a 14 year old girl on a ranch in Dixon, Solano County. Yolo County stock is suffering severe losses because of this disease.

Growers who have contracted their peaches for a term of years are again asking the canners to advance prices to a level more in keeping with present day expense of production.

The state highway commission at several points between Willows and Colusa is requiring rice growers to pump the water which overflows into the highway back behind their levees.

Local meetings of the Tehama County farm bureau will be held at Richfield, June 16; Corning, 18; Bend, 20; Los Molinos, 23. Proberta meetings are postponed until harvest is over.

Some San Joaquin County table grape growers are discussing the labor situation and urging the use of the women's land army, claiming reduced cost even if it is necessary to employ men to carry lug boxes.

A delegation of Colusa County raisin growers has gone to Fresno to ask the association for higher price on Thompson Seedless as the price fixed, they say, is not in proportion to the high price of labor, shook and other material.

Central California

Tulare County reports swarms of grasshoppers.

Stanislaus County's barley is now being harvested.

Several San Joaquin packing houses are busy packing raisins.

Tulare County will hold its agricultural fair at Visalia, October 13-18.

A 17,000 acre tract at Planada, Merced County, it is announced will be planted to figs.

Grape vines show immense setting of grapes in the Lodi section of San Joaquin County.

At the farm bureau fat hog sale at Tulare $17.80 was top price, total sales amounting to $14,133.77.

The Madera Fruit Growers' Association has its packing house ready for the first fruit shipments.

Madera County's Poland-China breeders contemplate the organization of a county breeders' association.

Stanislaus County's fat hog auction at Modesto resulted in total sales of $5640. The toppers went for $17.45.

Steps are being taken to form an irrigation district of 15,000 acres in the counties of Madera and Merced.

Manager Niswander of the Peach Growers' Association estimates that this year's crop will reach 40,000 tons.

Thompson grape growers near Exeter, Tulare County, report sales which will aggregate close to $200 per acre.

Horticultural Commissioner Marchbank of Madera County reports splendid crops in vineyards and orchards of the county.

The Tulare County Beekeepers' Association announces that 20 cents per pound has been set as the price for orange honey.

Governor Stephens has signed the Irwin irrigation bill which permits the formation of an irrigation district by a majority vote.

Farmers of Shafter, Kern County, propose to organize and secure irrigation for the land. Two separate propositions are under consideration.

The rodent control division of the state commission of horticulture is working on extermination of gophers in orchards of Santa Cruz County.

The amount of sub-irrigated land which has been ruined by high land irrigation ditches is greatly decreasing and irrigation of such lands may again be necessary.

Ahwanee Valley, Madera County, now has one farm center instead of three as formerly, the larger organization proving more effective. J. A. McPetters is president.

A trainload of prime steers was recently shipped by Roland Hill of Bakersfield to Kansas City. The shipment was under the direction of the California Cattlemen's Association.

Farm bureau meetings in Stanislaus County: Wood Colony, 16; Hickman-Waterford, Waterford school house, 18; Fairview, 20; Orange Blossom, 23; Claus, 25; Ceres, 26; Patterson, 27.

Grain growers in the "Lake Section" of Kings County estimate the present season's harvest as by far the greatest in the history of that section. The wheat output will be close to a million and a half sacks.

Southern California

Orange County planted nearly 40,000 acres to Lima beans in 1918.

Orange County is voting on bonds for a harbor at Newport Bay.

The Imperial Valley Milk Producers' Association will build a $50,000 creamery.

Riverside County farm bureau is now to have a home demonstration agent.

Walnut growers are making a thoroughgoing fight on walnut moth and aphis.

California produced last year 38,924,471 pounds of walnuts, valued at ten and half millions.

The California Growers' Association is asking for suggestions for a brand name for its canned fruits.

Palm Springs, Riverside County, began shipping ripe apricots to the Los Angeles market in May.

J. E. Wherrell of Riverside has returned from a trip East where he purchased pure bred dairy stock, mostly Jerseys.

Pruning demonstrations were given by the farm adviser and experts from the college of agriculture at Elsinore, Riverside County, last week.

The Chamber of Commerce of northern San Diego County has acquired title to the Reche Grove in Fallbrook to be used as a permanent park.

A reclamation district is being formed in Riverside County to drain lands near West Riverside. The improvements will cost about $40,000.

The road from Mecca, Coachella Valley, to Brawley, Imperial Valley, is being improved and will make more attractive travel from Los Angeles.

Orange County reports its acreage of oranges doubled during the past ten years, while the increase in lemon acreage is much more than doubled.

Work has begun on the flood control dam in San Dimas Canyon. Work has also started on the impounding dam at Devil's Gate between Pasadena and La Canyada.

Dr. J. C. Whitten of the state university has been giving a series of demonstrations of "long pruning" of deciduous fruit trees in orchards of Riverside County.

The membership campaign started by the Lima Bean Association is securing large additions to its membership roll, the largest number being reported in Orange County.

San Diego claims that at River Gap, six miles east of Mission San Diego, can still be seen the dam built by Father Junipero Serra in 1774. She claims this is the earliests irrigation project in America.

The Imperial Valley Long Staple Cotton Growers' Association is discussing formally abandoning the association or discontinuing its activities for one year. Members claim it is not receiving support sufficient to justify continuance.

Brawley cantaloupe shipments are now away above the hundred per day mark. One shipper, anxious to get the first cantaloupes out of Imperial Valley, offered a long price for the first crate delivered. Fortunately the horticultural commissioner's inspector was on the job, and the shipment was prevented because of immaturity.

The Coast and General

The melon acreage of Indiana has been materially increased this year.

A tractor demonstration was held at Mesa Experiment Farm, Mesa, Arizona, May 24.

Sweet potato storage warehouses in Georgia and Louisiana have been remarkably successful.

Prune growers of Douglas County, Oregon, have formed an organization capitalized at $100,000.

Blackberries are very plentiful in the Houston, Texas, market and are bringing from $1.50 to $2.50 per crate.

Cantaloupe acreage in the Rocky Ford district of Colorado is increased 15 to 20 per cent over last year's plantings.

The Yakima and Wenatchee Valleys of Washington will, it is estimated, this year ship about 29,000 carloads of peaches.

The first straight car of Georgia peaches to reach New York arrived May 20. They were Mayflowers and sold at $5.50 per crate.

The United States bureau of crop estimates' report for 1917 estimates the value of poultry and egg products at twice the value of sheep.

The Arizona corporation commission has ordered the Southern Pacific to provide a loading station at Cochise for loading cattle at that point.

About 250 girls were enrolled in the Country Girls Sewing Club of Maricopa County. The winner of the county championship was Miss Ottie Winn.

It is stated that this year's crop of wheat will be worth about $3.38 a hundredweight. The barley crop will probably be worth about $2.50 per hundredweight.

Heavy shipments of beef cattle are now being sent out from the Salt river valley. Most of these go to Kansas City. The average price is $100 per head at Kansas City.

In a recent test at the Mesa Arizona experiment station it was found that wheat treated with formalin contained no smut, while plots untreated contained 55 per cent.

Growers of peas for canning in the district about Rochester, New York, are receiving ten dollars less than they did last year. This year's price is $55 per ton for shelled peas.

Hood River Valley, Oregon, apple growers are finding that they secured good advertising from apples sold to the government for consumption by the expenditionary forces in France.

It is stated that the herd of elks on Sitgreaves National Forest of Arizona have now increased to between 300 and 500 in number. Some of the settlers in that region are complaining of their depredations.

A representative of the United States weather bureau is to select a location for an observatory for bolometric measurement of solar radiation, somewhere in southern Arizona or southeastern California.

Ed Stephens, secretary of the livestock sanitary board in Arizona, believes that he has worked out a solution of the problem of maverick calves. His plan is to gather all the mavericks in a given district and divide them pro rata according to the number of cows owned by cattlemen in the district.

Good Roads for the Farmer

By Arthur L. Dahl

NOTHING succeeds like success. Every turn of a snowball adds to its bulk, and the more we have the more we get. There are a lot more similar sayings, and all of them are more or less true.

These are prosperous days for the farmer. Prices are high for all food products and the demand is greater than the supply. Modern machinery is taking the drudgery out of farm work, and these mechanical farm hands are overcoming the labor shortage which resulted from the war. The automobile has enlarged the rural world, opening up new avenues of enjoyment and culture, besides enabling the farmer to transact his business in the shortest possible time. Now, in addition to his present advantages, he is to be given good roads.

This does not apply to California alone, where popular sentiment in favor of improved highways has always been strong, and our main thoroughfares are now better than the average in other states, but it applies to all parts of the country, for the appropriations available for road building during this and succeeding years are now in excess of half a billion dollars, of which the federal government has appropriated about half, and the rest comes from bond issues and other appropriations of the states in which the work will be done.

The national program for good roads is made possible by the passage, in 1916, of the Bankhead road act, now known as the federal aid road act. It provided appropriations out of the federal treasury, to be matched by equal sums from the states, for the construction of roads, all work to be done under the direct supervision of the state highway departments of the respective states. The federal government merely cooperates with the local highway departments in formulating a definite system of public highways in keeping with the intention of congress in appropriating public moneys for road improvement.

The original act has been greatly broadened, and under existing legislation there is no obstacle to the construction in the different states of the Union of those roads which serve the greatest economic needs. In the original act the cost of any mile of road built with federal funds was limited to $10,000 per mile, but the last congress increased this to $20,000, as it was found impossible to build certain types of road in certain places for $10,000 a mile.

Following this legislation the regulations governing the administration of the act and the standards for plans, specifications and estimates have been modified, and one of the most successful former state highway engineers in the country has been placed in immediate charge of the federal aid road act. He has at his disposal a considerable staff of local and district engineer aids, and this force works in cooperation with the various state highway departments. As a further federal contribution to the road program the war department has turned over 20,000 motor trucks, which will be distributed to the respective states for use on road construction.

If the proposed bond issue of $40,000,000 for California roads passes, as seems certain, when matched with similar appropriations from the federal government, we should be able to construct a splendid system of public highways linking up all sections of the state, and in the years to come the laterals can be constructed as additional funds become available.

It is almost impossible to predict the ultimate effect which a system of good roads will have upon the country districts. From what has already been done it seems likely that our present transportation system will be revolutionized, for the motor truck is rapidly coming into general use in transporting farm supplies long distances to market.

The motor truck is helping to solve the problem of the short haul. In the old days the producers of dairy products, truck gardeners and poultry raisers found it necessary to haul their products from the farm to the nearest railroad. After a short haul, but often a long wait, on the railroad, the goods reached the terminal yards of the city, and here again it was necessary to load these supplies on wagons or trucks to transport them to the city markets. The many handlings proved expensive and destructive, for often the perishable products were rapidly deteriorated or entirely lost by the frequent handling.

The modern dairy ranch or truck garden operating adjacent to the city loads the fresh supplies for market into trucks and without stop or additional handling they are quickly delivered to their destination. With good roads the truck is the most economical means of delivering supplies of this nature, and where a small producer has not sufficient tonnage to warrant the exclusive use of a truck, there are always plenty of neighbors who will join in providing a load, or commercial companies will handle the traffic on regular schedule and at fixed rates.

In hundreds of instances in all parts of the country there have been established regular motor truck routes, connecting the important cities with the rural districts within a radius of a hundred miles or so. These routes are laid out after a careful study of the region, the character and quantity of supplies to be handled and the traffic difficulties to be overcome. In Iowa, for instance, wherever good roads have been built in the country districts there have sprung up motor transportation companies which will haul anything from live hogs or sheep to pullet eggs. In Iowa during 1918 over a quarter of a million hogs were hauled to market in motor trucks, some of them traveling a hundred miles or so to find the best market.

Where a commercial motor truck route has been established for the handling of farm produce it is customary to construct small loading platforms at certain points along the route, and the farmers of the vicinity bring to these loading platforms the eggs or butter or fruit or vegetables they wish to send to market. The time of arrival of the trucks is posted so that the farm produce need not be unnecessarily exposed to the sun or rain while waiting for the truck.

From a careful survey made by experts of the department of agriculture, however, it has been definitely determined that motor trucks cannot be efficiently operated at a reasonable cost except on fairly good roads, so that the development of motor transportation is directly contingent upon the improvement of our highways.

In a rural district adjacent to Baltimore it has been demonstrated that a successful cooperative truck system can be maintained for the benefit of its members. This district, which was about 50 miles from the city, was largely used for dairy ranches and truck gardens, but as only one railroad was available it was necessary for many of the producers to haul their supplies long distances to ship them. The average time consumed in getting the supplies to the railroad was half a day and involved the use of a man and team. If the haul was made directly to Baltimore the round trip required two days.

Following the improvement of the public highways, a number of the leading growers of the community got together and organized a corporation to act as a cooperative hauling concern for the members. Each of the organizers took stock in the company and a board of directors was elected to govern the company. At first only two trucks were purchased, one of two tons and one of four tons capacity, but within a short time the demands for space were so heavy that additional trucks were added. As it was not intended to make any profit from the transportation company the rates for hauling were fixed at such a point as would cover the cost of operation and allow for the creation of a reasonable surplus fund to meet emergency demands. All commodities, from milk to cabbages, were carefully classified and rated, and when the members shipped apples or onions or melons, they paid the rate prescribed for that commodity. The trucks were operated on a rigid schedule, in charge of an operator and a man to do the loading. Each member brought his goods, properly marked and classified, to the loading station nearest his farm, where they were picked up by the truck and carried to Baltimore. In the city a central station had been established in the market district, and the goods were turned over to the consignees there. On the return journey the trucks carried manufactured and other goods ordered by the members for their own needs. By buying in community lots from wholesalers the members of the organization are able to save a considerable margin on the supplies they need. A central garage is maintained for the organization's trucks, in charge of expert repair men, and after each round trip the trucks are carefully gone over, minor repairs made and the equipment kept in the best possible condition. The success of this Maryland community in marketing their products by motor truck has been so great that many other communities are copying the scheme and cooperative truck companies are being organized at a number of points.

Good roads will enable the farmer not only to market his small produce, his eggs, and butter and milk, by motor truck, but they will also enable him in many cases to handle his basic crops in the same way. In California it is now a common sight in our country districts, especially at harvest time, to see a long string of from four to eight heavily loaded wagons or trailers, carrying rice or wheat or barley to market, pulled by a chugging tractor. With the handy trailer the average load of a motor truck can be almost doubled where the grades are not too steep to prevent this maximum haul.

Substituting Gasoline for Hay

By James De Camp

NOT so many years ago country life was a favorite target for the clumsy shafts of the professional punster and the "city fellers" were inclined to hand the royal pooh-pooh to their rural cousins.

Today almost the reverse is true in a number of instances. The progressive agriculturist of 1919 is making use of the most improved methods and devices. He has substituted the throttle for the whip, the fuel tank for the nosebag and gasoline for hay. His goods go to market drawn by a steed that is shod with rubber instead of iron—that has no reins but is guided by a steering wheel.

Although motor trucks were firmly established in the agricultural field a number of years ago conditions arising from the war made their use imperative in a number of localities. Those who had refused to believe that the most expeditious and inexpensive means of reaching market was furnished via the gas and rubber route were forced by circumstances to prove this fact for their own conviction.

Incidentally a number of the "show me's" discovered that, apart from connection with the market, there is scarcely anything more handy to have about the farm or ranch than a sturdy, dependable motor truck.

In the selection of a truck for the farm this dual object of transportation and routine work should be kept in view. There is a truck for every task—a number of tasks for every truck. On a large place many hours may be saved by using the truck to transport workers, implements and supplies from field to field. In harvest season a good machine may be loaded directly from the scene of cutting or picking as easily as a horse drawn vehicle, this practice being followed extensively with the large producers of sugar beets.

Discretion and forethought are necessary in choosing from the wide variety of types on the market the particular equipment best adapted to the demands of the user. In addition to type there is the problem of capacity.

With regard to these matters common sense is the most reliable dictator and not the conclusions of some person interested in the sale of a particular make of vehicle. The proprietor of a poultry ranch or truck gardening business would not display good judgment in purchasing a unit of the heavy construction necessary to

(Continued on Page 808.)

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock
Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, June 14, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

To the casual observer the scene on the cover of this week's issue is simply one of California's views worthy of perhaps passing interest, but to the person who a dozen years ago rode over the section where this picture was taken, when it was known only as the Colorado Desert where venturesome people occasionally went and unfortunately occasionally died for want of water—to that one this view is truly remarkable. The Imperial Valley has given opportunity to many an American to make a home with luxuriant surroundings and on lands which are wonderfully productive. The American farmer has risen to the occasion, and today several trainloads of cantaloupes will leave this rich valley and bring back great sums of money to Imperial producers. Other trainloads tomorrow, and so on through the season with live stock, grain, hay and other products. These wonder crops call for wonder roads, and considering the recent development of this valley the roads are more extensive and better than usual in a new country. In addition, July 1 will be the date of an election for another $1,500,000 of bonds, beside, we doubt not, a rousing majority for the state road bonds, election for which will be held the same day.

DAYLIGHT SAVING

Congress is all mussed up over the daylight saving law. Almost to a man Eastern farmers are working for a repeal, but organized baseball, golf and city gardeners and many others who want an extra hour after their regular day's work is done, are fighting for retaining the daylight saving.

California looks on with more or less indifference, though dairymen and many others are heartily in favor of the change to sun time.

MAKE IT A MILLION

The 33 Northern and Western states have set a goal for a million members in farm bureaus. They are starting with less than half that, in fact, 409,841, but this is an increase of about 30 per cent since December, 1918. According to the 1910 census these states made a showing of 3,262,955 farms, and it is hoped to have at least one-third of the farmers represented in the farm bureau work.

STAYING IN AMERICA

A few years ago American farmers seemed to be joining in one great trek to the rich wheat lands of Western Canada. It is reported today that these cheap lands are not showing the pulling power they formerly did and that there are no more farmers going to Canada from the United States than come to the United States from the Dominion. America offers all kinds of opportunities for her best farmers.

MORE LABOR

Many a fruit grower is finding difficulty in providing for the coming harvest. It is sometimes claimed that the cities are full of idlers, but the harvest fields with a year of big crops and big prices may be in sore need unless organized effort is made to correct the situation. The Women's Land Army has been disbanded and many of the returned soldiers have not yet dropped into their regular niches. Some sections are organizing to meet the need.

"KAN THE SASS"

With prices prevailing this year for fresh fruit every home kitchen should provide itself with every possible can of fruits and vegetables which may be put up. Foods which in past years have been waste will this year be saved in this way.

The boys and girls' clubs of Kansas have adopted a slogan suggested by the name of their state; "Kan the Sass". In 1918 there were nearly 4500 members of these boys and girls' clubs and they saved a half million quarts of canned fruits besides over 30,000 quarts of jelly, totaling in value considerably above a quarter million dollars.

DIE-BACK

Walnut growers have suffered greatly because of die-back, which has affected their orchards in nearly all sections. One Hemet grower, Mr. B. Steinberg, has an orchard of which it is said: "A year ago Mr. Steinberg's orchard was very badly affected with die-back. Today it is one of the best orchards in the whole section."

Under the auspices of the Riverside County Farm Bureau, a meeting of walnut growers from all the southern counties has been called for two o'clock on the afternoon of June 17, in the orchard of Mr. Steinberg, one mile south of Hemet. Professor Batchelor, walnut expert from the Citrus Experiment Station; Mr. Carlyle Thorpe, manager of the Walnut Growers' Exchange, and other noted experts on walnut culture will be present to explain how to prevent die-back, and how to bring back trees already badly attacked with this trouble.

COMMON SENSE

In addressing the nurserymen's convention State Horticultural Commissioner Hecke referred to the successful enforcement of horticultural and, in fact, all other laws, as depending largely upon cooperation and common sense. These three or four words contain a remarkable amount of common sense, and we are glad to note that these recent conventions have resulted in a great increase in cooperative support and in greater use of common sense than has been the case in some law enforcement proceedings.

WATCH THE WIRES

Reports are occasionally noted in Eastern farm papers of accidental deaths caused in the moving of derricks, hay stackers or other tall appliances where proper attention has not been given to high voltage wires. About the last thing on earth that a human has occasion to argue with is a high voltage current, and metal parts on these tall implements sometimes carry swift death. When occasion arises for moving tall structures in the neighborhood of electric wires, experts from the electric company should be notified to be on hand to aid.

BREAK THE MATCH

A Middle West paper, in calling attention to the danger of disastrous fires from a carelessly thrown match, suggests to smokers and others who are inclined to be careless in dropping these firebrands, that before the match is thrown away it should be broken in two pieces. Half a match still lighted could without question start as disastrous a fire as a whole one, but if the habit is formed of breaking it in two it is reasonably sure that the habit of putting the match out will be so firmly established that a few additional millions may be added to the farmers' output.

RECORD SALES

During the past month there has been held a series of the most sensational live stock sales ever recorded in American history. Values, that a few years ago would have been considered impossible, have been established and have touched the major breeds of both beef and dairy cattle. Within the month a Shorthorn sale made an average of $2960; a Hereford bull sold for $35,000; 120 Hereford bulls and females were cashed for an average of $3635; 47 Aberdeen-Augus females averaged $2583; 83 Guernsey bulls and females averaged $2172; a Holstein bull changed ownership at $125,000; a cow for $40,000—at this writing the general average of that memorable sale is not at hand. Because of the rapidity with which new records have been made and broken, one hesitates to specuate on the future. The question in the minds of all: "When will the limit be reached?" cannot be answered.

Whether prices being paid are too high will depend solely on the ability of the individual buyer. It is certain that many of the buyers will have disastrous experiences; it is equally certain that some buyers will find that they have made excellent investments.

To the rank and file of live stock breeders the extremely high prices need not be disturbing—as a whole the live stock industry is on a solid basis.

BUILD MORE

Two weeks from next Tuesday is election day. Shall the taxpayers of California bond themselves for $40,000,000 for roads? We believe the voters will give a unanimous yes to that question. If there is opposition, it is so quiet that it is not noticeable, but farmers, the fruit growers especially, have need of greater economy in delivery of their products to the market. They have need of delivery of a better grade of product, and to deliver a high grade product calls for improved roads.

The publisher of the Cultivator recently attended in Chicago a meeting of publishers of farm papers, and he made a showing through a series of charts or maps of the magnitude of California's productive industries. These maps even located in the different counties our various farm products, and at the same time another map was shown with bright red lines indicating over 3000 miles of paved highways and over 5000 miles of graded hard surfaced roads. This map attracted more attention than any other because, being farm paper publishers, those viewing it knew the great value such a road system must have for crop producers of the state.

Besides various county appropriations and bond issues this road system has caused the state to bond itself to the extent of $33,000,000. It is now proposed that an additional $40,000,000 will carry these roads into many another producing section.

Note the date, July 1—$40,000,000 for prosperity.

THIRTY-SIX CENTS

An article which is apparently "inspired" in a daily paper of one of the larger cities of the state calls attention to a "spread' or an imitation butter and suggests to the housewife the wisdom of saving 36 cents per pound on her butter bill. In order to make the 36 cents it is necessary to set a price on butter of about 75 cents per pound, which, even at the present high prices, is going some, or was at the particular date in question, June 2. It was stated that this particular article "cannot be detected from butter when properly colored and is much cheaper than the cow's product." The writer also suggests that people do not eat butter because of its food value so much as to get an "appetizing spread".

Dairymen, however, still count on the statements made by dietitians that butter and other dairy products are essentials in the diet of a people who would be healthy and efficient. Nut butter, margarin, hog butter, or whatever it may be called, is no substitute. It may be healthful enough and may fill a certain need, but it should in no sense be regarded as a butter substitute. But the dairyman must awake to the danger in the margarin situation. Where a few years ago there was a quarter of a million pounds of imitation butter sold, it is reported that today it aggregates about 18,000,000 pounds. This has been accomplished by a thoroughgoing advertising campaign.

A hint to the wise dairyman is sufficient.

The Aftermath of the Conventions

THE delegates to the recent convention at Riverside are still on their way home. Several from other states have expressed themselves as having great enjoyment and greater profit in this great gathering of representative Westerners . As one has expressed it, agricultural and horticultural interests have received an uplift as in no preceding convention. Chas. A. Park, the Oregon quarantine official, feels that the better understanding between quarantine officials of the various states amply justifies these great gatherings.

The convention closed with trips to Yucaipa Valley, citrus experiment station, March Field, Corona, Pomona, Ontario and other nearby sections.



From the Ladies Auxiliary

From left to right: Mrs. J. W. Brace, Mrs. Fred Howard, Mrs. J. S. Armstrong, Mrs. R. M. Teague, Mrs. J. D. Merriwether, Mrs. Max J. Crow, Mrs. John Valance, Mrs. C. B. Messenger, Mrs. E. A. Shinn, Mrs. Henry Kruckeberg, Mrs. H. Plath, Mrs. J. R. Slade.

CONVENTION SAYINGS

D. B. Mackie: Even in enforcing these regulations effective service may be rendered and still, if done in the right spirit, the good-will of the parties against whom the quarantine is enforced be retained. If we are reasonable and show necessity for the action we will be met by reasonableness.

C. A. Park: Oregon produces in some years $15,000,000 worth of potatoes. You may see there is some reason in our being most rigid in our quarantine and demanding only absolutely clean seed. We insist that our own producers be equally as careful in shipping out.

Hilda B. Nielsen: Conditions are such today in the growing of potatoes that our methods of raising them must be better or we potato growers will have to find other means of livelihood.

E. Pellegrin, Representative of Governor Cantu: You can count on the hearty cooperation of Governor Cantu in any movement looking toward the protection of agriculture. The governor is now organizing a chamber of agriculture.

Geo. P. Weldon: Yes, I am going to retire from the work of the state horticultural commission and take up work along educational lines in connection with the Chaffee Agricultural School at Ontario, San Bernardino County. I believe the opportunity in connection with this school for me to aid in advancing California's agricultural interests will be fully as great as with the state horticultural commission.

V. V. Leroy: The farmer's club has possibilities as great as any organization in California for the advancement of the larger agricultural interests. The Claremont Pomological Club has been in existence 22 years and is responsible for some of California's best agricultural legislation.

Carlyle Thorpe: There are two equally important factors in any horticultural enterprise — producing and marketing. The average horticulturist devotes over 98 per cent of his time to producing and two per cent to marketing, yet the selling end is as important as the producing.

E. M. Ehrhorn: In the matter of quarantine we must destroy every plant or bit of soil which comes from infested territory. The quarantine officer must, however, use common horse sense and tact. We allow no potted plants to enter the territory as soil is reasonably sure to carry the infection.

A. D. Shamel, speaking to nurserymen: Your catalogs are confusing in that every tree, good, bad or indifferent, is made to stand out as especially desirable by all the superlatives which can be used.

E. A. Chase, Riverside: I began in the nursery business in 1856. I have observed thousands of plantings and am sorry to say that not fifty per

(Continued on Page 808.)



Members of California Nurserymen's Association

From reader's left: H. Bernard, D. W. Coolidge, John Morley, San Diego park commissioner; Chas. Howard, T. D. Robertson, E. H. Rust, Geo. F. Otto, Roy F. Wilcox, W. E. Bockman.

The Goleta Swinging Drawbar Hitch
Adds Great Value and Utility to Your Fordson

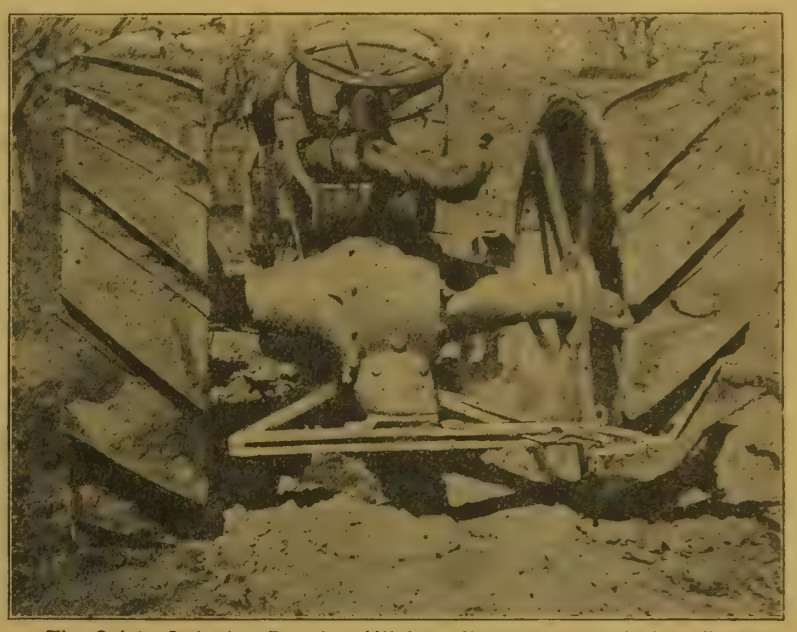
Disking, Harrowing and other field and orchard work is simplified and finished more quickly and economically when done by a Fordson Tractor equipped with

The Goleta Swinging Drawbar Hitch

It can be designed for any Wheel type Tractor.

Instead of the usual turn, this extension and self adjustable hitch permits the tractor and implement to make quick short turns. You can go up one side of a row of trees, turn right around and down the other side.

You can turn around with a 15 foot harrow so short that no ground is left unharrowed. This saves a great deal of time because you do not have to reharrow and redisk the turnouts or ends to cover places previously missed. **This enables the operator to do better work in shorter time and with less fuel.** It prevents the extra strain thrown on the engine in turning short and also prevents the engine "digging in" as a cramp turn will force it.



The Goleta Swinging Drawbar Hitch as it appears attached to Fordson Tractor, permitting short turns with any implement.

Put a Swinging Drawbar Hitch on Your Tractor

This hitch is made in the shape of a triangle but the strain of the load comes at the center of the rear axle (drawbar head) just as the Factory designed it. But by attaching the swinging connecting bar to the point of the triangle under the center of the tractor and permitting it to work through a double steel bar, slotted clear across the rear of the tractor, and attached to the implement 14 inches farther back, a wide turning radius is provided. It makes the difference of turning around in a short radius and a wide radius.

Get One---Put It on Your Fordson
It Will Quickly Pay for Itself

I am a farmer and have operated my Fordson successfully without incident and it does good work. All the Fordson dealers are my friends because I have a simple, economical attachment that helps them sell more tractors and give still better service where attached to those already sold. You won't have to go into the adjoining field to turn around with any tractor to which this drawbar is attached.

Agents Wanted Everywhere

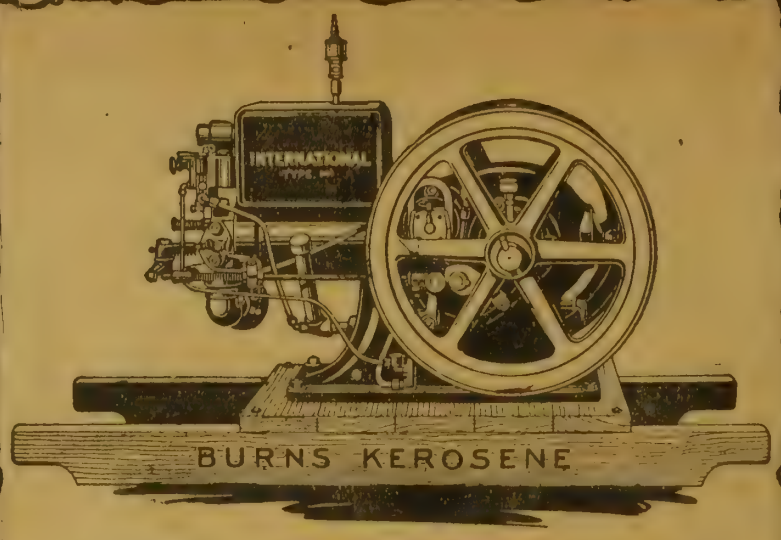
These attachments can be designed for any size wheel type tractor. If you are dealing in tractors or supplies to Farmers write for the agency. If you own a tractor write stating what kind giving name and address and name of nearest Ford or Fordson dealer or other tractor dealer.

Address all inquiries to

Ernest Sexton, Goleta, California

or write or call on any of the following agents who sell and recommend the Goleta Swinging Drawbar Hitch and to whom orders may be sent in their respective territories.

E. W. Alexander, Ford Agent, Santa Barbara, Calif., Ventura, Calif.
Ford Garage, Ford Agent, Bakersfield, Calif.
E. C. Hotchkiss, Ford Agent, Covina, Calif.
Geo. Mitchell, Ford Agent, Whittier, Calif.
Corpe Bros., Ford Agent, El Monte, Calif.
J. A. Nadeau, Ford Agent, Nadeau Avenue, Los Angeles, Calif.



Let It Carry Your Load

IN the olden days folks put the world on the back of a fabled giant called "Atlas." Today progressive farmers put a world of work on the shoulders of an

International Kerosene Engine

This sturdy, reliable, willing, inexpensive servant is doing more today to take drudgery out of farming than any other one factor. It tackles scores of jobs about the farm — such as sawing wood, pumping water, cutting feed, running the fanning mill, etc., and disposes of them swiftly and satisfactorily.

Rations for the smallest size cost less than 3c per hour—pretty cheap board for a "jack-of-all-trades" that does the work of a dozen men. Stop working so hard. Slip all the pesky little jobs to an International. It conserves your time and labor and fattens your purse. There are three sizes, 1½, 3 and 6-H. P., all operating on kerosene or gasoline.

An International dealer nearby will go over this work wizard, point by point, and explain why its "credentials" are gilt edge. Or write the address below and full information will be supplied.

International Harvester Company
of America, Inc.
Chicago U S A

RUSSELL MACHINERY
BUILT SINCE 1842
RUSSELL
THE A. H. AVERILL MACHINERY CO.
THE RUSSELL TRACTOR
BUILT IN ALL SIZES
PORTLAND - SANJOSE - SPOKANE - GREAT FALLS
ENGINES. THRESHERS. SAWMILLS.

The A. H. Averill Machinery Co.
San Jose, Cal.
Branch at 165 N. Los Angeles St., Los Angeles

LA CROSSE TRACTORS --- IMPLEMENTS

Knapp Tractor and Machinery Co.,

416 Central Building - - - - - Los Angeles, Cal.

Hemet Valley Getting Ready for Big Fruit Crop

A Cultivator representative visiting Hemet Valley reports that it is ready for its greatest "cot" season. By June 15 the apricots will be turning rapidly to the rich yellow shade for which they are noted, and the picking, drying and canning season will be on with a rush.

This season it is conservatively estimated that they will raise around Hemet and San Jacinto 150,000 tons of apricots, and the price of $52.50 for dried apricots means that if all this 150,000 tons is dried—which of course it will not be as the canneries will handle two-thirds or more of the crop—the receipts to the ranchers of Hemet Valley would run to the enormous total of $7,875,000. This figure will give some idea of the hugeness of Hemet's apricot crop as the canned apricots will themselves require labor and material, all of which will be handled at Hemet and which will increase the values in that way as much as the value of the dried product increases through that process. The crop last year ran slightly over 100,000 tons at about $15 per ton lower than the present market.

Added to the apricots it must also be remembered that peaches are grown in great quantities in Hemet Valley and they will add much more than a million dollars to the valley's resources. The citrus belt just east and south of Hemet is also a big money maker and the Valencias are now going to market in carloads.

Taking Hemet's three leading fruit crops, to say nothing of the walnut orchards and hay production, more than $10,000,000 may be accounted for during the year. The two banks at Hemet and the one at San Jacinto show continuous growth in deposits. The "Associated" cannery is working overtime to double its capacity. Last year the independent cannery handled more apricots than the association people did, and the association is making an effort to retrieve the honor, and their excellent returns last year are aiding through the addition of new members. Large forces of carpenters and other workers are constantly at work on the additions, and the machinery will be ready when the season starts.

The labor problem is as vexing as ever this year and the ranchers can hardly understand why they cannot get help when they pay forty cents an hour for ordinary help and pay a scale that will enable experts to earn more than $6.00 per day. They are writing and wiring Los Angeles, and some of them are trying to get help from Imperial Valley. The labor shortage may possibly result in decreased volume of the fruit by reason of inability to pick at the proper time. Some ranchers are holding back the sale of their crops thinking this will have a tendency to further stiffen the rising market.

Save Crops by Chemical Means

To save crops on hundreds of acres of land in California on which cultivation has been stopped because of weeds, George P. Gray, assistant professor of entomology at the University of California, has issued a preliminary report on his extensive investigation.

"The cultivation of crops has been actually abandoned on hundreds of acres of some of the most fertile land in the state," Professor Gray states, "and the production of thousands of acres more is rapidly decreasing through the increase and spread of Johnson grass and wild morning glory.

"None of the root absorption experiments seemed to point the way for control of wild morning glory on agricultural land at a reasonable expense and without serious injury to the soil. Incidental to the main object of the experiments, the control of the wild morning glory on agricultural land, data have been obtained which show the superiority of arsenic as a soil sterilizer. All of the Centerville plots to which an ounce or more of arsenic trioxide had been applied per square yard were barren of all vegetation, except wild morning glory, for 14 months, notwithstanding the leaching by the rains of two winters.

"The leaf absorption experiments have definitely established one fact of importance from a scientific as well as from a practical standpoint, namely, that a dilute solution of sodium arsenite applied only to the aerial parts of the wild morning glory under certain conditions will destroy both the aerial parts of the plant and the underground parts to a depth of several feet."

California Crop Distribution and Estimates

The state horticultural commission has given us a fund of valuable information in the April number of the monthly bulletin. The state has long needed a dependable report of its agricultural and other performances. This report touches upon fruit and other miscellaneous crop statistics. Of course, the live stock industry is not considered. The state board of agriculture has issued reports in which crops and live stock both are given attention, but the agricultural board has never had funds sufficient to make the report as effective as it should be. The report of the horticultural board is made up of statistics which it has secured through its own officials, county horticultural commissioners, and officials of the bureau of crop estimates of the United States department of agriculture.

The statistical material is preceded by a number of articles such as "The True Value of Horticultural Statistics," by Commissioner Hecke; "Specializing in Fruit Growing," by Deputy Weldon; "California Crop Production by Counties," by E. E. Kauffman of the department. One especially valuable feature is the liberal use of the map of California with indication around each county in which a particular crop is raised.

OREGON AND WASHINGTON PRUNE GROWERS GET TOGETHER

Prune growers of Oregon and of Clarke County, Washington, are considering the formation of a cooperative marketing organization along the lines of the fruit growers associations of this state.

BIG PEACH CROP

Manager Niswander of the California Peach Growers, Incorporated, estimates the coming peach crop of the state as a record breaker. The biggest output of any year was in 1917 and this, Mr. Niswander thinks will be exceeded in 1919, with prices unusually high.

CALIFORNIA STRAWBERRY OUTPUT

According to figures of the United States crop bureau California's strawberry crop in 1918 was 12,656,600 quarts. 54 per cent of this is consumed locally, 31 per cent processed and 15 per cent shipped outside the state.

No Belts—No Suspenders

LEE UNION-ALLS are all in one piece—so easy and comfortable you'll be glad you own a suit every time you put it on. Remember, too, that LEE UNION-ALLS cover your body from head to foot, protecting your skin from dirt, grime and chaff.

Superior quality features make LEE UNION-ALLS the most economical work garments manufactured. All seams are triple-stitched, all strain points are reinforced; buttons are rivited to the cloth; button holes are rip and ravel proof. Many other features insuring long, satisfactory wear. If your dealer does not handle LEE UNION-ALLS, write for further information and tell us his name.

DEPARTMENT 2196

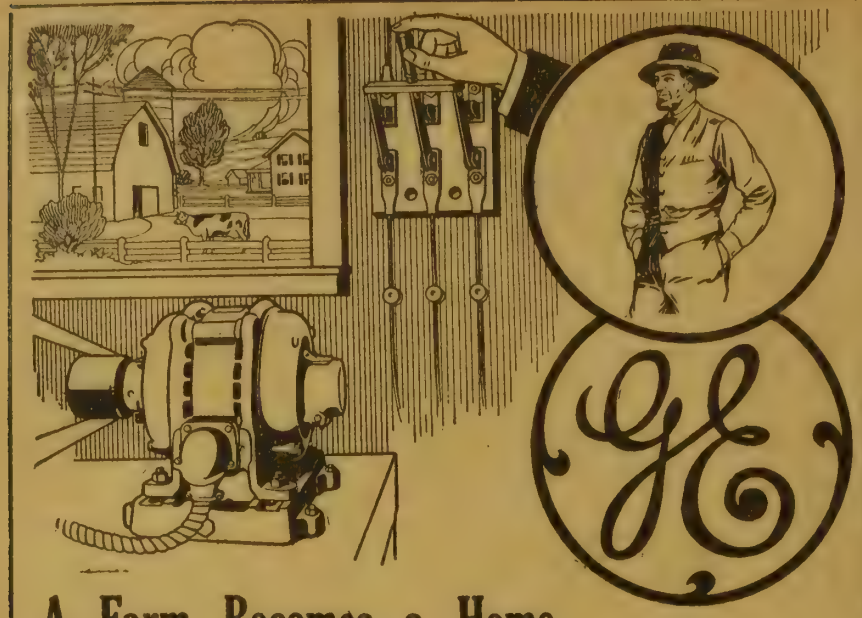
The H. D. Lee Mercantile Co.

Kansas City, Mo. South Bend, Ind.
Kansas City, Kan. Trenton, N. J.

UNION Lee MADE
Union-Alls
TRADE MARK, REG. U. S. PAT. OFF.

Lee Union-Alls

Not a genuine UNION-ALL unless this design is embossed on the buttons. Look for it. Remember there is only one UNION-ALL, the LEE



A Farm Becomes a Home When Drudgery Leaves

A farm becomes the ideal home when back-breaking tasks are eliminated. And tasks of this kind can be eliminated. Such chores as milking, churning, wood sawing, water pumping and feed cutting may be handled with little manual labor and in quicker time if they are done electrically.

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SUBSTITUTING GASOLINE FOR HAY

(Continued from Page 803.)

acommodate two and a half or three tons while, vice versa, the man who must transport sugar beets or baled hay should not select a light delivery model of small capacity. The self evident truth that speed decreases as capacity increases should be borne in mind continually.

For the small place the haulage problem may often be solved at slight expense by replacing the tonneau of an old touring car with a delivery box or hitching a trailer to the stern of the family car. The next step takes us to the light delivery wagon, usually with a capacity of from 1000 to 1500 pounds and equipped with pneumatic tires in most instances. Pneumatic tires are a necessity when breakable goods, such as eggs, are to be hauled frequently and absorb a large percentage of the road shocks transmitted to the mechanism by solid tires.

Larger trucks built for any capacity desired are almost invariably equipped with the solid tire although mammoth pneumatic tires are gaining steadily on the market. The solid tire requires a minimum amount of care and is very successful on our California good roads, but the operator should be cautioned against driving too speedily upon rough stretches with this equipment or depreciation will be hastened.

Similar to the tractor the truck requires a decent amount of care and proper lubrication. There is probably no article manufactured which is called upon to stand more hard knocks, twistings and jolts than the motor truck. Usually the owner is very considerate of his property when driving, but the employed operator seems to take a devil-may-care attitude toward his work. With average use the truck should be gone over at least once each week with special attention to the grease cups and tightening up of loose bolts and adjustments. Men who willingly devoted several hours a day to caring for their teams seem to begrudge their truck even a few minutes of cursory inspection and take the attitude that the tractor should keep itself in trim with an occasional swig of gas and oil.

The new truck owner who has been used to handling a pleasure car invariably makes the mistake of demanding too much speed of the truck motor. While the light delivery types are quite flexible in this respect most of the heavier units reach their maximum efficiency at a speed of from 15 to 20 miles per hour, some being provided with governors to prevent the operator from driving faster than a certain fixed rate.

Another pitfall that many inexperienced owners are prone to tumble into is the substitution of inferior fuel for gasoline. When the truck is designed to burn distillate or has been provided with a special carburetor for this purpose there is no harm done by using the inferior liquid, but otherwise the slight economy effected is dearly paid for in damage to the internal mechanism, and time lost in starting.

Most trucks are built with a margin of sturdiness sufficient to bear up under more than the specified capacity; but if an overload must be taken care of frequently it is wiser to make use of a trailer, thereby distributing the weight over a larger area.

Trailer construction is fast becoming a recognized industry, engaging the constructive ingenuity of men well versed in automobile designing. The slipshod makeshift trailer which whips from side to side on the road to the great danger of other traffic will soon be prohibited by law.

A scientifically balanced trailer provided with proper bearings, tires and side palings will call for a larger initial outlay but the reduction of resistance and side strain will soon make up the difference by lessening depreciation and fuel consumption. Proper connection with the truck is a matter of importance and should be so contrived as to provide an adequate turning sector for the tongue when rounding corners.

Attention is called to the California vehicle act which requires that trailers be registered with the state motor vehicle department and display license plates issued by the state. The law also states that no vehicle shall be permitted to draw more than two trailers.

When stock must be transported frequently and the body of the farm truck is not suitable for that purpose it has been found convenient to keep on hand a trailer with platform suspended lower than usual and having high sides, removable to facilitate cleaning. In this kind of work it is especially advisable to look well to the fastenings so that one will not duplicate the recent experience of a Southern California rancher who loaded a valuable heifer on a trailer behind the family flivver and drove several hours before finding that the coupling had come loose and left the animal stranded in mid-road.

The wide-awake farmer can frequently more than pay the expenses of a trip to the county seat or neighboring cities by arranging to bring back a return load for one of the local merchants or a neighbor. In some places bureaus have been established for this purpose and none of the trucks in the district are alowed to indulge in "slacker miles." When one is the only truck owner in the neighborhood satisfactory arrangements may be made to do buying for the neighbors as well as attending to one's own business when in town.

So popular has truck transportation become that but a very small percentage of California's agricultural "freight" is now handled by the railways. Some claim that 92 per cent of all hauling in the state is now accomplished by truck while others mention the more conservative figure of 75 per cent.

One of the fads that is getting much publicity in connection with the growth of trucking is that of figuring what is called the "ton mile." This pastime should be set aside for the horn-rimmed efficiency expert with nothing to do but whittle pencils and dabble with reams of figures. The correct determination of the ton-mile necessitates keeping a rather complicated record of the truck's mileage, fuel consumption and the weight of each load hauled. The process involved is tedious and the results of little definite value to the agriculturist who uses his truck for general utility purposes.

A simple record of gas, oil, tire and repair bills and a fair allowance for depreciation will provide the necessary data to show the practical man whether he is keeping ahead of the game or not. If your truck does not do more work for the same or less expense than a team and shorten your driving time from 60 per cent to 75 per cent, sell it!

AFTERMATH OF THE CONVENTIONS

(Continued from Page 805.)

cent of trees which are planted in orchards pay land rent.

Leonard Coates: There are "improved" Fench prunes. There are trees which bear regularly and every year of the small French prune. There are others which bear as consistently, and even larger crops, of a much larger, higher quality of prune.

Wm. T. Kirkman, Fresno: We must standardize nursery trees, and this standardization should not consist in their ability to grow three, four or six feet slender whips, as they will do when planted closely together, but the biggest factor in standardization should be the caliper.

Dean Thomas F. Hunt: Fruit, you know, is only glorified sugar.

They say: Secretary Avery Hoyt was pretty nearly everywhere and has a most pleasing and effective way of being helpful. Messrs. Sharp and Hammond, the one with a voice like Frank Wiggins, of the local committee, did everything to help everybody every moment.

C. C. Teague: The disposal of the Lima bean crop is one of the best examples of cooperative marketing. More than 4,000 sacks were thrown into the pool; prices were advanced from six to eight cents in two months and 558 cars sold, and the market is today stronger than at any period since harvest. Only through cooperation can farm products be successfully marketed.

President Blaisdell of Pomona College: Overproduction of non-producers is one cause of economic troubles. There is only one common denominator, and that is work.

President Evans of Occidental College: The key word of the future is cooperation. Let us beat our tanks into tractors.

Geo. H. Hecke: This is California Fruit Growers greatest convention. Riverside has gone the limit in hospitality.

Frank Miller: When Theodore Roosevelt visited this hotel he admired the beauty of this mission style of agriculture and said. "It's the strong and simple things which are beautiful." I think we should all surround ourselves with the beautiful so far as possible. Sentiment pays.

WESTERN PLANT QUARANTINE BOARD

More than a year ago plans began to be made, looking toward coordinating the various quarantine activities, and an effort was made to perfect this organization last fall, but owing to the postponement made necessary of the Fruit Growers Convention, this effort was called off. It is very probable, however, that this has resulted in a much stronger organization being formed last week.

The one greatest accomplishment was the securing of unity of action and greasing the ways for more effective regulations in every state. Heretofore there has been some little friction and at times even open conflict in the matter of commerce in nursery and agricultural products between the various states. No one of these states but has suffered greatly by the depradations of introduced pests, and during recent years strongest efforts have been maintained by quarantine officials to prevent introduction of still more pests. This has led at times to discrimination which producers of other states have resented. This conference has resulted in bringing together men from these various states to the end that more harmonious action may be taken and there will be less loss to producers.

The officers elected are: Geo. H. Hecke, chairman; Chas. A. Park, Oregon, vice-chairman; Harold R. Hagan, secretary-treasurer.

Preamble

We, the plant quarantine officials of the Western States of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming and the Territory of Hawaii, District of Lower California and the Province of British Columbia,—here assembled in the first Western Plant Quarantine Conference at Riverside, California, May 26 to 31, 1919,—for the purpose of discussing quarantine questions, pertaining to promulgating and enforcing our various regulations—believing that uniformity of action is conducive to better results in our work, deem it advisable to form an organization for our mutual cooperation and understanding. For this purpose, we hereby adopt the following Constitution and By-Laws:

Constitution

Article 1, Section 1. This organization shall be known as the Western Plant Quarantine Board.

Section 2. Members. This board shall be composed of the plant quarantine officer, from each of the following states, territories, provinces and districts: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, Territory of Hawaii, District of Lower California, Province of British Columbia.

Article 2, Section 1. Purpose. It shall be the purpose of this organization to secure a greater mutual understanding, closer cooperation and uniformity of actions for the efficient protection of our plant industries against plant diseases and insect pests.

Another article provides for election of officers, and the by-laws provide for regular meetings and routine work of the officials.

The constitution and by-laws were approved and signed as members by Arizona, Andrew Kimball; California, Geo. Hecke, by Frederick Maskew; Colorado, Geo. M. List; Idaho, W. H. Wicks; Montana, A. L. Strausz; Oregon, Chas. A. Park; Utah, Harold R. Hagan; Washington, M. L. Dean; Territory of Hawaii, Edw. M. Ehrhorn; Province of British Columbia, W. H. Lyne.

The three states, Nevada, New Mexico, Wyoming, were not represented, but it is anticipated they will become members later.

WESTERN PLANT PROTECTIVE ASSOCIATION

There were so many associations and branches of associations holding meetings in Riverside during convention week that it is hard to keep entirely straight as to correct names of each. One, which has been confused with the Western Plant Quarantine Board, but still an entirely separate organization, is the Western Plant Protective Association. This association is really the outgrowth of a meeting held April 14 at Portland, Oregon. It was called by H. P. Barss, largely in the interest of using quarantine or other protective measures to prevent the entrance of the white pine blister rust which is causing such havoc amongst the pines of Eastern states. The suggestion was first made that an organization be formed at the time of the Portland meeting, but in view of the probability of securing enlarged membership from among the plant lovers and quarantine officials who would attend the Riverside meetings, definite organization was postponed. The organization was effected at Riverside with the following officers: President, H. P. Barss, Corvallis, Oregon; first vice-president, Dr. E. P. Meinecke, San Francisco; second vice-president, E. M. Ehrhorn, Honolulu; secretary, Dr. G. R. Hill, Logan, Utah; treasurer, A. L. Strausze, Missoula, Montana.

While this organization has within its membership many of the quarantine officials of the Western states it will not have any direct police powers as has the Western Plant Quarantine Board.

PACIFIC COAST BRANCH

The Pacific Coast Branch of the American Association of Economic Entomologists met in regular annual session at Riverside last week. The most interesting feature of the meeting was the addresses and discussions on the method of fumigation with liquid hydrocyanic acid gas. Prof. R. S. Woglum of the United States department of agriculture gave a talk on the new fumigation chart. Other talks on liquid cyanide were made by Prof. Geo. Gray of the state university and Mr. Campbell of the San Gabriel station of the bureau of entomology.

Prof. H. J. Quayle of the University of California was the retiring president and the newly elected president is E. M. Ehrhorn of Honolulu. The other officers elected are R. W. Doane of Stanford, vice-president, and E. O. Essig, Ventura, secretary.

Acreage planted to tomatoes this year is 23 per cent less than a year ago. Pricers offered by canners are also less.

AVOCADO GROWERS' OFFICERS

The board of directors of the California Avocado Association has elected officers for the coming year as follows: President, Wm. H. Sallmon, San Diego; vice-president, J. M. Elliott, Los Angeles; secretary-treasurer, W. L. Hardin, 623 South San Pedro St., Los Angeles. The directors have decided to hold the next meeting at Santa Barbara, October 24-25. The association is now issuing its annual report containing much of the information gathered at the recent Pasadena convention.

CANNERS ADVANCE PRICES ON PEACH CONTRACTS

The canneries have again granted an advance of $10 on cling peach contracts. The new basis is $45 per ton for Tuscans and Phillips and $42.50 for Midsummer, Levy and other varieties.

APRICOTS AVIATING

Several apricot growers of Cupertino, Santa Clara County, are reported to have held out for a higher price than $100 per ton, at which figure the bulk of the apricots in the valley were contracted, and to have secured $110.

Seventy-five boys and girls of Maricopa County, Arizona, have joined the Boys and Girls Pig Clubs.





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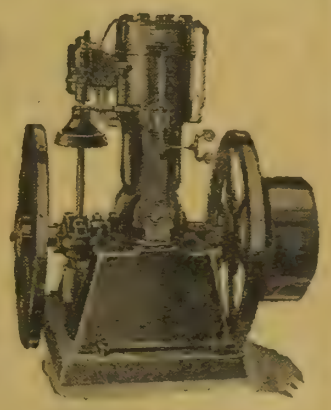
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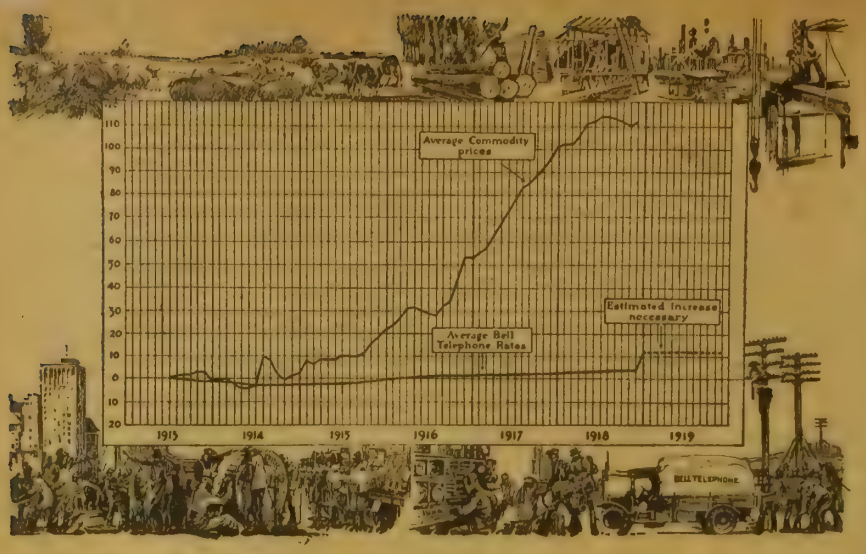
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The activities of reconstruction which are now upon the nation have put a great burden upon the telephone. This condition has made necessary an advance in telephone rates.

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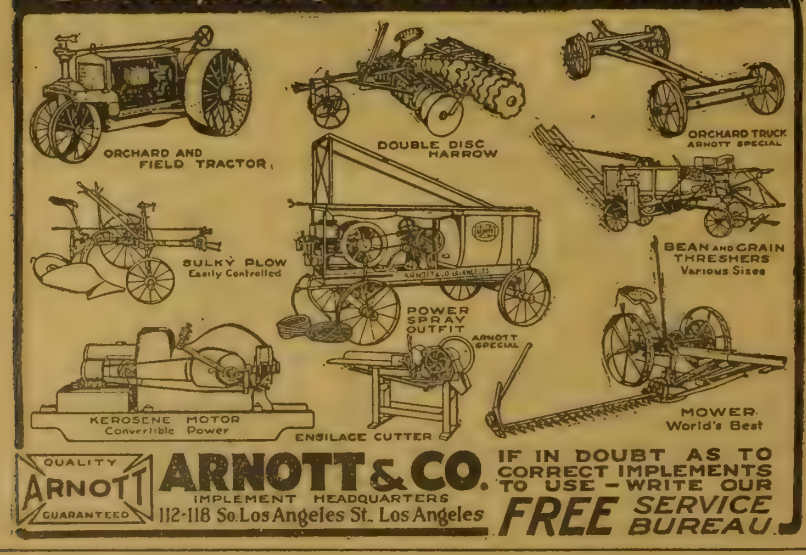
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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Caponizing

Do you know whether it really pays to caponize White Leghorn cockerels, with the high price of feed in Southern California? Also have R. I. Reds. What is your opinion about caponizing them? Will probably have 300 or 400 cockerels this year. What would be the average cost per capon for feed?—Subscriber, Ventura County.

It might be worth while to caponize the R. I. Red cockerels if you wish to keep them till next February, but the Leghorns should be marketed as soon as they reach broiler size. From all I can learn it costs about the same to feed a capon as a laying hen, which, at present prices, is from $3 to $4 a year, depending, of course, on the feeder and on whether the feed is bought at wholesale or retail.—J. A. K.

Preventive Dosing

I have heard of Soda-Nuxine being very good to give to chickens in their drinking water at regular intervals. Users of it claim it is a preventive and cure for any chicken diseases where there is a secretion of pus, such as roup, chickenpox, sore heads, diarrhea, etc. I should like to have the directions for making it, also how often and how much to give. I have been putting potassium permangate in their drinking water once a week, but it colors the water and the chickens do not seem to like it. Would Soda-Nuxine be good to give to turkeys, old and young, to keep them in good shape?

Why anyone should wish to dose chickens that are not sick is beyond me. I have never heard of Soda-Nuxine. Probably it is no better than an occasional dose of Epsom salts, which many poultrymen use, especially in the spring, to keep the system from becoming clogged, but the salts are better given in a moist mash, half a teaspoon to each adult bird, than in water. I doubt if any medicine is efficacious when given in the drinking water. You never know how much your birds get or whether they get any. Potassium permanganate, colloquially known as "pink tea," is of no use at all in the drinking water. If your chickens have actually developed roup or swellhead, dipping their heads in a solution just colored pink with the permanganate cleanses the nasal passages and often gives relief, but for preventing disease of any sort nothing is equal to clean, well ventilated quarters, exercise and green feed. To keep your turkeys healthy, feed lightly and make them exercise, but don't dose.—J .A. K.

Sour Milk Mash

Your Cultivator of April 5th contained an article on feeding sour milk mash for baby chicks, by J. A. K., but did not tell ingredients or proportion to use. Would you please give me the exact ingredients and proportions.—Subscriber, Madera.

The sour milk mash to which I referred I think is the buttermilk mash prepared by a local milling company, in which dry buttermilk is an important ingredient. If you prefer to mix your own you can buy the dry buttermilk and mix it with the mill feeds, making it about ten per cent of the whole. A good mash mixture for chicks consists of equal parts bran, middlings and corn meal with ten per cent dry buttermilk and ten per cent beef scrap added. If you have sour milk or buttermilk you can moisten the mash with that, omitting the dry buttermilk, and feed once a day, keeping the mash dry before the chicks the rest of the time. What is known as the Cornell mash, which has been widely used for growing chicks, consists of three pounds each of bran, middlings, corn meal and beef scrap and one pound bone meal. The first two weeks this is moistened with sour milk three times a day and kept dry before the chicks all the time. From the second to the fourth week it is fed moist twice a day, and from the fourth to the sixth week once a day. Chicks do very well on a mash moistened with buttermilk or containing dry buttermilk, without the beef scrap, but they probably grow a little faster if the beef scrap is added.—J. A. K.

Possibly Tuberculosis

Can you give me advice as to cause of my hens dying? They are Plymouth Rocks. They start to limp and get thinner and thinner till they die. We have examined them but find no apparent cause. They roost about 2½ feet above a cement floor. Also have had bad luck in hatching eggs from these hens.—Subscriber, Chico.

Cut open a bird that has died and see if you can find any yellowish white cheesy nodules or raised spots on the liver. If you find them on the liver, examine also the intestines and spleen (the small round, purplish organ just above the gall bladder) for the same thing. If you find them, you will have pretty conclusive proof, in connection with the lameness with which your birds are suffering, and the emaciation which gradually develops, of the existence of tuberculosis in the flock. If you find no such spots you are justified in thinking that the birds are either laming themselves jumping from the roosts onto the cement floor or that they have developed rheumatism from roosting in damp or chilly quarters. In either of these two latter cases you have only to remove the cause. If you find the yellow spots which indicate tuberculosis, there is nothing to do but to kill every bird as soon as it shows the symptoms and burn the body or bury it deep. Move the flock to clean ground and do not try to breed from them. If you cannot move the flock, disinfect the ground with lime and cleanse troughs and fountains with a corrosive sublimate or carbolic acid solution.—J. A. K.

Pineapple Guavas

In response to query as to value of the pineapple guava:

The pineapple guava does not require as much water as oranges as a rule, so says an authority. They do not make as rank a growth as citrus fruits. There is considerable complaint about seedling guavas not bearing. This is due to their natural traits and is only overcome by grafting varieties that do bear. Even seedlings which may eventually become prolific are sometimes shy bearers till they reach mature age. Grafted trees bear earlier than seedlings. Cleft grafting in the spring is the most successful. —J. W. M.

Chicken Ticks

I have discovered on my hens an insect that is neither a louse nor a flea. It sticks tight and fills with blood and is easily mashed. The color is about that of a seed tick and they vary in size, some being as large as the largest louse. Would like to know what they are and how to get rid of

them; The buhach insect powder does not seem to have any effect on them. Have been thinking of dipping my hens in sheep dip for lice. Would it be all right to submerge head?—Subscriber, El Centro.

That insect which is neither louse or flea is probably a tick, the bed-bug of the poultry family and the worst of all insect pests. If the houses are infested, which is most likely, the ticks can be killed by spraying or painting with carbolineum or one of the cresol preparations or with a strong solution of crude carbolic acid in distillate or kerosene. On the birds they are harder to handle, for almost anything that will kill the insect will also kill the bird. Corrosive sublimate is recommended, but it must be used with the greatest care, for it is a deadly poison. It is applied with a brush or feather to the tick, but must not be allowed to touch the skin of the hen. The sheep dip would not be strong enough to kill them, but a thick coating of lard or vaseline might possibly smother them. I have never heard of this being tried, but it kills stick-tight fleas, and I do not see why repeated applications might not be effective. It could certainly do no harm. But it is useless to treat the birds until you know there are no ticks in the house.—J. A. K.

Many Poultry Questions

Please answer the following questions:

1. What is the best method of shipping chicks one month old to Arizona in June. If shipped in the evening and well fed and watered before shipping will it be necessary for me to provide feed and water during the journey?

2. An article appeared in the California Cultivator a year ago advising the setting of all hens that go broody during the months of April and May. My hens are White Plymouth Rocks and have been laying very heavily all winter and spring. They range in age from one to three years old and only one-third of them have gone broody so far this season and I am very anxious to set them so as to give them a little rest. Would you advise setting them later than May if they go broody? I expect to keep hatching eggs during the summer and if I can set them without injurious effects to them I would like to do it.

3. I have been feeding my early hatched pullets plenty of grain in deep litter and keep buttermilk laying mash before them all of the time. They have a variety of greens as much as they want. I also feed a wet bran mash in the evening, sprouted oats at 11 o'clock. Can I overfeed them this way? Would you feed the wet bran mash in the morning or evening and about how much would you feed to fifty pullets?

4. Some people say they feed soaked or sprouted barley and dry mash and no other grain. Is this advisable? Will the hens lay as much if fed in this way?

5. Where can I get an incubator instruction book on the Cycle incubator? Also where can I get a wafer for the cycle? Mine is worn out and I must have a new one.

6. I have a few chicks that were stunted from overcrowding in the brooder. Will it pay me to keep these for layers? They look well now.

7. If milk is kept before the chicks continually what kind of a mash would you advise feeding them?

8. I should like a little enlightenment on vent gleet.

9. I shut another hen in a box painted on the bottom with——lice killer an hour. When she came out she gasped for breath and continued to do so all day. Her left eye is swollen. It is not shut but there is a gummy exudate all over left side of face and wattles. It looks bad but I would not call it either chicken pox or roup. Her abdomen looks very red. I have treated several hens this way for lice and none of them showed any effects except this one and another I put in at the same time. The box had two knot holes for ventilation. —Subscriber, Gardena.

1. The journey is too long for chicks that age to take without food. The best way to manage is to tack inside the shipping crate a can for water and a shallow box or several shallow cans (Crisco cans are good for this purpose) depending on the number of chicks in the crate, and to attach also a larger can or box containing feed. If you tack on the outside a card requesting expressmen to feed and water the chicks at stated times, they will look after them.

2. It can do the hens no harm to set them at any time, but July and August are not very good months for chicks. Many persons do care for chicks right through the summer, however. It is only because it is hard to keep chicks growing well in hot weather that most poultry people prefer to finish thir hatching before May.

3. Pullets need a full ration. You are in no danger of overfeeding as long as they have exercise and plenty of greens. About two in the afternoon is considered the very best time for the moist mash. If it is more convenient for you to feed in the evening you might give them their scratch grain at four or five o'clock and top off with the mash just before they go to roost. If you feed in the middle of the day, give just what they will clean up in fifteen minutes. If at night, give less, for their crops will be already nearly full.

4. My own hens have had no grain but cooked rolled barley and sprouted whole barley for some months, and the limited grain ration does not seem to affect their laying. A variety is to be preferred, however, to a single grain. I think a good many poultrymen feel that we have been overfeeding barley of late, and that, while bad effects are not always apparent, it can be overdone.

5. To get instructor book and missing parts of an incubator you will have to find an agent or write to the manufacturers. They always have them, but no one else is interested.

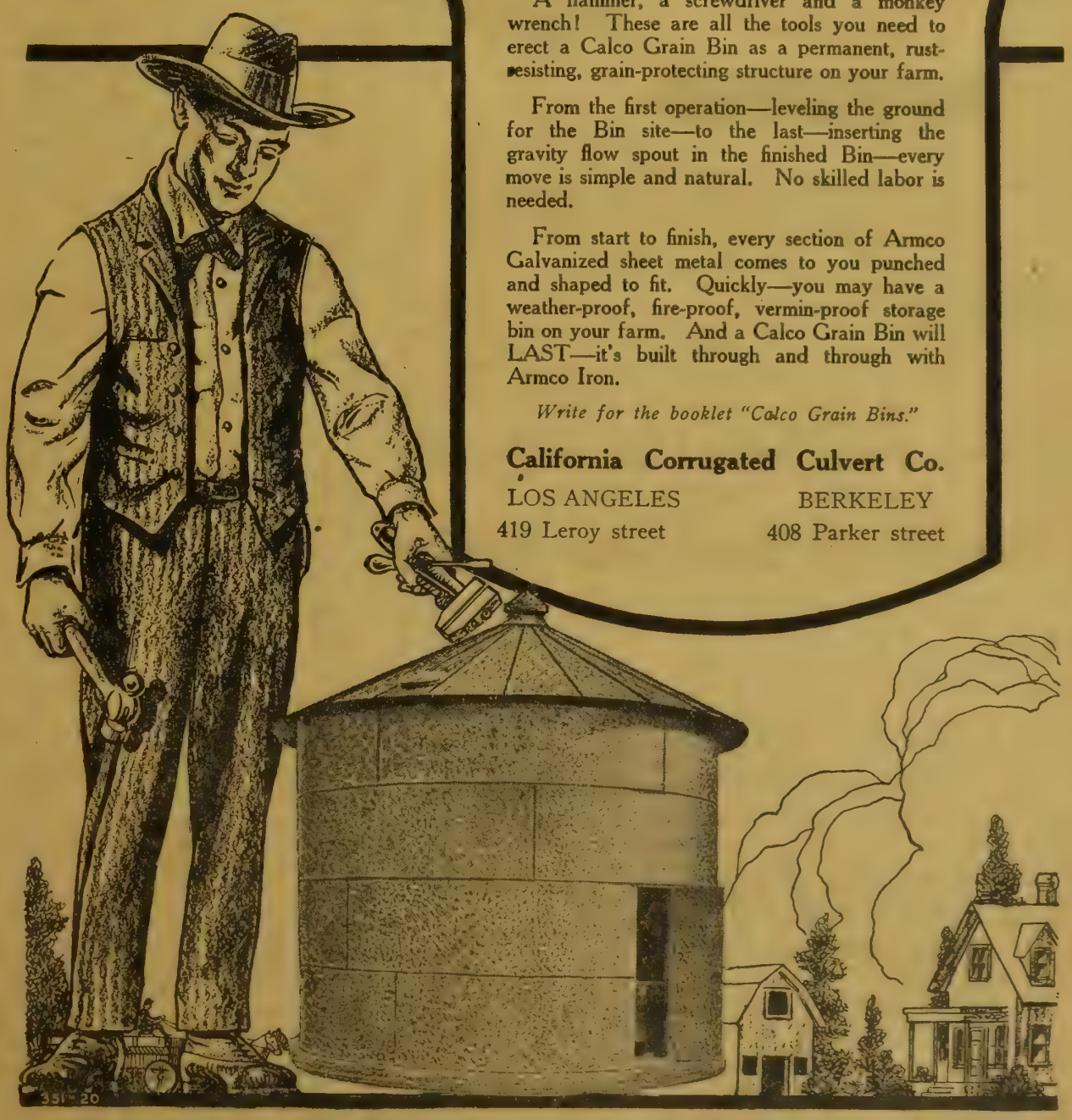
6. It depends entirely on how badly they are stunted. There is always a chance that such chicks, if they seem healthy, will make fair layers. If they lag very far behind the other pullets it would be better to send them all to market when they reach broiler size.

7. The University Farm chick mash, two pounds each of bran, shorts and meat scrap, one pound each of barley meal and ground bone, and one-quarter pound charcoal is good either with or without milk.

8. Vent gleet is a more or less infectious disease. If I had a hen that I was certain had it I would kill her. It is a troublesome disease to handle and the caretaker stands some danger of infection. But in the case of your hen it may be merely a sore caused by the broken egg. You might try tincture of iodine on the sore a few times. If that relieves it, well and good. If not, do not keep her very long.

9. I killed a hen once with that lice killer. It is very strong in crude carbolic acid and the hens cannot stand being in close contact with it so long. Better be content hereafter with putting it on the roosts if you must use it, but dusting is a much safer and more effective method of getting rid of lice. I think the hen's eye must have been burned by the lice killer. In addition to the boric acid solution you might try putting pure vaseline (the kind that comes in a tube) on it at night.—J. A. K.

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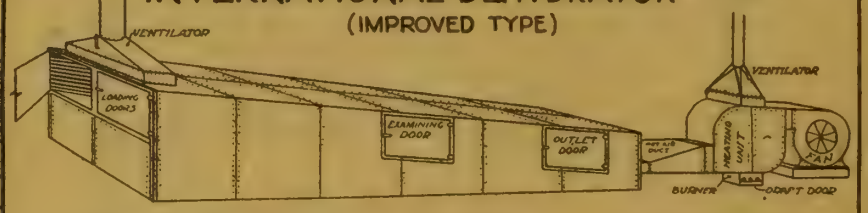
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Marsh Plant.

I am enclosing the root, leaf and flower of a plant of which I would like to know the name.—Subscriber, Riverside.

This is Anemopsis Californica, a plant common along the edges of marshes. The more common name is yerba mansa.

June Beetles.

We are troubled a great deal with June beetles which are very destructive to pepper trees, certain kinds of rose bushes, apricot and plum trees. Will you please tell us what would be good to use as a spray? They bury themselves in the ground through the day and eat on trees at night.—Subscriber, Ontario.

The best remedy for this is a good live bunch of blackbirds. If, however, they prove too serious a pest, spraying the leaves attacked with an arsenate spray is sufficient. Use four pounds of neutral lead arsenate to fifty gallons of water.

Strawberry Plants Dying.

Replying to the inquirer who sent specimen of strawberry plant from patch which seemed to be dying. The plant was forwarded to Prof. Fawcett and he suggests that the trouble may be similar to that of plants near El Monte. This is probably a root trouble which Prof. Smith has found to be associated with a fungus, but is unable to say whether it is the cause of the dying of the plants. I merely mention this as it may possibly be the same trouble as they are now having in San Bernardino but I cannot say from the specimens at hand.

Red Spider on Almonds.

Is there any preparation used as a spray for red spider on almond trees?—Subscriber, Lodi.

The regular commercial lime-sulphur is perhaps the most satisfactory, although many prefer applying lime and sulphur in the dry form. In large orchards this is perhaps more economical. In applying dry, use three-fourths sulphur, one-fourth lime, thoroughly mixed. Apply with power duster. If commercial lime-sulphur is to be used mix with water at the rate of one to 33.

Sulphuring Grapes for Mildew.

Will you tell me when and how often to sulphur grapevines? Does one sulphur the whole vine? When is the proper time to cut off runners?—Subscriber, Walnut Grove.

Prof. Bioletti recommends first sulphuring when shoots are not more than six or eight inches long, a second sulphuring just before blossoming, another immediately after blossoming and another may be given a week or so later, though it is probable if work is thoroughly done the first three will suffice. The proper time to cut off runners, or the ordinary sucker growth, is soon after it appears, or before it has taken a great quantity of nourishment which should have gone to fruit or permanent growth. Do not let them get longer than a foot or two.

Moles.

Kindly tell me how to get rid of moles. They have ruined my strawberry bed and they make it almost impossible for me to irrigate properly.—Subscriber, Walnut Grove.

The only satisfactory treatment of moles is to trap, and fortunately there is a very satisfactory trap with two sets of jaws and strong spring. The trap is so made that when one finds the runway of the mole the dirt may be pressed down with the foot, when the trap is set and the two sets of jaws are thrust into the ground on either side of the pressed down soil. This brings the trap or trigger just above the packed down soil and when the mole comes through his runway and raises the soil the jaws are released so that he is caught no matter from which direction he comes. The kind of trap which thrusts sharp points into the soil has not been so effective in the hands of the writer.

Rolling Onion Tops.

Is it necessary to roll onion tops to make bulbs?—Subscriber.

With regard to twisting onion tops, it is customary with a small acreage to roll onion tops or break them when the onion is nearly of mature size and begins to wilt or show that the top has deteriorated, but so long as the top is green you need not attempt to prevent them from growing large necks. The larger the neck, the larger the onion, and the large neck is a good sign, but it should be broken over before the seed stem appears. The largeness of the neck is determined largely by the variety of the onion. The Globe Onion invariably has a larger neck than the flat onion, and the late onion has a larger neck than the early onion.

Summer Pruning of Grapevines.

Should the ends of grapevines be pinched back to keep them from getting so long? My grapes are not trellised, just bush style, and vines grow from 20 to 40 feet in one season.—Subscriber, St. David, Arizona.

Prof. Bioletti takes the position that in summer pruning of vines there is reduction of vitality and less of real bearing capacity than where the vines are allowed unrestricted growth. However, he has conceded that where the growth is so extremely rank thumb pruning of the ends of the rank growth may be permitted. Certainly there should be some step taken to prevent vines running away with themselves to the extent of 40 feet. This question will, however, be referred to Prof. Bioletti for further answer.

Potatoes All Tops.

Regarding potatoes growing too largely to tops, inquiry regarding which was made from Long Beach, H. L. Musser writes: If the potatoes are planted in soil that is too rich and heavy, particularly when they have too much water, they will make all tops and no tubers. To make this more clear we will say that where there is a low place in a field of potatoes where the water is apt to re-

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main several days at a time, particularly if the soil is very rich, there will be no potatoes, both because of the richness of the soil and the excess of water. The inquirer has not stated when the potatoes were planted and it is just possible that they are yet too young to form tubers.

Kill the Grasshoppers.

What is the best method of controlling grasshoppers? — Subscriber, Berkeley.

This matter called for quite an extended discussion at the meeting of the horticultural commissioners at the Riverside convention last week. Grasshopper specialist Urbahns gave some information and reported that later careful observations have made it appear that by far the best method of handling grasshoppers is by poisoning. The hopper-dozer and other mechanical methods are expensive and unsatisfactory. Mr. Urbahns recommended that in orchards the poison be distributed in the center and away from trees. Where it is distributed in and under trees the pests are attracted to the trees and do much damage before they die from poisoning. If the pest is very serious and is injuring the trees, beating or disturbing the branches causes them to fly away and many of them to pick up the poison in small quantities on the ground. Do not distribute in large quantities for fear of destroying stock or poultry. A poison which is attractive and succeeds is a wet mash made up as follows:

(1) Bran, 50 pounds; white arsenic or Paris green, 2½ pounds. Mix these dry. (2) Lemons, including rind, chopped fine, ½ dozen; syrup or molasses (cheap), four quarts; water, five gallons. Mix thoroughly by vigorous agitation. For use, mix (1) and (2) and add sufficient water to make a wet mash. They should not be mixed until just before the distribution of the poison. Distribute the mixture early in the morning between four and seven o'clock, as the grasshoppers eat it more readily then. Oranges or vinegar may be substituted for lemons but do not get nearly as good results.

This formula is given in "Injurious and Beneficial Insects" by Essig. The only successful way where an entire community is infested is for this poisoning campaign to be cooperative, for if one grower alone tries to poison for the whole community it becomes a burden. However, go at it alone if the neighborhood refuses to cooperate.

Trespassing Water.

I have an orange orchard adjoining a neighbor who lets his irrigating water run on my property every time he irrigates, and prevents my trees from growing. I have spoken to him several times about his water but he lets the water on just the same. Is there any way I can make him keep his water on his own property or do I have to go to the expense of making a bank to keep it off? Can I come onto him for damages to my trees?—Subscriber, Covina.

This question is not referred to the legal department, for it is simply a case of proving damages which the injured may collect. No irrigator has a right to waste his water to the injury of another, and without question the courts would give relief should the injured party care to ask injunction. But as a more satisfactory way of settling the question the Cultivator would suggest that the foolish irrigator be allowed to continue his practice and that means be devised of putting the waste to valuable use around the trees at the upper end of the injured party's orchard. This water, without question, carries much of fertility from the upper orchard, and we would be inclined to save it and encourage the irrigator to continue his waste.

Tomatoes Dying.

I have some tomato plants from six to twelve inches high. I keep them well watered and cultivated but the leaves of some of the plants are curling under. There seem to be a few small yellow lice on the under side of the leaf but not more than five or six on each leaf. I had the same trouble two years ago, and although the vines continued to grow they produced no fruit. What is the trouble and what remedy should I use?—Subscriber, Fresno.

Presumably this is summer blight. If so there is no help for it. If it is due to the yellow mite to which you refer then spray with a weak solution of Black Leaf 40, directions for which are given on the container.

Corn Ear Worm.

How can I prevent worms from attacking ears of sweet corn?—Subscriber, Madera.

Place in coarse meshed muslin bag a mixture of dry arsenate of lead and sulphur, about 60 per cent of the arsenate to 40 per cent sulphur, which is thoroughly mixed. This bag may then be shaken over the ears of the corn as soon as they begin to "silk out." Repeat this in three or four days, giving very light treatment each time, or perhaps better, although slower than the muslin bag, is the small insect powder blower which may be had at any seed or supply store.

Ants.

Ants are eating the roots of vegetables and squash vines. How may they be controlled? — Subscriber, Fresno.

There are but few varieties of ants which attack growing vegetables but when they do they are a serious pest. The best treatment is to follow the trail back to the hole and by pouring down perhaps a teacup or more of gasoline the entire nest may be destroyed. There are many commercial poisons which are very successful. These have full instructions for use on the container. A very satisfactory formula for destroying ants is three tablespoons of honey and tartar emetic the size of a lima bean. Mix and place in two or three saucers placed where ants are proving troublesome.

Tanning.

How can I tan sea lion skins?—Subscriber, Morro.

We are unable to make very definite suggestions other than to give the ordinary method of tanning skins. If anyone has had experience with sea lion skin will be glad to pass on the word. But it may be in order to give warning that sea lions are protected by law and may not be killed. The ordinary tanning method is as follows:

Like learning a trade, getting rich and some other things, the tanning of leather requires some experience and attention to details. However, here are a few hints:

The skin should be salted on the flesh side as soon as the hide is cooled after removal, using ten to twelve pounds to a full-sized calf skin. After salting roll the hide tightly. When ready for tanning place the hide in "soak", simply water to remove blood and salt. After being left in this 24 hours the tail and feet may be cut off, and the flesh adhering scraped off, after which the hide should be placed in lime water. To make the lime solution take a bucket of water to each quart of lime. When thoroughly slaked and mixed, immerse the skin and allow to lie for three or four days. Thoroughly wash in cold water. Scour and pound in good soapsuds for half an hour, after which take white vitrol, alum and salt, one tablespoon each to skin, and dissolve in sufficient water to cover skin. Let remain in this 24 hours. Wring out and dry. To soften, oil with neat's foot oil or currier's oil. It may again be washed out in soapsuds and hung up until nearly dry, when it should be worked and softened. If it should remain hard and refuse to soften, repeat the soaking in suds.

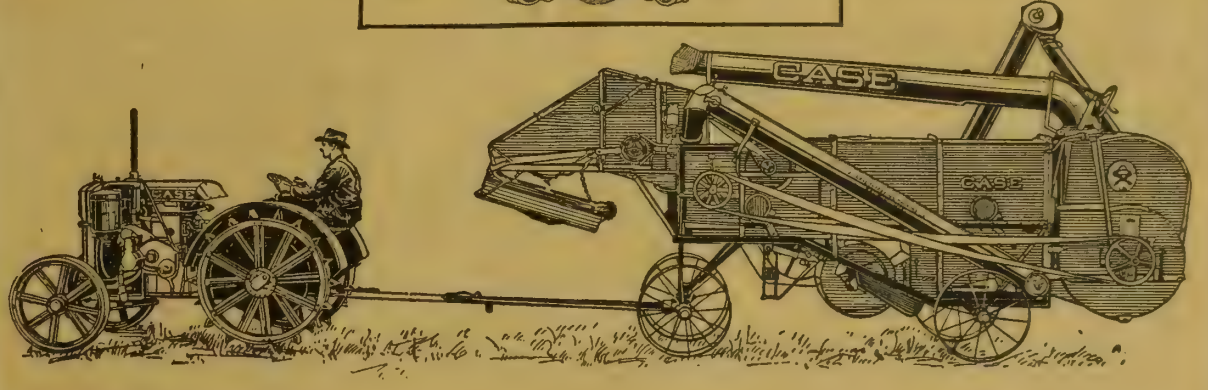
This will give a raw hide which may answer. However, if it is desired to have the leather more perfectly tanned, after ringing out of the suds and before oiling, place in vessel and take of sufficient water to cover, in which has been thoroughly mixed one pint of this mixture. "For a 12-pound calf skin take terra japonica, three pounds; common salt, two pounds; alum, one pound. Put these in a copper kettle with sufficient water to dissolve. Boil." Pour the water above referred to, which has been mixed with a pint of this mixture, over the skin. Every 12 hours take out the skin and add another pint of the tanning mixture. Do this three days, then add the entire amount which has been left of the tanning mixture. If it is desired to darken the leather add one pound of Sicily sumac. Of course the leather should be handled often in this mixture. In addition the drying should be gradual and working with the hands as it becomes nearly dry aids in stocking the leather.

Discharge from Rabbit's Ear

I have a Belgian hare buck about

(Continued on Page 825.)

CASE



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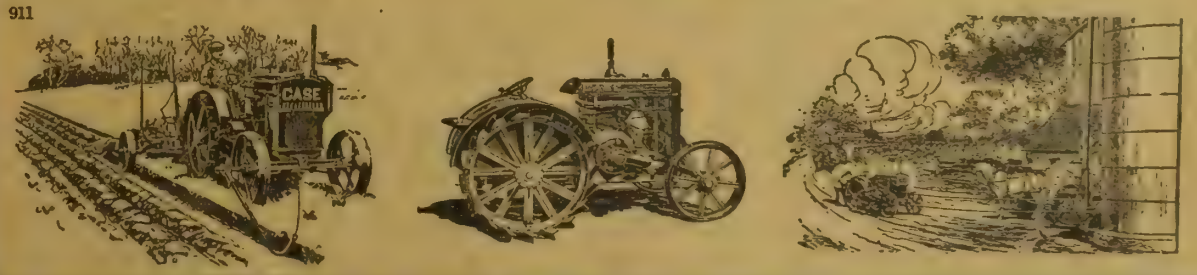
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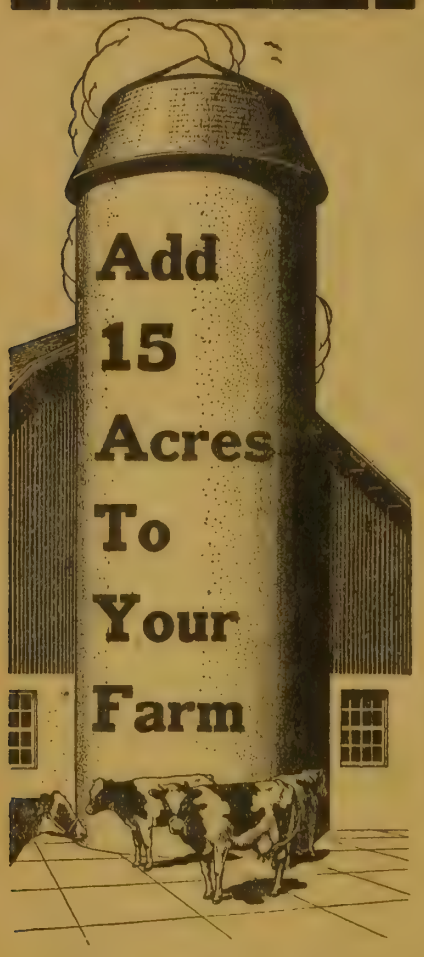
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Concrete for Permanence

Some Essential Facts in Successful Live Stock Breeding

By R. P. Royce

THERE is no gainsaying the fact that more interest is being manifested in better live stock throughout this state than ever before. From all sections come reports of new men planning to enter the pure bred business and among the established breeders there is a very marked effort to improve their herds and flocks.

One can not view the situation and fail to register satisfaction. The more general introduction of better blood through pure bred cattle, hogs and sheep means much for the general prosperity of the state and the opportunities open to the California breeder are such as to assure a bright, and in some cases, a brilliant future.

The degree of success the breeder may attain will in a large measure be entirely dependent upon the intelligence he gives the business—just as the success registered in any other line of endeavor depends largely on the individual. The really successful men engaged in any line of work are not numerous, at best, and the percentage of successful live-stock breeders is no higher than the percentage of successful merchants, doctors, lawyers or other professional men—perhaps not as high. The business of producing pure bred live stock is not an open road to wealth—on the other hand there are as many opportunities to make a marked sucess, measured either in dollars and cents or constructive accomplishment as are presented by most lines of effort. It is not difficult to call to mind many instances of breeders who have made fortunes, and in each case an analysis into their successes would indicate that intelligent effort, and a close application of fundamental principles were responsible, rather than luck.

On the other hand there have been many notable failures recorded in the live stock industry and an analysis of the causes will disclose an utter disregard of sound principles and an astonishing lack of common sense.

There is a fascination about the live stock business that is not found in most lines and the fascination exerts a strong pull on most men. Outsiders see the glamour, the shows, the sales and the good fellowship, they hear of the successes of many breeders and it all looks so easy—so attractive—they take the plunge—for "better or for worse."

I have known many men who have made a marked success in various businesses who, when they decided to enter the breeding game apparently cast aside the very principles upon which were built their former successful operations. I recall one case in particular—rather recent, too, when an investment running into six figures was made in live stock before the investor knew even the rudiments of the business. I can recall many men who have made investments running into the thousands who turned the plant over to the cheapest manager they could find and who later became disgusted with the business and after a short time closed out at a sacrifice of much money and time, and declared the live stock business held no opportunity. Is it not strange that so many men will enter the business in such a haphazard way when; if they were making an equal investment in bank or factory they would give the closest study to the new venture and attempt to secure the best manager? Would many men invest in machinery and raw material before they had arranged for a suitable site and building? Not many; but I have known men to enter the live stock business on such a basis.

Contrast these unfortunate ventures with the hundreds of cases of young men, and older ones, too, who have built up important herds and flocks from small beginnings. Nearly every community can claim at least one such case. Many are the farms that have been paid by the money earned by pure bred live stock. If one takes the trouble to investigate the reasons back of the general run of successful stock breeding ventures he will be impressed with the fact that nearly all are due to the persistent application of the established fundamental principles.

Perhaps, by this time the reader is beginning to wonder what these fundamental principles are. The writer doubts if he can name all the factors, but he believes that he will name the most important—perhaps not in the order they would be set down by others—but in the order that his experience would indicate to be about correct. They follow:

First: It is necessarily fundamental to success that the man entering the live stock business haye a deep rooted liking for the business. Unless one really likes the work in hand, he lacks enthusiasm and without enthusiasm any business will fail. It is quite true that one can develop enthusiasm as he progresses.

Second: He must have a suitable location. By a suitable location is meant that the farm on which the breeding operations are to center must be capable of producing the kinds and quantities of feeds necessary to economically maintain the live stock. The man who has the opportunity to select his farm should keep the above facts in mind and at the same time consider the accessibility of the farm to established live stock centers. A well located farm is an asset—though not a necessity. Consideration should be given the existing equipment, and if new equipment is added it should be of a type proven successful, yet not represent an investment that would make the overhead charges too great—thus handicapping the business at the outset.

Third: A careful preliminary study of the history of the breed selected, past and present, and a study of the principles of breeding.

The value of such a study must be obvious. Unless one familiarizes himself with the knowledge of how the breed was established and the various steps made in the improvement of the breed to the present standard he can not hope to make progress. Such a study will also familiarize him with the men and the individual animals who have been the high lights of the breed's improvement and he will be in a position to judge the value of a pedigree much more accurately than if he lacked the intimate acquaintance with the breed history. A knowledge of the sound principles of breeding is fundamentally essential to any success. While the mere grasp of these principles does not insure success it does serve to mark the way and to indicate the reasonable possibilities and limitations of the business.

Fourth: A knowledge of the accepted type and the popular blood lines.

At first glance it might appear that accepted type and popular blood lines go hand in hand. They do to a certain extent, but it is a fact that an animal might be of such rare individual excellence as to win in the show ring and yet be backed by a pedigree not held in esteem by the best breeders. The progeny of such an animal would not be sought after nor valued as highly as one backed by a pedigree considered more highly. In this connection it might be well to state that from time immemorial there has been a deal of poppycock thrown around certain lines of breeding—mere pedigree fads—but as a general proposition it may be set down that the more popular lines of breeding are the ones that experience and time have proven to be the most valuable. Therefore it is important that the beginner learn to distinguish between good and bad pedigrees.

Fifth: Reasonable capital or financial backing.

The live stock business is not unlike any other business. Capital is required to operate sucessfully. Occasionally one can register a success on a shoestring but the margin of safety is too small. The amount of capital one has will govern the extent of his operations. Ordinarily one makes a mistake by attempting to spread his capital out. A few high class animals are usually better in-

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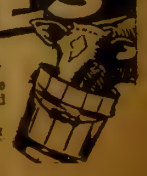
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vestments than a larger number of plain things.

Sixth: A knowledge of prevailing values.

Obviously one's success will depend very largely upon his ability to buy and sell. One of the best methods of gaining this knowledge is by attending public sales and seeking advice from reliable breeders.

Seventh: A study of the operations of successful breeders.

A careful study of the methods followed by men who have made notable successes constitutes one of the valuable lessons the beginner can learn. It will be found that most of the successful men follow practically the same plans. They have assembled herds and flocks uniform in type, of good pedigrees, and invariably are good feeders. Their publicity and selling methods may differ, but the general character of their live stock is very much the same.

Eighth: An appreciation of the fact that proper feeding is of prime importance.

Unless the man already in the business or about to enter realizes the importance and necessity of proper feeding he is doomed to failure. I care not how well fed the herd or flock may be, how uniform they are in type, how much they cost or their show yard record, unless the owner is willing to provide feed—proper feed and in abundance—he might just as well stay out of the game. Feeding and breeding go hand in hand and every great breeder is a past master of the art of feeding. Some beginners, assume that because they have heard that pure bred live stock can make greater gains on the same amount of feed as scrub stock that it is not necessary to feed them. It is true that improved stock are more efficient at the feed bunk than scrubs, but they need the bunk!

Ninth: Be willing to give the business your best attention or engage the services of a competent man.

The pure bred business will not run itself, although it will come nearer doing so than most businesses. The men who are responsible for the improvement of the various breeds are men who have given their best efforts to the work. The live stock business does not stand still, it either goes forward or backward, and such being the fact it can not be assumed that one's herd will go forward unless he is willing to give it the attention that the men behind the breed have. Either one must be willing to give his own time to the herd or be willing to pay the price necessary to secure the services of a competent man who will give it the care demanded. Such men are worth more than $75 or $100 per month. Would you be willing to turn over a $25 000 or $50 000 business to the management of a cheap clerk? But, some say other businesses are more intricate as well as more profitable. The writer does not admit as much. No business is more intricate or capable of returning greater dividends than a properly established and conducted breeding farm.

Tenth: Do not be impatient for financial returns.

When one enters the live stock business he must be prepared to give the business time to get under way. The breeding business is essentially dependent on time.

Eleventh: Publicity.

The pure bred live stock business is as much dependent on publicity as any other business. Occasionally one can register a success without advertising his goods, but invariably his success would have come quicker and been greater had he given his product publicity. Publicity can best be gained through high class farm journals, and by exhibiting at live stock fairs and shows.

Twelfth: Character.

There is no business that rests so completely upon the character of the men engaged in it as does the live stock business. The whole fabric is based solely on the integrity of the breeders as regards honesty in the matter of breeding, ages and health, and it is to the everlasting credit of the great majority of the men engaged in the business, past and present, that the business has survived and grown and improved each year, with a minimum of unsavory practices disclosed. The average man engaged in the pure bred business represents the highest type of manhood.

Thirteenth: Personality.

Personality is important and essential to the success of any business, but it is doubtful if any other business will react quicker to the personality of the man than will the pure bred business. The reason for the above statement can be found in the fact that most live stock transactions are consummated in a rather intimate way and the personal qualities of the buyer or seller—or both—measure in a large way the success of the transaction. Again, breeders, newspaper men and others come into close contact with each other and the impression gained at the first meeting or subsequent meeting will unconsciously be used for or against the individual. In no business will those engaged manifest a closer good fellwship than in the stock game and it's the big, clean, broad minded man who attracts the widest circle of friends.

From all the foregoing the prospective beginner might assume that it will prove a formidable task to establish himself as a breeder. The writer does not mean to convey such an idea—what he seeks to show is that the pure bred live stock business is a business capable of returning handsome profits and a wealth of satisfaction and pleasure, but that it deserves the best efforts of those engaged in it.

Economy and Efficiency

One of the greatest problems a milk producer has today with the high cost of both feeds and labor is how to cut operating expenses to the minimum that milk may be produced at a slight profit.

Burr Farm is owned jointly by E. Burr of the Burr Creamery and G. M. Brown and located on the eastern outskirts of Los Angeles. G. M. Brown, the manager, states that the farm, along with 300 good Holsteins, was purchased about a year and a half ago and at the time of purchase was losing money every day it was operated. The farm being small and devoted entirely to feed lots necessitates the purchase of all feeds. Mr. Brown says:

"We began by putting every cow on strictly hay feed and by weighing and testing those in milk that we might determine the profitable cows. We maintain a ration for each cow according to her ability to produce milk, all feed being weighed, accurate account kept and every cow tested once a month. By working out an accurate system of costs, systematizing our labor and getting a record of production of each cow we reversed the operation of the farm from a loss to where it showed a slight profit.

"We have been gradually replacing our grades with pure breds until now we have over 100 head of pure bred Holsteins, eighty of which are now milking. We have about thirty cows with records of from twenty to thirty pounds. We also secured as senior herd sire Sir Veeman Pontiac Korndyke, a son of that noted bull, Sir Veeman Heugerveld, who is the sire of more thirty pound cows than any other living bull.

"Our herd now averages one pound of fat per cow per day and one-fifth of these are heifers with their first calf. From a production of forty ten gallon cans of milk per day we have increased it to ninety-five with the same number of cows milking.

"We expect to make Burr Farm a breeding plant of pure bred Holsteins and every grade now on the farm will be replaced by a pure bred just as rapidly as possible." In addition to about seventy-five head purchased at private sales, Mr. Brown has been a liberal buyer at all the recent sales of pure bred Holsteins, including the Guarantee Sale at Sacramento. Thirteen head were purchased at the McAlister dispersal sale.

Dairymen in the district supplying Tacoma and Seattle are getting the biggest prices ever. Even Portland dealers are coming to them to compete with Washington consumers for their product.

It Pays to Salt Your Hay When Stacking or Baling

Cattle Eat Up Salty Forage Clean

(From Pacific Rural Press)

"An ounce of salt a day in the ration is all right for cows," says G. L. Stearns, formerly of the Vina Ranch. This is probably not enough, so there ought to be some stock salt in the yards for cows to eat at pleasure. Sometimes in feeding cows for official test, as much as three ounces per day is mixed in the feed. This makes the cows thirsty and they drink more water and produce more milk. But it is necessary to be very careful in feeding salt in the ration, for it is apt to give them the scours and is also likely to cloy their appetite so that they will not eat enough to make a record yield of milk.

Two crops of fodder per year, which the stock eat up clean, are grown by a settler on the Natomas Consolidated project in Sacramento County. He grows pure bred Duroc hogs and Shetland ponies, and claims that his oat hay cut early in May yields three and one-half tons per acre. Immediately after it is cut, corn is planted; and if this doesn't mature it is cut as fodder when the kernels have dented. The ears are taken off and the stalks stacked in the yard with a large amount of salt, which induces the stock to eat it more completely than otherwise. His neighbor, Mr. Jensen, salts his threshed wheat straw, which the cattle eat clean. Leading dairymen use salted alfalfa hay the year round for feeding dairy cows to increase the flow of milk.

The amount put into hay in stacking depends on the amount of hay each animal is expected to eat.

Twenty pounds per ton in general may be all right if the stock has plenty of other food. But a cow which has nothing but hay will eat five tons per year if she weighs 1200 pounds, according to Mr. Stearns. At the rate of 20 pounds per ton, this would force the cow to eat a trifle over four ounces per day, which is altogether too much.

When it seems that there is danger of too much salt in the feed, a satisfactory test may be made by offering salt separately; and if the cow doesn't eat it, less of the salty feed may be given until she will.



Cross-section of hay stack showing how salt should be applied every 3 feet

Imported and American Bred

Percheron, Belgian and Shire Stallions

A large collection of Stallions ready for service this season. Heavy boned types with plenty of style and action. Prize winners and descendants from prize winners. No better in America.

State Certificate of Soundness and Life Insurance

furnished with every horse. If your community is in need of a high class Stallion come to Patterson, California, and see the largest and best collection in the West. Special Prices and Liberal terms for the next sixty days.

Visitors Welcome **Correspondence Invited**

N. W. Thompson

Patterson, Cal.

NAPIER GRASS

Now is the time of the year to plant Napier Grass.
Now is the time to secure the best rooted plants that are sure to grow.
Water freely.
Price: 100 Plants, $8.00, postpaid; 1 dozen Plants, $1.25, postpaid;
½ dozen Plants, 75c, postpaid.

AGGELER & MUSSER SEED CO. 620 SOUTH SPRING ST. LOS ANGELES, CALIF.

Hauser's Digester Tankage

Gives Greatest Value For Least Money
It Makes Them Fat

Hauser Packing Co. Los Angeles

Carruthers Farms

Second Public Sale



Lady Ruberta—In This Sale

45

Scotch Shorthorns

42 Females—3 Bulls

State Fair Grounds
Sacramento, Cal.

Thursday, July 10, 1919

In this sale Mr. W. M. Carruthers will afford established breeders and those about to establish high class herds an opportunity to secure, right here at home, a splendid selection of Scotch cattle that will compare favorably with the best eastern offerings.

A New Standard of Shorthorn Quality in the West

Both as to individuality and breeding this sale will set a new high level for Shorthorn quality in western public sale offerings, and it comes at a time when investment in registered beef cattle is one of the most promising in the agricultural field.

HALLWOOD VILLAGER
one of the great younger sires of the breed will be a feature of the sale. He should make a fortune for some breeder.

Everything tuberculin tested and guaranteed to be breeders.

The cattle are now practically all on the sale grounds. Call and look them over any time.

Catalog free on request.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Cal.

Auctioneers: Reppert and Milne

His Calves Are Beauties

Every one who is fortunate enough to own a son or daughter of KING KORNDYKE PONTIAC 20TH our $6500 herd sire, is enthusiastic about the splendid type and beautiful marking of his calves. While they are only babies his daughters show great promise of developing into exceptional dairy cows.



King Korndyke Pontiac 20th

His young sons are moving fast, and it will pay you well to see us now about one for your herd, for we are not going to be able to fully supply the demand for some time to come.

Our Entire Herd is Tuberculin Tested

Tulare Holstein Farm

W. J. Higdon, Owner TULARE, CAL. H. L. Redd, Herdsman

For Sale Sir Fayne Pontiac De Kol Pietertje

H. B No. 157535



Will offer for sale this valuable Herd Sire. He is from a 24 pound granddaughter of King of the Pontiacs.

Born April 17, 1915.

Sire—Sir Mooie Fayne De Kol Jane 76287.

Dam — Whittier De Kol Pontiac Pietertje 173965. Butter seven days, 24.12.

Todos Santos Rancho

E. D. Barry, Jr. *Daggett, Cal*

Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average:

Milk one year....24,089.88 pounds
Butter ..... 1,105.07 pounds

This butter average is equalled by only one other bull of service age in the world. Buy your next full from

Eldorado Herd

Alex. Whaley, Owner Tulare, Cal.

RIGHT NOW



We can supply you with a splendid young bull—one that will increase both your milk and butter yield—sired by a bull with more 30 pound daughters than any living sire. An immediate reply to your inquiry.

R. F. Guerin, Breeder of Holsteins

Visalia, Calif.

Live Stock News Notes

SALE CALENDAR

Shorthorn Cattle

July 10, W. M. Carruthers, Sacramento.
August 2, Butte City Ranch, Butte City.
October 16, Dr. H. M. Elberg, Woodland.

Poland-China Swine

September 17, John M. Bernstein and W. L. Haag & Son, Hanford.
October 29, Tulare County Poland-China Breeders' Association, Tulare.

Berkshire Swine

August 2, Butte City Ranch, Butte City.

Shropshire Sheep

August 2, Butte City Ranch, Butte City.

Duroc-Jersey Swine

July 16, Tulare County Duroc-Jersey Breeders' Association, Tulare.

Tulare County Poland-China Sale

October 29 has been set by the Tulare County Poland-China hog breeders for their first pedigreed consignment sale, when the recently formed organization will offer its choicest animals at auction. The tentative date of October 9, which had been considered, was abandoned so that the sale would not come during the week of the live stock show to be held in Tulare October 6 to 11 and the carnival to be held the week following at Visalia. The sale will be held at the sales pavilion of the Tulare County Live Stock Association at Tulare. This pavilion is now nearing completion and will have accommodations for 150 head of hogs in specially constructed stalls, with concrete floors and special attention paid to drainage. It will be 50 by 90 feet and will have a big show ring, a special auctioneer's stand and seats for several hundred persons. By means of a "class" committee which will pass on all stock consigned to the sale 60 days before the date and again the week before the animals are to be sold, the directors of the association believe that only the finest Poland-Chinas in the county will be put up for sale. All pedigrees will be guaranteed. H. C. Shinn of Tulare is the association secretary.

Tulare County Duroc-Jersey Sale

To inaugurate the new $10,000 sales pavilion of the Tulare County Live Stock Association at Tulare the county Duroc-Jersey breeders' association will hold a consignment sale on July 16. Sixty animals, representing the best of the breed, will be put up at the sale.

Good Bull Transferred.

Guy H. Miller reports that he has sold the fine young Jersey bull Juanita's Majestic Noble to Miss Rose E. Crook of Makawao, Hawaiian Islands. This young bull is out of one of his Register of Merit and prize winning cows, in fact his dam and both granddams have good yearly records. Miss Crook selected this young bull to use on daughters of Amethyst King, an excellent bull selected from the Miller herd several years ago.

$10,000 Premiums for Grain and Forage.

The Chicago board of trade, desiring to stimulate and improve grain and forage production, offers $10,000 in premiums to exhibitors of grains and hay at the International Live Stock Exposition of Chicago during the first week in December. The manager of this exposition promises to stage a show of grains and forage which will in all respects be on a par with the wonderful exhibits of live stock annually assembled at this, "The World's Greatest Live Stock Show."

By having these powerful influences cooperate, an exhibition of grains and forage may be looked for, the equal of which has never been seen anywhere.



Madrigal Mooike Second

32.77 pounds butter at three and one-half years and still on test. Owned by W. J. Higdon, Tulare.

Eleventh Daughter in R. of M.

Guy H. Miller of Modesto writes that Ila of Venadera, a two-year-old daughter of his herd sire, Altama Interest, has just finished a year's test, making 319 pounds of fat, beginning at 24 months of age. Milked twice daily and ran out with the herd summer and winter. She is the eleventh daughter of Altama Interest to qualify for the Register of Merit.

New Ayrshire Breeder.

Prof. J. M. Culpepper of Modesto is founding a herd of registered Ayrshire cattle and has purchased four cows and a bull from E. B. McFarland of San Mateo, as a foundation.

Promising Heifer

The Burr Farm has just completed



Coloma Beauty Butter Maid

34.77 pounds butter in seven days as a junior four-year-old, record just completed. Owned by W. J. Higdon, Tulare.

a record for their three year old cow, Stratford Segis Blanche De Kol 2nd—that they purchased at the Guarantee Sale. Her dam is the 30 pound cow, Stratford Segis Blanche De Kol purchased by the Carnation Stock Farms of Seattle at the same sale for $1000. The Burr Farm cow produced 573.7 pounds of milk, 22.93 pounds of butter in seven days increasing her record from 317 pounds of milk and 14 pounds of butter as a two year old.

Annual Meeting American Guernsey Cattle Club.

The 42nd annual meeting of the American Guernsey Cattle Club was held in New York City on May 14, 1919. Approximately 200 members and breeders representing 21 states, also the Dominion of Canada, were present at the business sessions. Among the states represented were Florida, South Carolina, North Carolina and Virginia, with a combined attendance of 16 breeders.

The secretary reported that registration of cows and bulls during the fiscal year 1918-19 totaled 16,281, an increase of five per cent over the registrations made during the previous fiscal year. During the first six months of this fiscal year, the period just previous to the signing of the armistice, registrations were made at the rate of 1242 per month, as compared with a rate of 1369 per month during the corresponding period of the previous year, and 1471 per month since the armistice was signed.

The transfers totaled 16158, a gain of 9.3 per cent over last year. Total of 9298 transfers was recorded during the last six months of the fiscal year and only 6860 were recorded during the first six months.

Argentinan to Judge International "Doddies."

A cable to Secretary Charles Gray of the American Aberdeen-Angus Breeders, Association, Chicago, informs him that William J. Grant has been chosen by the Rural Society of Argentina to come to Chicago and judge the Aberdeen-Angus breeding classes next December. Mr. Grant comes from the Scotch Grants who have done so much to write Old Country Aberdeen-Angus history, and he has done much to boost the Blacks in the Argentine, where they are just beginning to get a foothold.

Ayrshire's Upward March

The motto of Mauchlin's Snowdrop 2d, an eight year old Ayrshire cow owned by the Connecticut agricultural college might well be "Forward, Upward, Onward." That characterizes her work during the past five years. She has just completed her fifth entry in the Ayrshire Advanced Registry with a production of 14,680 pounds milk, 618.53 pounds fat, 4.21 per cent test. Her five records on a cumulative basis average 11,338 pounds milk, 505.27 pounds fat.

Record Hereford Sale.

On May 21-22 Warren T. McCray, Kentland, Indiana, sold 120 Hereford bulls and females for $436,250, an average of $3635, a new high record for beef cattle. The top bull was Baron Fairfax, by Perfection Fairfax, selling for $24,000. Hugo Fairfax, also by Perfection Fairfax, sold for $23,000; Admiral Fairfax, by the same sire, fetched $20,500 and Luther Fairfax, another half-brother, sold for $19,000. The top female, Miss Dale Farmer, by the imported bull Farmer and bred to Perfection Fairfax, sold for $10,500.

Record Angus Sale.

While Herefords were breaking records in Indiana, the Angus clan gathered at Holbrook, Iowa, and paid the veteran breeders, P. J. Donohoe and Sons, $121,425 for forty-seven head of females, an average of $2583, the new record for the breed. Blackcap Lassie 16th, a two-year-old daughter of Black Engraver and Blackbird McHenry 74th, was purchased by R. W. Plummer of Iowa, for $7,200, the highest price ever paid for an Angus female. Elba of Glyn Mawr 4th was taken by A. D. Wilcox of Kansas, at $6300.

Prof. Thompson Selects Durocs

The Elliott-Brant Rancho has recently received a shipment of a young boar and five gilts from the Duroc-Jersey herd of H. P. Slocum and Son, Willows.

The boar is by King of Orions and has been named May Rose King as the name May Rose has been adopted as prefix for all their Duroc-Jerseys.

They were selected by Prof. J. I. Thompson of the University and were from the number recently purchased by Slocum and Son in the East.

New Herd Boar

Fred Hartsook, Poland-China breeder, has added to his herd the 1000 pound boar, Big Smooth Jumbo. He recently shipped a boar and sow pig to Albert Jones, Lancaster.

Establishing New Herd

R. F. Bradley of San Bernardino, who some time ago established a herd of pure bred Holsteins, and was a liberal buyer in the late guaranty sale, Sacramento, is also building up a herd of Duroc-Jerseys. At present he has fifteen young sows with litter at side and is developing for his future herd sire a young boar by Great Model out of Grand Lass by P. L. W.'s Golden Model.

Berkshire Booklet by California Breeder.

The American Berkshire Association has issued an illustrated booklet "Why I Breed Berkshires." The contents is a reprint of an article written by Frank B. Anderson, Sacramento, secretary of the Western Berkshire Congress. Copies of the booklet may be obtained by writing Secretary Frank H. Springer, Peoria, Illinois.

Buys Prize-Winning Berkshire Sow.

W. F. Sandercock, Sacramento, owner of the Natomario Rancho herd of Berkshires, has recently purchased from W. M. Carruthers, Live Oak, the sow, Live Oak Laurel, first prize junior yearling sow at the 1918 California State Fair. Live Oak Laurel was sired by Ames Rival 100th and her dam is Forest Grove Laurel. It

(Continued on Page 821.)

The Real Reason WHY!

We have more than doubled the milk production on Burr Farm the past year due to good cows by good sires. Our senior herd sire, Sir Veeman Korndyke Pontiac, is a son of Sir Veeman Hengerveld, the sire of more 30-pound cows than any living sire.

We can supply you a young bull, priced reasonable, bred for increased milk production. Address:

BURR FARM Los Angeles, Calif.

PRINCE WALKER CORNUCOPIA



Correct Individuality---Rich Dairy Inheritance

The above illustration is from an untouched photograph of PRINCE WALKER CORNUCOPIA as he appears today in two year old form. He has been pronounced one of the best individual bulls of the breed in the west by numbers of competent judges.

The richness of his breeding is fully in keeping with his great excellence as an individual, and he combines these qualities in a rare manner.

His Sire:

Prince Gelsche Walker

sire of some of the best producing heifers of the breed, including the famous 36 pound three year old, Miss Valley Mead De Kol Walker, who made over 1100 pounds butter in one year, winning the California Dairy Competition over all ages and breeds. Her son sold for $6500 at public auction. Another of his daughters, Lady Hiske Walker, made over 34 pounds butter in seven days as a four year old and her young son sold for $2400 at public auction. Five yearling daughters of Prince Gelsche Walker have sold at public sale in California for a total of $6800, an average of $1360, a record not closely approached by the daughters of any other bull. Prince Gelsche Walker also has a 31 pound granddaughter, and a 24 pound two year old granddaughter that milked over 99 pounds in one day.

His Dam:

Alba Sadie Cornucopia Creetia

one of the great producers of the breed. She has the following records to her credit:

At nine years—	
Milk seven days	516.70
Butter	36.21
At Seven years—	
Milk 338 days	18,849.40
Butter	866.28
At six years—	
Milk seven days	532.40
Butter	34.13
At five years—	
Butter seven days	28.85

She is the only 36 pound cow in California that has made over 34 pounds butter in seven days at a previous freshening. She is a daughter of Sir Sadie Cornucopia, whose dam was the first 30 pound cow, Sadie Vale Concordia, who in turn produced the 40 pound cow Sadie Vale Concordia 4th, who has a 38 pound daughter and is the dam of King Korndyke Sadie Vale.

PRINCE WALKER CORNUCOPIA will be given every opportunity in this herd, which is constantly increasing in size, over 60 high class cows and heifers being now in calf to him, and some of his young sons and daughters already in the herd.

Steady demand has kept our supply of bulls down to the service age limit, but we have some desirable ones nearly old enough for service. Write for prices. We have been able to please many dairymen who have purchased bulls from us.

Santa Anita Rancho

Anoakia Breeding Farm

Anita M. Baldwin, Owner **Santa Anita, California** W. H. Taylor, Supt.

JERSEYS

Jersey Bull
For Sale
A fine straight one, bred right, priced right
S. F. Williams
Orland, Cal.
Member Orland Jersey Cattle Club

Venadera Herd
Registered Jerseys
Young bulls from proven dams in Register of Merit
Guy. H. Miller
Modesto, Cal.

All My Records
Are made under ordinary dairy conditions
The Farmers Cow is
The Jersey
Young Bulls For Sale
C. D. Hayworth
Modesto Cal.

Young Jersey Bulls
For Sale
One at the head of your herd will pay big dividends on his cost. Write to
W. J. Hackett
Modesto Cal.

Get One of My Jersey Bulls
to increase the production of your herd. They are rich in the blood of the great cow, Gertie of Glynllyn.
Visitors Welcome Correspondence Invited
A. A. Jenkins
R.R. Box 46 Tulare, Cal.

TheKeepOnHerd
Register of Merit Jerseys
Young Animals for Sale
Dr. H. W. Hand, Orland, Cal.

Pacific Coast Duroc Breeders!
What are the possibilities for the pure-bred DUROC-JERSEY HOG on the Coast? READ F. F. DeVore's famous article "DUROCS OF THE GREAT WEST" in the May 15th Duroc Bulletin and see.
DUROC RAISERS! It is time to ACT! THE DUROC BULLETIN has for its slogan, "FOR MORE AND BETTER DUROCS" and it stands at "Attention" to help Western Duroc men put the Duroc in the front rank in Western States. Write for free copy containing the article mentioned.
Send $1 for 1 yr. THE DUROC BULLETIN Chicago, Illinois

The Leading Live Stock Auctioneers
Col. Ben A. Rhoades
Harold B. Rhoades
Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References: The leading breeders in the state. Write or wire for dates and terms.
Rhoades & Rhoades
1501-3-5 South Main St.
Los Angeles, Calif.

Brighton Farm Herds
Registered Shorthorns
and
Berkshires---Both Sexes
H. L. & E. H. Murphy
Perkins, Cal.

DUROCS OF THE
BEST BLOOD LINES
Bred sows, gilts bred and open. Have one very nice O. C. K. boar 9 months old. Dam sold for $1,100 and sire for $1,000 in last month's sale.
Jersey Queen Farm, San Jose, Cal.

Dairymen's and Poultrymen's Picnic

By M. E. Bemis

Dairymen and poultrymen joined in a picnic at Eastlake Park in Phoenix, Arizona, May 24. About 500 were present. Basket lunches were served at noon and ice cream was served by the several associations.

Sortly after 1 o'clock Judge J. C. Phillips welcomed the visitors in an apt and humorous speech and as toastmaster introduced the several speakers. E. F. Van Kirk, as president of the Maricopa County Dairymen's Association, told of some of the struggles of the dairymen and the need of an organization. He also urged the attendance of dairymen at the regular meetings of the association and expressed a hope that this picnic would be the beginning of a better get together spirit on the part of dairymen. President H. E. Geare of the Phoenix Milk Producers Association made his maiden speech. He also made a hit, for in a few words he told of the problems of the retailer and the necessity of getting together, not only in an organized way but in a social way, and expressed the hope that this picnic would be the beginning of an annual affair to be held each season.

E. Draper of Glendale, president of the County Poultry Association, told something of the value of the poultry products and their worth as a human food, and touched briefly on the problems of making the business more profitable. He read a letter from one of the largest dealers in the Salt River Valley showing that the quality of eggs has increased 20 per cent during the past year. From these figures which he gave it is estimated that the eggs of the Salt River Valley bring the producers more than a quarter of a million dollars annually. Mr. Draper pointed out how by better feeding, better care of the eggs and by organization that the poultry business could be made far more profitable, and urged every poultryman present to join the association.

Rev. W. S. Buchanan delivered an address in his inimitable style, enlivening it with pointed anecdotes and holding the attention of all the people in the park.

State Dairy Commissioner W. A. Barr told of some of the rather extraordinary cases of lack of proper dairy sanitation found in some of his inspection work. This emphasized the importance of cleanliness and the profitableness as well. W. A. Warriner, Sr., has made almost a lifetime study of silos, and in a brief talk told of some of the advantages of building silos.

Captain Kenney, poultryman of the Arizona college of agriculture, gave a most interesting demonstration of Hoganizing laying hens and extended an invitation to all poultrymen to bring their troubles to the poultry department of the college and assistance would be given if possible. Professor N. J. Harris, extension poultryman, working cooperatively with the United States department of agricultural extension, told of some of his work in Arizona among poultry keepers.

Professor W. S. Cunningham, dairyman of the Arizona college of agriculture, by means of illustrated charts explained why milk tests vary. George Eliot Miller had for his subject "Skim Milk a Commercial Product." He gave some most illuminating figures showing that skim milk, which is commonly regarded as a by-product of the dairy of but little value, actually has more protein food value than all the beef consumed in the United States in a year.

Dr. J. C. Norton spoke of "The Troubles of the Retail Milk Dealers" and showed that while prices of milk had advanced, that feed and labor costs had advanced far beyond. W. W. Carney, a veteran poultryman and also a successful cotton grower, was given the subject, "Chickens Versus Cotton," and handled it in a most creditable manner.

L. G. Galland of the Valley Bank, on the topic, "The Banks and the Dairymen," made a short talk that showed his familiarity with not only dairymen and banks but with cows as well. His talk was one of the best of many good ones.

The crowd left immediately following the close of the program, voting it a most enjoyable occasion. The success of the combined picnic was due, in a large measure, to the untiring work of E. E. Quick, chairman of the finance committee; E. F. Van Kirk, Mrs. W. A. Wilson and W. F. Fetterly.

Berkshire Sales Scheduled

By Frank B. Anderson, Secretary Western Berkshire Congress

The Western Berkshire Congress announces its fourth promotion sale for Salinas, Saturday, June 28, during the Rodeo and "Big Week" celebration.

J. Francis O'Connor, director in charge of promotion sales, made the Santa Rosa sale quite a feature, having a program of speaking entertainment in store for the breeders and their friends.

Lou G. Hare, a breeder of Salinas, says that the Roedo officials welcome the Berkshire Congress, as it will not only bring some good animals into their stock show, but spread pure bred hogs in the community.

Thirty small Berkshires averaged $45 at the Dixon sale, May 17, most of them going to farmers who had no pure bred hogs. R. C. Gruhlke, secretary of the Solano County Farm Bureau, looked after the local arrangements for the sale and Ord L. Leachman of Sacramento officiated as auctioneer.

The consignors were R. C. Gruhlke, Dixon; J. Francis O'Connor, Santa Rosa; A. L. Stephenson, Los Molinos; A. B. Humphrey, Escalon; George M. York, Modesto; E. H. Whiting, Ukiah; R. J. Merrill & Son, Morgan Hill; W. F. Sandercock, Sacramento; George A. Murphy, Perkins; George P. Upham, Martinez; Frank B. Anderson, Sacramento; Anchorage Farm, Orland.

The buyers were John A. Fogarty, Davis; T. A. Kilkenny, Dixon; A. L. Harris, Dixon; Conaway Ranch, Woodland; American Hog Company, San Francisco; Fred J. Stewart, Martinez; Charles Hay, Dixon; R. C. Gruhlke, Dixon; D. T. Jenkins, Dixon; John S. Cannon, Suisun; Ord L. Leachman, Sacramento; G. D. Reimer, Dixon; George W. Vaughan, Antioch.

DEVELOPING A HERD

In speaking of the development of a breeding herd, R. K. Walker, manager Winsor Ranch, Bonita, states it is their idea to enlarge and improve their herd by careful selection of young animals bred and raised on the ranch.

Mr. Walker says: "At times it may be necessary for the infusion of new blood to purchase a few outstanding animals but in this there is always the danger of importing disease. Our policy in the future will be the development of all animals to the size and age that will enable us to determine whether or not they measure up to our standard as breeding animals.

A tract of alfalfa has been divided into one-third acre lots, shade provided and running water in concrete drinking vats in every lot. Both the breeding herd and the young animals



Kreso Dip No. 1
(STANDARDIZED)
Parasiticide. Disinfectant.
USE IT ON ALL LIVESTOCK
To Kill Lice, Mites, Fleas, and Sheep Ticks.
To Help Heal Cuts, Scratches and Common Skin Troubles.
USE IT IN ALL BUILDINGS
To Kill Disease Germs and Thus Prevent Contagious Animal Diseases.
EASY TO USE. EFFICIENT. ECONOMICAL.
FREE BOOKLETS.
We will send you a booklet on the treatment of mange, eczema or pitch mange, arthritis, sore mouth, etc.
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Write for them to
Animal Industry Department of
PARKE, DAVIS & CO.
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Quick-fat
The NEW FEED
For Hogs, Steers & Dairy Cows
Alfalfa and Molasses base, concentrated, re-enforced and partially predigested.
A large part of the crude fibre has been changed into Carbohydrates, or the starches and sugars and the analysis, or feeding value, has been increased to practically the same as barley.
Feed some of it in place of some of the grain you now use.
At your dealers, or shipped from the factory, freight prepaid, $2.50 per 100 pounds.
I. S. CHAPMAN & CO., Inc.
Chapman Bldg., San Bernardino

BERKSHIRES
Ames Rival 70th
State Grand Champion 1918
Introduce his blood into your herd through weaners from his litters.
We guarantee you absolute satisfaction or all money refunded.
James Mills Orchard Corp.,
Hamilton City, Cal.

Duroc Jerseys
In San Diego County
Great Model
The Most Popular Sire in the West
Winsor Ranch
Bonita, Calif. Address R. K. Walker

Some of the finest
GUERNSEYS
in the West are at
Hollow-Hill Farm
Colton, Cal.
Only Bull Calves For Sale

are driven to these lots each morning and returned to their feeding pens in the evening where they are fed by automatic feeders.

Winsor Ranch will have out a complete show herd this fall which will include the twice grand champion Duroc-Jersey sow of Southern California, Model Defender Lady.

The ranch recently shipped to the Southwest Cotton Company, Phoenix, Arizona, two young boars by the herd sire Great Model.

The Silo for the Readjustment Period

By A. L. Haecker

Economic production of stock and stock products is one of the important problems connected with the readjustment period. Agricultural economy will be studied more closely during the next few years than it has been during the past. The need for a greater supply of both meat and milk, not only as food for this country but also for foreign demands, will require that we keep more live stock on the farm. This is also required as a land builder and a better use of our cheap raw materials. Any equipment or plan of agriculture which will tend to lower the cost of both stock and stock products will be favored in this readjustment period. A glance at the live stock sales going on over the country will illustrate that this idea is clearly held by many of our leaders in rural affairs. All kinds of pure bred live stock are in great demand. New herds are being founded and new interest being taken in the breeding and feeding of live stock. The silo has always proven of first importance when good and economic feeding are required. For this reason we can expect a revival in silo building. As the farms become divided and made smaller, more intensive farming is required. Greater economy must be practiced and the wasting of feed cannot be tolerated. There are crops of forage such as millet, sorghum, kaffir, oats, peas, cow peas, soy beans and Sudan grass, which can be stored in the silo better than in any other form. Silage makes the cheapest substitute for hay and pasture. This has been well demonstrated and has been proven of such value that many farmers and dairymen have reduced their hay requirements half and their pasture even a greater ratio. Only the best pastures have proven a profitable crop. Good land devoted to pasture where drouth prevails is a questionable crop and it is difficult indeed to make such land earn dividends that would warrant a hundred or a hundred and fifty dollars an acre investment.

Many farmers who have kept a small herd of cows have figured they did not keep enough to warrant the building and filling of a silo. This is often a mistake for with the small herd the overhead cost of care and management is often higher than it is with a large herd and the need for economy is still greater. As silos become more numerous it becomes easier to fill them for the community is largely engaged in the work during the month of September and by exchanging work it is easy to arrange for the filling of the small silo which would only require one day.

For several years hay has not only been scarce but very high priced. It is exceedingly difficult to buy high priced hay and feed with a profit for either milk or beef production. A more liberal use of silage will do away with this high cost of hay and the succulent ration will give better returns. Along with the silo should be used leguminous hays or fodders. It has often been said, and truthfully, if you have silage then you also need alfalfa or clover and the soil needs it too. It has proven a wise and economic policy to combine these two great feeds in order to raise stock cheaply and will.

The silo has been making steady advancement for the past 25 years but without doubt 1919 will see more silos constructed on the American stock farm than ever before. Practically every state in the Union has found that the silo is well fitted to their conditions. With the silo they can feed economically and utilize all the forage they grow and so it is in keeping with economic production and with advanced and scientific farming that the silo has an important part in this readjustment period.

Wonderful Record by a Canadian Holstein

Rolo Mercena DeKol 30313 (C. H. B.), a Canadian five year old Holstein-Friesian cow has broken the world's record for seven and 30 day butter production by producing under official test 51.93 pounds butter in seven days



5 Champion Blood Champion Prospects 5

Do you want a good herd boar? Do you want to win at the fall shows? I have five yearling boars sired by the phenomenal Hampshire boar Director—sire of Director Jr., grand champion as junior pig at state fair 19[illegible]. Two are full brothers, three half brothers. They have been pronounced as good as the winner.

Write now for full particulars and secure your herd boar as well as an excellent prospect for the fall shows. Buy Winners.

L. A. DENKER

Saugus, Bouquet Canyon California



ANCHORAGE FARM BERKSHIRES ARE PROFITABLE



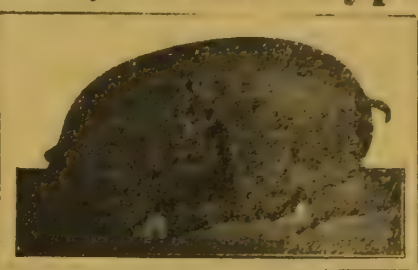
Select Now Your Future Herd Sire

A young boar pig carrying the blood of that world's famous boar— Star Leader will add the necessary quality to your herd. These young boars are ready for shipment and priced reasonable. Let us send you full particulars. Write us at once.

Anchorage Farm, Orland, Calif.

Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



M. Bassett

Hanford, Kings County, Cal.

LENDORRIS LIBERTY BOND

Weighs at six months 260 pounds. In our Sale September 17th there will be some high class sows bred to him.



W. L. Haag & Son

Hanford, Cal.

Important Duroc Offering

We recently purchased a car of excellent Duroc-Jerseys selected from some of the East's leading herds.

Thirty-five yearling and aged sows for sale. Will breed them to any boar on the farm. Several young boars ready for service and fall shows.

Young pigs of both sexes.

H. P. Slocum and Son

Willows, California

The Key Herd of Duroc-Jerseys

To You who Are Looking For GOOD **Duroc Jerseys**

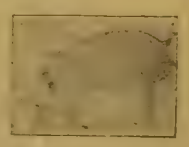
We can now supply a few choice boar and sow pigs. They are by such boars as Cherry Chief 2nd and Calif. Great Wonder and from Golden Model sows.

George Junior Republic Chino, Calif.

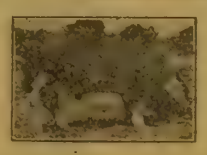
also Breeders of Holsteins

GET THEM QUICK

to breed for fall litters—2 magnificent young Berkshire boars by Ames Rival from our prize-winning sows. Priced low for immediate shipment.



F. P. Hall Perris, Calif.



Take a Look at Blue Valley Model

One of our promising young boars. Strictly Big Type. Aged sire Greenfield's Special by Superba. Big Type Polands that satisfy. Write

Poland China Ranch H. B. Peake, Mgr.

San Bernardino, Calif.

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Don't wait for someone to call on you and argue you into it.

Everyone admits that milk and all milk products should be advertised to the public but there is no one to furnish the money unless it be those who will profit by the increased trade that is sure to follow.

The present high prices are admittedly profitable, but they spell danger in the future.

Thousands of consumers are already using substitutes and many more will do so.

Substitutes are persistently advertised—dairy products are not.

California Dairy Council will advertise them if You will furnish the money.

Send in your subscription voluntarily—don't wait.

If the money of those who have already subscribed is spent in sending solicitors to see those who have not there will be just so much less to spend in getting new business.

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We Guarantee Satisfaction

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Fly-Moth Bait---Fly-Moth Trap

(Non-Poisonous)
$2.00 Per Gallon





Galvanized Iron
19 in. x 10½ in.

Collapsible
Sanitary
Sure

$2.00 Per Trap

3 Traps Caught 2 Gallons of Flies in 24 Hours
Shipments By Express C.O.D.

Fly-Moth Bait & Trap Co.
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SURFACE IRRIGATION

10 FOOT CINCHES LONG — DOUBLE LOCK SEAM — ONE PIECE BODY

MANUFACTURERS OF
Well Casing, Tanks, Riveted Water Pipe and Supplies
AMERICAN STEEL PIPE & TANK CO.
P.E. Building, Los Angeles, Cal. **Branch at Fresno**



and 200.34 pounds butter in 30 days; her milk yield being 738.7 pounds and 2920.5 pounds for the respective periods. "Rolo's best day's butter amounted to 8.57 pounds. In 60 days she yielded 5795 pounds milk which made 337.49 pounds butter and her best work was accomplished toward the end of her test. The records were made under the supervision of Professor H. H. Dean, of the Ontario Agricultural College, and a retest was made by officials of the Holstein-Friesian Association of Canada.

Rolo Mercena DeKol is owned and was developed by J. B. Hanmer, a young Holstein dairyman of Ontario. Mr. Hanmer purchased her for $320 from his father, H. C. Hanmer, who has been breeding Holsteins for about six years. The present owner of this wonderful cow has only been in business on his own account for a little over a year. The sire of the new world's champion is Sir Rolo Banks Mercena 14953, a bull that has only two pure bred daughters. Her dam is Flora DeKol Pietertje 9163, with six daughters having official records. Both sire and dam trace back to Abbekerk Prince 2d 1068 in the Canadian herd book.

Record California Prices Secured by Morris

The honor of selling the highest priced bull of any breed, bred, developed and owned by California breeders, goes to A. W. Morris and Sons, Woodland, who sold the Holstein bull, Sir Aaggie Mead De Kol, in the Moyer National Sale at Philadelphia last week for $11,000. The purchasers were John Arfman and Carl Amos of Syracuse, New York.



Eleven Thousand Dollars
Sir Aaggie Mead De Kol, bred, developed and sold by A. W. Morris & Sons, Woodland, in the National Sale, Philadelphia, for $11,000.

Sir Aaggie Mead De Kol was sired by Sire Aaggie De Kol Acme, a son of Aaggie Acme of Riverside 2d, the cow that holds the world's strictly official record for butter production, having to her credit 1331 pounds butter. His dam is Aralia De Kol Pontiac Mead, with a two-year-old record of 932.4 pounds butter. His maternal grand dam is Aralia De Kol Mead with a strictly official record of 1215 pounds butter and she is a daughter of Aralia De Kol, a former world's record cow with 28,000 pounds milk and 1142 pounds butter to her credit.

The seven nearest dams of Sir Aaggie Mead De Kol have an average butter production of 1100 pounds, thus making him the only bull in the world backed by as heavy yearly production

Morris and Sons have developed one of the outstanding herds of the breed and have developed more high producing, long distance cows than any other breeding establishment. In addition to the above bull they consigned to the National Sale four head of females, but at the time this was written, no report of their sale had reached us.

Later by Wire.

Now comes wire with:

"Tilly Alcartra Second, consigned by Morris to National Sale, sold for $11,200. Two granddaughters of Tilly Alcartra sold, one for $2150, the other for $1654, or an average of $6500 for the four."

Regarding Tilly Alcartra Second, she is a two-year-old daughter of Segis Pontiac De Kol Burke and the famous Tilly Alcartra, the only 33,000 pound cow in the world and champion over all ages and all breeds. Her two nearest dams average 31,000 pounds milk in a year. Tilly Alcartra Second is a full sister to King Morco Alcartra, a sire that the Messrs. Morris are retaining in their own herd.

Bridgfords Develop New Record Cow

Nattalene Walker, a junior three-year-old registered Holstein heifer owned by Bridgford Company, Knightsen, recently completed an official record of 34.45 pounds butter from 818.5 pounds milk in seven days, and in 30 days made 134.76 pounds butter from 3319.9 pounds milk. Her 30 day records for both milk and butter are California records in class. She is a daughter of King Walker Fifth and out of a granddaughter of King of the Pontiacs. This heifer bids fair to reach still higher points of production as she matures if indications of production at her first two freshenings may be taken as an index.

Spring Farm Pauline Pontiac Second, a daughter of Spring Farm King Pontiac, also owned by Bridgford Company, recently made an official record of 33.03 pounds butter from 673.6 pounds milk in seven days.

The daughters of the Bridgford senior herd sire King Segis Alcartra Abbekerk are showing wonderfully well in official test work as they freshen. The first one to freshen calved to an accidental service at the young age of 17 months, but was put on test and made 16 pounds butter in seven days milking over 40 pounds per day. This heifer has just recently made over 15 pounds butter in seven days eight months after calving, showing a wonderful persistency in production. Luzette Segis Alcartra Abbekerk, by the same sire, calving at two years three months has made 22.09 pounds butter from 409.7 pounds milk in seven days. The latest daughter of this sire to freshen calved at two years one month, and has made 24.87 pounds butter from 483.3 pounds milk in seven days and 99.74 pounds butter from 2079.24 pounds milk in 30 days.



Nattalene Walker
At three years four months: Butter seven days, 34.31, milk 818.2; butter 30 days, 134.76, milk 3319.9. Owned by Bridgford Company, Knightsen.

To Catalog a Real Herd Bull

As an indication of the progress made by Shorthorn breeders in California, comes the announcement that W. M. Carruthers plans to make the premier attraction for his forthcoming sale to be held at the state fair grounds, Sacramento, July 10, the sale of his well known herd bull, Hallwood Villager.

Hallwood Villager, judged from any standpoint, is one of the most valuable bulls owned in the West and certainly one of the most valuable bulls ever offered at public sale west of the Rockies, and if there was not an existing demand for bulls of such quality it is quite certain that his owner could not have been persuaded to permit the public to appraise him in an auction.

Hallwood Villager was bred by the late E. M. Hall of Carthage, Missouri, a fact that should mean much to anyone at all familiar with the excellence of that herd at the time of the owner's tragic death. He was sired by Village Flash, counted one of the best sons of Villager and he is out of a Lavender dam sired by the Forbes bull,

Star's Champion, a son of Star of the North.

His individual excellence is indicated by the fact that he was first prize two-year-old at the 1918 California State Fair, and that he gave his stall mate, the three-times grand champion, Count Glory, the closest sort of shave for senior and championship honors. At that he had many friends around the ringside who regarded him as eligible for top honors.



One of Finest of the West

Hallwood Villager, premier attraction in W. M. Carruthers' sale of Shorthorns to be held at Sacramento, July 10.

As a sire his ability is clearly demonstrated by the quality of calves he has been siring—a number of which will be included in the sale—deep, thick-fleshed calves of the most desirable type. His individuality and breeding record is such that he can be seriously considered by any breeder and it is conceded that he will add strength to any herd.

Besides the above bull, Carruthers is cataloging a rare lot of females of desirable ages and representing choice Scotch breeding.

Live Stock Progress at Santa Anita Rancho

By C. L. Hughes

The splendid herds of registered live stock established by Anita M. Baldwin on her great Santa Anita Rancho, Santa Anita, are making most substantial progress and steady sales of breeding stock have kept the surplus moving into the herds of other breeders and live stock farmers.

Superintendent W. H. Taylor has accomplished wonders with the big ranch and has made a particularly notable success with alfalfa, corn, and other crops suitable for animal food, and has been equally successful in securing a high percentage of increase in the animals to consume this feed and walk it off the ranch to the market.

Earl Sturgis is back from the navy and has the big herd of registered Holsteins hitting a new stride, and there will be production records in plenty made in the herd from now on, not only in the short time divisions but in long time divisions as well, for it will be the policy hereafter to continue all the females on 305 and 365 day test. Of course the outstanding recent record was that of 36.21 pounds butter in seven days made by Alba Sadie Cornucopia Creetia, dam of the Santa Anita herd sire Prince Walker Cornucopia. This young sire is the highest record son of Prince Gelsche Walker, and is developing into an individual of the highest merit. He already has a promising start as a sire, some of his first calves having already been dropped, and more than 60 high class cows and heifers are now in calf to him, while he is still only just past two years old. A great deal may be expected of this sire, not the least interesting of which will be the performance of his daughters out of his half sisters, for he is being bred to all of the 24 daughters of Prince Gelsche Walker in the herd.

In the swine department business has been exceedingly brisk. It has been found in this herd, as in many others, that it pays to concentrate effort on one breed, and in future registered Poland-Chinas will be bred exclusively. Over 1000 purebred individuals of this breed are now in the herd and yet the herd has been hard pressed to fill its orders for sows and bred gilts. It will be remembered that Mrs. Baldwin purchased the great young Poland-China boar Banker's Boy, after he had won junior championship at the Panama-Pacific Exposition, for $1000 from M. Bassett, Hanford. The writer has always been interested in the career of this young sire, as he was placed in the Santa Anita herd and given the heaviest sort of service from the time of his purchase up to the present. Now that he has had an opportunity to demonstrate his worth as a sire, some of the results of his service were requested of Superintendent Taylor, who replied: "Banker's Boy has proved to be one of the greatest sires I have ever seen. We have sold over $15,000 worth of his get from this herd, and our present ownership of his sons and daughters runs into many thousands of dollars in value, and the boar himself is still doing active and heavy service. At $1000 he has proven one of the best investments we ever made in a breeding animal." The junior herd sire is Anoakia Chief, son of I. B. A. Wonder, and he is being used extensively on the daughters of Banker's Boy.

Additional buildings of high-class concrete construction are being provided at Santa Anita Rancho for the expansion of the Holstein and Poland-China herds. The popular blood lines and superior individuality of both herds have found high favor among buyers, while the policy of absolutely standing behind every animal sold has appealed strongly to the large number of breeders, dairymen, and hog raisers who look to this big ranch for high class breeding stock.

Berkshires Average $44.45 at Santa Rosa

The third Berkshire promotion sale under the auspices of the Western Berkshire Congress was held at Santa Rosa, Saturday, June 7, and was made doubly attractive by two special features inaugurated by J. Francis O'Connor, the local breeder. The first was a ladies judging contest, and won by Mrs. Throckmorton, Sebastapol. The prize was a young sow pig.

The second special event was a pig donated to the chamber of commerce which was raffled off and added $50 to the publicity fund of that organization.

As it is not the intention of the promoters of these sales to make high averages, and as the greater part of the offering was of spring pigs, the average of $44.45 obtained was in every way satisfactory.

The only bred gilt in the sale was consigned by the University Farm, Davis, bred to their good son of Grand Leader 2nd. Grand Fashion Leader. She topped the sale at $160.

The next highest priced animal was a son of Star Leader, consigned by Wm. T. Chapple of Fair Oaks Ranch, Willits, which brought $130.

Both of these were purchased by Mr. Slater of the Conoway Ranch, Woodland.

The buyers were: Dr. E. S. Bogle, Santa Rosa; L. E. Roof, Santa Rosa; W. P. Shearer, Healdsburg; Chas. L. Hampton, Santa Rosa; Conoway Ranch, Woodland; Fred J. Stewart, Martinez; B. C. Pressley, Santa Rosa; Glendon Whiting, Ukiah; Mrs. Winslow Anderson, Kenwood; Geo. A. Murphy, Perkins; Willis E. Farnsworth, Eldridge; A. B. Humphrey, Escalon; Joe Mannix, Santa Rosa; W. F. Sandercock, San Francisco; J. D. Krause, Santa Rosa; Wm. T. Chapple, Willits; J. M. Jamison, Santa Rosa.

The animals consigned to the sale were from the herds of J. Francis O'Connor, Santa Rosa; University Farm, Davis; J. Montoya, Hilton; H. C. Muddox and Son, Sacramento; E. A. Whiting, Ukiah; Wm. T. Chapple, Willits; Sandercock Land Company, Sacramento; A. B. Humphrey, Escalon; Geo. A. Murphy, Perkins; Geo. P. Upham, Martinez; Frank B. Anderson, Sacramento.

In addition to the above consignors, a few pigs were sold for the pig club boys and were purchased mostly by the breeders to give encouragement to the boys. Ord L. Leachman of Sacramento was the auctioneer.

The next sale will be held at Salinas June 28 during the Rodeo week.

LIVE STOCK NEWS NOTES

(Continued from Page 817.)

is Sandercock's intention to exhibit this sow at the fall fairs and it is probable that she will be fitted at Carruthers Farms.

Sandercock has assembled one of the best collections of Berkshires in the West and has at the head of his herd Baron Duke 101st., senior and grand champion at the 1917 National Swine Show. Among the sows in the herd are some noted winners and producers.

Tulare's First Annual Stock Show.

During the week of October 6 to 11 the Tulare County Live Stock Association, cooperating with the Tulare board of trade will hold its first annual live stock show in this city. Property has been purchased and fenced and sheds for the accommodation of 150 head of hogs and 120 cattle already have been built, and a number of other buildings for the housing of exhibits and for the comfort of visitors have been planned. The prize lists will cover all classes of cattle, hogs, horses, mules and poultry, and because there are more pure bred dairy stock in the Tulare district at this time than anywhere in the state, special emphasis in the displays will be made on live stock. Every effort will be made to make the affair one of statewide interest to stockmen, and many thousands of dollars have been pledged by local business men in support of the movement. A big Fourth of July celebration, similar to one last year when $6500 was raised for the Red Cross, will be held to add to the prize money to be offered.

First Government Report on Wool Prices.

The first government wool market report has been issued by the bureau of markets, United States department of agriculture. It covers quotations on bright domestic fleece wool in all grades, also territory, California and Texas wools. Prices, based on actual sales in Philadelphia and Boston, are quoted on grease wool, showing the range and estimated shrinkage.

Special cables to the bureau of markets state that the second series of government colonial wool auctions at London shows a rise of five per cent for finer grades compared with closing value at April sales. Medium descriptions were unchanged, while coarser wools ruled slightly lower.

The detailed wool market price report and succeeding monthly or semi-monthly issues will be sent to any one interested upon application to bureau of markets, department of agriculture, Washington, D. C.

Hartsook Heifer Makes Good Showing

Dr. E. J. Weldon, secretary of the Jane Garden Farms, Sacramento, has received word that a junior three-year old daughter of the Jane Garden Farm herd bull, Prince Gelsche Walker Korndyke, owned by Fred Hartsook, Lankershim, has just completed a seven-day record of 31.8 pounds butter.

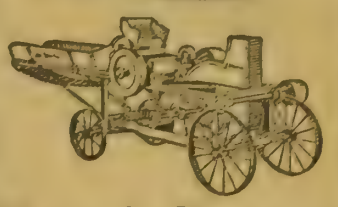
Last year, as a two-year-old, this heifer made a highly creditable record, but owing to the inability to get testers at the time the record could not stand as official.

Miller Bull to Pacheco Company.

T. T. Miller, Hollister, has recently sold the senior yearling Shorthorn bull Dalmeny Count to the Pacheco Cattle Company of Hollister.

Dalmeny Count was sired by Count Glory, the famous herd bull of W. M. Carruthers. His dam is White Briar, the dam of Miller's winning heifer, White Mayflower.

HOLMES STOCK FARM
Registered Holsteins of best breeding. Young bulls for sale.
R. L. Holmes Modesto, Cal.

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Feed Cutter
FILLS THE SILO | MAKES ALFALFA MEAL | CUTS DRY FEED
Don't waste 15 per cent to 20 per cent of your hay this year. Chop it with an Acme Cutter. Chopped Feed is all eaten.
The durable steel frame Acme will more than return its cost the first season you use it on feed cutting alone, besides placing at your disposal a superior silo filler and alfalfa meal machine.
A Size for Every Dairy.
Catalog upon Request.
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61 Beale St., San Francisco

Holstein-Friesian Cattle
Registered young bulls from best families.
Registered Berkshire Pigs
Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes—we pay registration fee.
Careful attention given to mail orders.
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Whittier, California

Attention Buyers
For Sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.
Hannon Bros.
Care Geo. Irwin
Third St. Lankershim

Macabee Gopher Trap

Small, simple, sure. At all dealers. If your dealer does not handle it, send 20 cents in stamps and mention your dealer's name and get sample by mail postage paid. Write for prices in larger quantities delivered free by parcel post.
Mfg. by Z. A. MACABEE, Los Gatos, Cal.



Save Your Hogs
Raise Your Hogs and Cattle at a Profit
Assist Nature by Feeding
Economy Stock Powder
A general conditioner, a worm expeller and a disease preventive.
Send for FREE SAMPLE and our BOOK on LIVE STOCK.
ECONOMY HOG & CATTLE POWDER CO.
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Sparks from the University Anvil

By Jean A. Koethen

THE annual institute of poultry husbandry held by Professor Dougherty and his assistants in the south is always more or less of an event, not only to poultrymen but also to the many men and women who keep a few hens and like to do it scientifically. This year, perhaps because it was held at San Gabriel, a little nearer Los Angeles than other institutes have been held, also perhaps because it had the San Gabriel Valley Poultry Association back of it and the farm bureau boosting it, it was more of an event than usual. So much of an event, in fact, with its 260 registrants and still larger average attendance, that the U. C. summer poultry school may now be considered an established fact, and something as certain to occur as Thanksgiving or Christmas.

The San Gabriel Valley Poultry Association is certainly a bunch of hustlers. They modestly claim but second place among Southern California poultry organizations, but those who accepted their hospitality last week find it hard to believe than any organization can be more prosperous or more enterprising. The long line of automobiles which drew up before the Mission playhouse daily to take the crowd out for demonstration or ranch inspection was sufficient proof of the first. As for the second, one had only to see their ranches.

Professor Dougherty always has something new to offer in his annual lecture course. This year "Don't kill the two-year-old hen" was one of his slogans. "Hatch early but feed to prevent fall molting" was another. "Green range is better than confinement, but no yard at all is better than a bare one." was a third, though he did not put it in just that way. His lecture, "Breeding to increase egg production," while it contained much that was already familiar, probably commanded closer attention than any other.

Breed for Vigor.

In his earlier lecture on feeding Professor Dougherty had declared that the importance of feeding is greatly overemphasized, for: "Investigation indicates that feeding can do nothing but furnish material for maintenance and production. It cannot be made to take the place of breeding or of bodily vigor." The first requisite to egg production is a machine of proper capacity, and this means first of all constitutional vigor, not merely health but the ability to resist disease and changes of weather and environment.

"The most important problem poultrymen have to face is to positively eliminate the low producer and to build up the high producer, and this is a problem not of feeding but of selection." The hens selected as breeders should be of unquestioned constitutional vigor; they should be of good size and well matured, not pullets, for a pullet cannot lay eggs with strong germs before she is fourteen months old; they should be the late molters, hens that are pale in shank and vent and beak and ragged and faded in feather in September; they should have good heads and combs that are rather large for the breed and of fine, silky texture.

Since fecundity is inherited from a high producer by her sons rather than her daughters, the male selected to head the pen should be positively known as the son of a high producer. Like the hen he should be of the vigorous, blocky type, with short neck, long back and deep chest. Such a male, mated to two or three year old hens that have proved their value as producers not only by the number of eggs they laid in their pullet year, but also by profitable production for two or more years, and the eggs of each hen marked so that when the chicks hatch their percentage on both sides may be absolutely known, gives a foundation for the breeding of high producing stock.

Tobacco in the Mash.

For some years Dr. Beach and the medical staff at Berkeley have advocated the use of a wet mash moistened with tobacco tea to cure round worms. Now they have gone a step farther and discovered that tobacco dust in the dry mash has the same effect and is much more easily used. One pound of tobacco to fifty pounds of mash, Dr. Beach announced, is the proper proportion. They have also found, by experimenting with the different flocks, some of which were fed tobacco in the mash while some received none, that tobacco has apparently no harmful effect on either chicks or hens. The object of this experiment is to find out whether or not the feeding of tobacco will prevent infestation by worms, but, as so far neither the flocks that received tobacco as part of their ration nor those that did not have developed worms, no conclusion has been reached.

One can hardly help wondering what effect it might have on the tobacco industry if the feeding of tobacco to hens were to become general and what effect on the poultry industry if feeding tobacco in the mash were made to take the place of the absolute cleanliness and sanitation which have hitherto been considered the very foundation of successful poultry keeping. Infestation by round worms is the normal result of keeping hens too long on soil that has not been purified by a green crop. If doping can be made to take the place of elbow grease to what lengths may we not go?

Vaccination for Chicken-Pox.

To what extent vaccination is now is shown by Dr. Beach's statement employed for controlling chicken-pox that within the past six months 160,000 doses of vaccine have been sent out to California poultrymen. If vaccination always produced permanent immunity its importance would be tremendous, but the fact is that immunity in many cases lasts but a few months, and rarely if ever does it last more than two or three years. Hence chicken-pox may occur in the spring in a flock where the birds were vaccinated in the fall. On this account the University does not advise vaccinating until the disease has appeared in the flock. Even then the vaccination of only the birds in the pen where it has appeared is often sufficient. In small flocks or isolated cases, where treatment is more advisable or less expensive than vaccination, the most satisfactory treatment

POULTRYMAN'S CALENDAR—JUNE, THE MONTH FOR VIGILANCE

Well begun may be half done, but it is no more. June is the time to keep vigilant watch for the enemies which lie in wait to devour growing stock and nullify all your efforts.

Coccidiosis is one of these enemies. Chicks that have been improperly fed may develop coccidiosis at three or four months of age. Buttermilk or clabbered sour milk is the only cure. When chicks begin to droop, cut down the mash and grain and keep sour milk before them.

Mites are another. June is their best breeding month. Keep the coops painted with cresol or carbolineum whether you see mites or not. When you do see them the mischief will probably be done.

Lice are another. Chicks have a hard enough time if they are not tickled and worried by crawling creatures. Dust them often.

Lack of green feed is another. Don't skimp the greens. Let the chicks get their own on range if possible. If this is impossible keep the fresh-cut alfalfa, kale, chard or barley before them.

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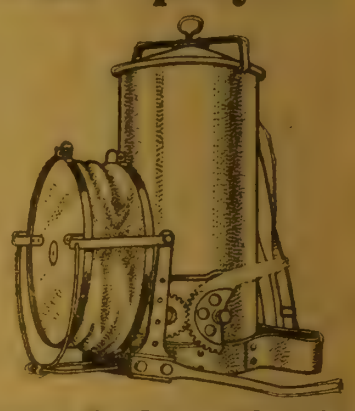
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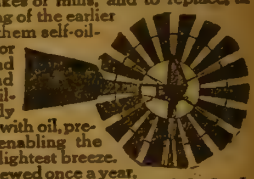
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is to remove the scab and paint the sore with tincture of iodine.

Tuberculosis, we are sorry to learn from Dr. Beach, is on the increase. It may be detected by the tuberculin test, which is merely the injection of a small quantity of tuberculin into the wattles. If tuberculosis is present there will be an immediate swelling of the wattles. A demonstration of both vaccination and the tuberculin test was given by Dr. Beach.

Lunch was served each day under the grapevine by a caterer from Alhambra. On Thursday, the last day of the institute, all comers were guests of the San Gabriel Valley Association, a gracious hospitality which was highly appreciated.

A. A. Peters, western representative of the department of agriculture, made a short address at one of the sessions in which he stated that thanks to the efficient organization of California poultrymen they are now receiving from ten to fifteen cents per dozen more for the eggs than poultrymen of other Western states who are not organized. E. E. Gordon, of the Los Angeles County farm bureau, brought the greetings of Dr. Coit, who was detained by illness, and declared that California poultrymen lead all the rest. Prof. W. E. Lloyd gave two lectures.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, May 30, 1919. Report for thirtieth week ending May 29. The hens in the laying contest at Storrs have yielded a little ground, but they are retiring in splendid order. Not only this, but they seem to have sufficient reserve so that it now looks as if the final outcome of the competition would be better than was first predicted. The total number of eggs for the thirtieth week was 4502 or a yield of over 64 per cent. This is 130 eggs better than for the corresponding week last year, and 175 eggs better than the five-year average for the thirtieth week. In this period of prosperity the Leghorns are larger participants than the heavy breeds, that is to say they are laying more than their pro rata share of the eggs. The Leghorns constitute exactly one-half the number of birds entered in the contest, and last week they laid nearly 55 per cent of the eggs.

Of the six best pens for the week all but one were White Leghorns. P. G. Platt's birds from Wallingford, Pennsylvania, were in first place with a yield of 61 eggs. The pullets entered by Rapp's Leghorn Farm, Atlantic Highlands, New Jersey, were a close second for the week with a production of 60 eggs.

With the advent of summer weather all poultry flocks are likely to fall off a little in their production, and unfortunately this cannot be entirely obviated. There are, however, helpful hints, some of which are so simple that when made the uninitiated consider them of only small importance. For example, it is just as necessary that hens have clean fresh water as feed, and yet this part of the ration is not infrequently overlooked or neglected, because it does not cost as much as a bag of grain. Add to this a bountiful supply of tender tempting green food, and then make a careful periodical examination for lice and mites and exterminate them, and in most cases the poultryman will be rewarded with more eggs.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks.

Jules F. Francais, 1153; Laurel Poultry Farm, 1089; Ingleside Farm, 963.

White Wyandottes.

Curtis L. Allen, 1098; W. Bradley, 1012; Patrick F. Sullivan, 946.

Rhode Island Reds.

Laurel Hill Farm, 1138; Deer Brook Poultry Farm, 1015; Chas. H. Lane, 968.

White Leghorns.

A. P. Robinson, 1030; Hilltop Poultry Yards, 994; Hilltop Poultry Yards, 994.

Miscellaneous.

Pequot Poultry Farm (R. I. Whites), 962; Chickatawbut Farms (White Rocks), 930; H. A. Wilson (White Rocks), 816.

AMERICAN EGG LAYING CONTEST

At the end of the first six months of the contest at Leavenworth, Kansas, (April 30), a pen of S. C. White Leghorns was in the lead with a record of 603 eggs. Second place was held by a pen of Barred Rock pullets, which produced 541 eggs.

The highest average production was made by the ninety-five White Leghorn pullets in the contest, with an average of 98.9 eggs. Such an average for six months indicates that they will average around 180 eggs by the end of the year.

The variety holding second place for high average performance was the White Orpington, with an average of eigthy-nine and one-half eggs per pullet. A White Orpington, a Silver Wyandotte and two White Leghorns each passed the 130 egg mark, the Orpington leading with 138 eggs. One pen of five Barred Rock pullets laid 121 eggs during the month of April.

REMOVE MALES FROM FLOCKS

Produce infertile eggs. They are worth more, as they keep better and they cost less to produce since there are no roosters to feed. No expense, education, ability, or labor other than catching and killing or selling the roosters are necessary. Remove the males at once.

While eggs are plentiful some should be preserved for the winter months, as they will be scarce and high priced. It costs but little in time, money, and labor, and is so easily done that it is only common sense to do it. Use fresh, infertile eggs and let customers know that they can get such eggs for preserving.

Now is the time to begin culling flocks. Send the roosters to the chopping block or the market. Eliminate all weaklings and deformed chicks. Get rid of the chick that stands along the side of the coop with its wings down, its feathers ruffled, eye shut, and head down. Do not keep a single chick that you are not sure it will pay to raise.

Shade, clean, fresh water, clean coops, and colony houses, and good ventilation and plenty of room during the night are of the greatest importance in growing healthy, strong, vigorous birds, whether they are for meat, eggs, or breeding.

Growing chicks should have plenty of good, nourishing food. Bone meal should be fed liberally to those intended for layers or breeders.

Do not forget to continue the fight on mites and lice. They must be fought all the time in all sections and in all seasons.

SELL, PEN OR COOK THE ROOSTERS

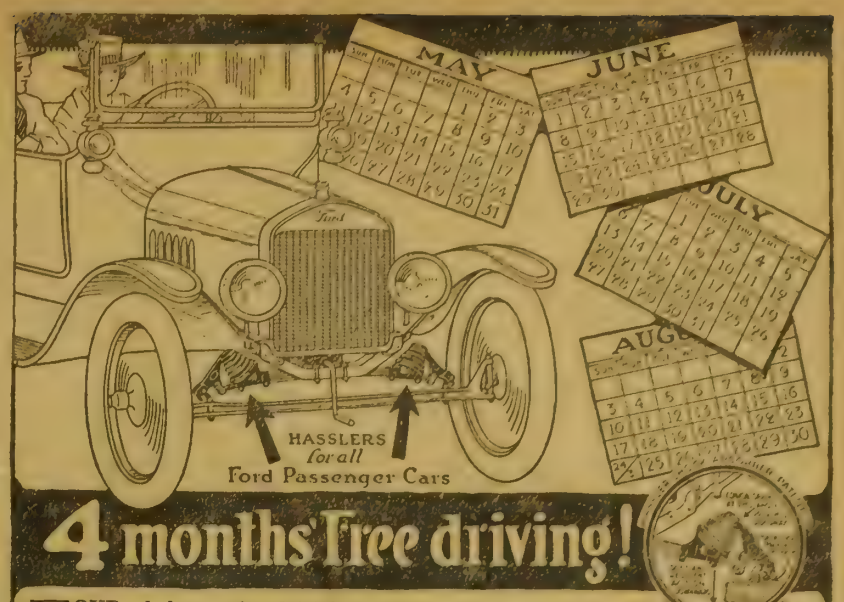
As soon as the last eggs are set the usefulness of the roosters has ceased and they should be disposed of. On most farms the best plan is to sell all roosters as soon as the breeding season has passed. If it is desired to save especially valuable males for next year's breeding they should be separated from the hens and kept enclosed throughout the summer. Several roosters may be put in the same pen without serious trouble. Unless the rooster is unusually good he should not be saved, as cockerels give better fertility and better breeding service than old males, and the feed bill for keeping the old birds will go a long way toward buying a vigorous cockerel this fall.

Straw and similar material gathers moisture, and when the litter becomes damp enough to be limp it is practically useless for fowls to scratch in for their grain feed. Scratching litter in the poultry house is essential, but it should be cleaned out and renewed frequently.

The poultry building should not be so wide that the rays of the sun can not reach the back of the interior of the house. Otherwise it will be damp. Fourteen feet is a convenient width.

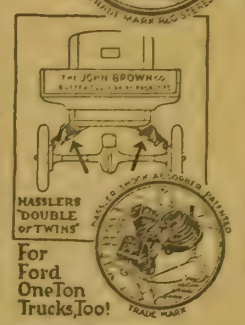
There are many advantages to a single-pitch roof on the poultry house. This type is most easily built. It gives the highest vertical front exposed to the sun's rays and throws all of the rain water to the rear.

The simplest way to prevent the accumulation of dirt is to make it easier to be clean than to be dirty.



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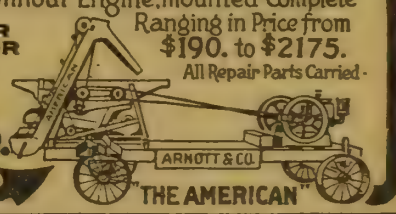
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SHEEP

Sheep For Sale—500 ewes with lambs by side. Have rented my ranch and want to sell. A good buy for a small place. John M. Cox, R. F. D. No. 1 Box 160, Brawley, California.

GOATS

Handsome Vigorous Young Buck, part Toggenberg and Nubian, out of finest type 4-qt. milk doe. E. Kelly, 834 Main Street, Petaluma, California.

HOGS

CASTLEVIEW
Giant Type Berkshires.

We are booking orders for spring pigs from Grand Champion sows and sired by Mayfield Rockwood, sire of Champion barrow at 1919 Western Berkshire Congress.

Castleview Ranch, Santa Rosa, Calif.

POLAND-CHINA BARGAINS

BRED SOWS GILTS BOARS
In order to reduce our herd and to make room for young stuff we find it necessary to offer for immediate sale a choice lot of Poland-China sows, gilts, and boars. The offering represents as good blood lines as we could buy and has been nicely grown out. All are cholera immune. Prospective buyers should not overlook this opportunity. You will be surprised at the extremely reasonable prices we are quoting. Scrub hogs are not profitable. Our registered hogs are money makers. Write now for prices. Act quick. These hogs must be sold. AMERICAN HOG CO., 920-922 CROCKER BLDG., SAN FRANCISCO.

BERKSHIRES BERKSHIRES
ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son, Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

TWO SOWS AND A BOAR
$100 the trio.
Two sow pigs from ten raised, sired by Baron Duke 201st, 780-pound $1100 Grand National Champion, from Rival B. Princess, a prize winner at San Francisco, Sacramento, Oregon, and Omaha National Swine Show, and a boar sired by the Grand Laurel Champion Boar from Symboleer Belle, and of Superbus blood lines; a boar from a litter of ten raised, big, long typy, stretchy pigs. Sandercock Land Co., in charge of Natomas Land Sales, 23 Montgomery Street, San Francisco, California.

Billiken Chester Whites. Not many left now; one 1917 fall boar; one 1918 fall boar; both cholera immune. All pigs farrowed to date are booked for sale excepting 10 boar pigs. Have 10 sows yet to farrow during May, June and July; will book orders from these litters, delivery to be made when weaned. C. B. Cunningham, Mills, California.

Grape Wild Farm Berkshires—Guernseys —spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. B. Humphrey, Prop., Escalon, California.

Weanlings Sired by Trailblaizer, son of Pathfinder, Derryfield Col. and Derryfield Wonder Boy—King's Col. Boars ex Burke's Good Enuff, Golden Model and Model Col. sows. Bred gilts. Service boars. Derryfield Farm, Capital National Bank Bldg., Sacramento.

For Sale—Registered Duroc-Jersey pigs, McKee Bros., Pilot Defender blood, owned by C. T. Thompson, Bishop, farrowed April 3rd, 1919. Very fine. For particulars and breeding, write: W. E. Detrick, Bishop, California.

Rancho Del Sur Durocs—A few good growthy fall boars sired by Orion's King Gano and California Orion Cherry King. Satisfaction guaranteed. Donald H. Graham, Box 569, Lancaster, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

For Sale—Large Registered Berkshire Brood Sow with litter of eight pigs $125. Can be seen at Lark Meadow Ranch. Geo. A. Stingle, El Monte, California.

Have Sold All the Pigs advertised recently. Will have fine pigs from spring litters for sale in June. Fine Shropshire ram lambs, pure bred, for sale. J. J. Prendergast, Redlands, California.

Big Type Durocs—Herd headed by California Orion King. Am offering some excellent boar pigs of spring farrow. Inquiries solicited. Prices reasonable. Harvey M. Berglund, Dixon, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego Co., Address: R. K. Walker.

Duroc-Jersey Swine For Sale, best blood lines. Bred sows and gilts, service boars. Jersey Queen Farm, San Jose, California.

Duroc-Jerseys — We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson. Box 724, Sacramento, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

MULEFOOT HOGS, LARGE TYPE. H. T. BAILEY, P. O. BOX 37, LODI, CALIFORNIA. "THE BLUE GUMS."

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLETS, CALIF.

HOGS

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

POULTRY

Baby Chicks For Sale—250,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock. 25, $3.50; 50, $7.00; 100, $12.50. Special prices, 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Shipped safely anywhere West of Rockies. Finest hatchery in the world. Established 1898. Must Hatch Incubator Company, 438 Seventh Street, Petaluma, California.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGAINZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

It's like groping in the dark to attempt raising poultry successfully without some knowledge of the business. Poultry for Profit tells you how to house, feed and raise chickens, ducks and turkeys successfully in California. It contains 225 pages with 18 pages of illustrations and bound in cloth $1.00 postpaid. Cultivator Publishing Co., 115 N. Broadway, Los Angeles, California.

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for 20 years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs, $2.50 per 15 eggs. Chicks 30c each; 7 pullets May hatch, laid 12 dozen December, 10 dozen January. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California.

Baby Chicks from my thoroughbred, heavy-laying strain of S. C. White Leghorns. Am booking orders now for May and June delivery at $11.00 per 100, $100.00 per 1000. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Poultry for Profit—A 225 page book, with 18 pages of illustrations, tells you how to successfully house, feed and raise chickens, ducks and turkeys in California. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 N. Broadway, Los Angeles.

S. C. White Leghorn Chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockerel at Pacific Coast Land Show. Order your chicks for June 10th delivery. A. O. & P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks—Barred Plymouth Rocks, R. I. Reds, Buff Orpingtons, Black Minorcas, Brown, White and Buff Leghorns from Hoganized stock, bred to lay. Tobener Hatchery, Washington Avenue, San Jose, California.

Black Minorca and Buff Wyandotte Eggs $1.50 per setting. Chicks 20c each. Thoroughbred stock, none better. A. G. Moore, 432 Ulysses Street, Los Angeles.

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo Schmitt, Box 263 Corcoran, California.

Black Orpingtons Lay, Weigh and Pay— Prize winners at leading shows. Write for mating list. IVEYMOOR FARMS, San Leandro, California.

White Leghorn Baby Chicks every week, good strong youngsters from fine layers. Also other varieties. Write for circular. Stubbe Poultry Ranch, Box 67, Palo Alto.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

"Eastman's Bred-to-lay" Hoganized and trapnested Barred Plymouth Rocks. SEPTEMBER CHICKS. Fairmead Poultry Farm, Fairmead, California.

Chix — Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Exchange 1 60-egg incubator new, for 2 young laying hens. No. 27 Shawmut, California.

Baby Chicks. White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

RABBITS

New Zealand Reds, rich red vigorous foundation show stock from registered animals, also fine market stock. Write: E. Kelly, 834 Main Street, Petaluma, California.

Raise Rabbits for us. We supply the breeding stock. Send stamp for particulars. H. E. Gibson Co., Arcadia, California.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock, Paul Kruger, Watsonville, California.

FERTILIZER

EARL A. HOLCOMB
SOIL LIFE
Fertilizer and materials mixed to balance every soil. Bureau of testing and advice free on all horticultural and agricultural subjects. 1022 Washington Bldg., Los Angeles. Phone 62007; res. 16116.

For Sale—Chicken manure in carloads. Cheapest and best fertilizer. MacDonald Sons. Phone 101, Watsonville.

FARM LANDS FOR SALE

For Sale—A 15 Acre 5 to 7 Year Old Orchard of apples, peaches, plums and pears, 2 miles from Escondido, Cal., on main road. Worlds of irrigation water by electric power; good house, well, 4-room house, good barn; will yield about $1000 fruit crop in next 90 days. Price $7500; equity $6000. Come and see it. Address G. W. WISDOM, Escondido, California.

For Sale—Ranch of 37 Acres, good buildings, modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator Box B A J.

Mountain Ranch—334 Acres, 90 acres under cultivation, 30 acres Bearing Orchard, balance in Timber, Oak and Pine. Free Water, deep, rich soil, eight-room house, 100 tons hay, barn and out buildings. Will subdivide. Price $7500. Terms. Address, Paradise Ranchita, P. O. Box 123, Paradise, Butte County, California.

For Sale—$1000. Clear, 160 acres, 30 mi. N. E. of San Diego. 25 acres tillable, rolling; 15 bottom, 3 plowed, balance grazing. Small new house. Well, spring, abundance soft water; timber. Fine bee, cow, pig proposition. No trades. E. T. Gray (Owner), Petrolia, Humboldt Co., California.

For Sale—Eight Acres, Six in Navels and Valencias, 2 in eucalyptus trees. Close in to beautiful Riverside. A bargain, will sell on easy terms. A. WAYNE GIBBS, 265 S. Van Buren Street, Riverside.

For Sale—Imperial Valley's finest fruit and alfalfa farm for sale at a bargain, 160 acres. Earliest grapes and apricots in the United States. C. A. Myers, 1119 Haas Building, Los Angeles.

For Sale—34 acres improved and irrigated land, ¼ mile from Newman, Stanislaus County, $260 per acre. Owner, W. L. Bone, Escalon, California.

CATTLE

Guernseys—We will sell stock from our prize winning, high producing herd, at reasonable prices, valued according to individuality and breeding. Our supply is limited but if the buyer wants a number of animals and will write us we will furnish him with particulars. Revada Guernsey Farm, Yountville, Napa Co., California.

BUTTE CITY RANCH
SHORTHORN CATTLE, SHROPSHIRE SHEEP, BERKSHIRE HOGS, SHETLAND PONIES. Stock for sale at all times. Second Farm Sale—all breeds—August 2, 1919. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California

For Sale—35 Head high grade Holstein cows fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch. Hannon Bros., Third Street, Lankershim. Care of Chas. Irwin.

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery Street, San Francisco, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greencugh, Merced, California.

Registered Holstein Bulls of various ages for sale Millbrae Dairy, Millbrae, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

CATTLE

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

MULES

For Sale — Twenty-five young mules, one and two years old. Chas. Hubbard, Riverdale, California.

QUESTIONS AND ANSWERS

(Continued from Page 813.)

five years old. A couple of months ago its right ear began to discharge. This discharge formed a flaky crust on the inside of the ear. I cleaned it with a solution of bichloride 1-2000 and dusted the ear with a healing powder used for dusting gall sores, etc., for the horses. The ear seemed to be better, but a few weeks after I again noticed the crust forming and cleaned it as before. Now this morning I again cleaned the ear and found the left ear has begun to discharge. How should this be treated? Would it be best to kill the buck? Is this discharge contagious? How old can a buck be and still give good service? We have three does. We have hutches with wire floors raised from the ground and kept clean. So far have seen no trace of the disease in the does or young ones.—Subscriber, Alta Loma.

To the writer the trouble appears to be ear canker. Take an ounce of olive oil and as much flowers of sulphur as will lay on a dime. Mix well. Take animal firmly by ears and nape of neck, turn up ear and drop two or three drops in ear. Let animal clean out ear. Have hutch clean, disinfect, etc., put some straw in so feet will be clean. Give second dose in three to five days if necessary. Bucks three years old are still good for service. After that procure younger one.—W. D. W.

Formula for Dry Mash

Please give me formula for mixing dry mash for growing chickens?—Subscriber, Lakeside.

The mash recommended by our own experiment station consists of two pounds bran, two pounds shorts, two pounds meat scrap, one pound barley meal, one pound ground bone, one-quarter pound charcoal. With this is used a scrap mixture consisting of two pounds each cracked wheat, cracked corn and steel cut oats.—J. A. K.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Can't Will Property

John Doe wishes to make an olographic will leaving all his property to his wife. A form of will for this purpose was printed in the Cultivator about 14 months ago, but it did not cover the following condition: John Doe will in due course of time inherit some property from his parents. He wishes to make his wife heiress to his inheritance if he should die before receiving it. How should the will be drawn, to provide for such a case?—R. G. D.

If the property vested at the time of the death of the husband, it will be conveyed to the wife under the provision of the said form of will. If the parents died without leaving will, after the death of the husband, in case he left no children, their property would go to their other heirs; in case they died leaving will wherein he was mentioned and had died prior to that time, no will which he could make could have any bearing upon the disposition of the property.

Must Fulfill Contract

I bought a place under an agreement whereby I am to pay so much cash each year and one-third of the crops. I put 20 acres in corn and rented 40 acres under an agreement that I was to have one-third of the crop. Do I have to yield this one-third to the vendor?—Subscriber, Willows.

The tenure under which you hold the place is that you yield one-third of the crops, and cannot by a lease which you make subject to the agreement under which you hold the place, deprive the vendor of his one-third; you would thereby be required to yield up to the vendor the one-third which you obtain under your lease as rent.

Property Rights of Second Wife

Husband and wife acquire considerable property, the wife dies, the husband remarries. In the event that the husband dies and leaves no will, what portion of the property could the second wife claim? In the event that he does make a will, could he deprive her of any interest in the estate?—Subscriber, Porterville.

In case there were no children by the first marriage the whole of the property owned by the husband at the time of the second marriage, and the increase of that property would be the separate property of the husband and would be absolutely subject to his disposition by will. In the event that he leaves no will, and there were no children by the first wife, the second wife would receive one-half of the estate. In the event that there were two or more children by the first wife, she would receive one-third.

Property Restrictions.

The restrictions upon certain property run out within six months. After that time can the owner of said lot build an apartment house, bungalow court or front buildings flush with the street? After the time when these restrictions cease can other owners of property get up a petition and have the restrictions extended? — Subscriber, Montalvo.

Restrictions upon property are merely reservation of an interest in the title which is retained by the owner at the time of deed. When such restrictions by their terms cease to operate, the whole title to the property thereupon devolves upon the owner of the land at that time, and he can therefore do as he pleases with the property thereafter. It is easy to be seen therefrom that no owners of other property could impose restrictions by any petition or action which they might take.

FERTILE EGGS SPOIL

Warmer weather is causing the rapid spoilage of fertilized eggs according to egg dealers. Poultry specialists join with them in recommending the production of infertile eggs, since the male has no influence whatever on the number of eggs produced. The development of the embryo begins at 68 degrees Fahrenheit. A temperature of 85 degrees for three or four days or a temperature of 100 degrees for 24 hours may cause sufficient development of the embryo to make the egg unfit for food. An infertile egg may be subjected to a temperature of 100 degrees for a week or ten days and still be perfectly good for cooking purposes. By keeping such eggs cool, they may be kept in good condition indefinitely.





KELLOGG'S ANT PASTE

MAKES ANTS DISAPPEAR

A MAGIC PREPARATION

25¢ AT ALL DRUGGISTS

PIPE

100,000 FEET OF NEW AND SECOND-HAND PIPE AND CASING

PIPE—Practically all sizes from ⅛ to 15 inches.

CASING—Practically all sizes from 8 to 14 inches.

All pipe and casings have good threads and couplings on each joint

RIVETED PIPE—4 to 12 inches, as good as new. We also carry valves and fittings.

MAIL ORDERS GIVEN PROMPT ATTENTION

Write, phone or wire for quotations.

Adams Pipe Works

Bay and Mateo Sts. Los Angeles, Cal.

When Writing Advertisers, Mention The Cultivator.

Household Department

THE COST OF COMPLAINING

'Taint in the way o' common sense
To growl at rain an' bring the sun,
A grumbler never built a fence
Or finished work that should be done.

I've never known the clouds to go
Becoz some feller sat an' whined,
When it's too wet to plow or hoe
Some other task to do I find.

I've never known a kicker yet
To alter things past his control,
Nor met a man with power to fret
An easier journey to his goal.

Fond hopes go wrong an' plans will stray
However much a man complains,
An' spite of all we have to say
When it is willed to rain, it rains.

The chap that gets the biggest crops
Is not the one that wears the frown.
When growlin' starts, all progress stops,
No man can climb by sittin' down.

Time spent in whimperin' is lost,
An' cursin' never changed the sky;
The grumbler pays a heavy cost
For every discontented sigh.

So when in mire my wagon's stuck
I do not idly stand about
An' start to rave an' curse my luck,
I go to work to dig it out.

An' when I've wanted weather fair,
But skies are gray instead o' blue,
I change my plans right then and there
An' find some other work to do.
—Edgar A. Guest.

STRIKE OF THE SAFETY PINS

By Alice Dyar Russell in Youth's Companion

The Button family and the Sa Pin family were enemies. Disp between the Buttons and the Sa Pins began on the very first day they were any little boys and with clothes that had to be faste When a Button skipped off to pla Safety Pin had to be called in to the Button's work; and since that quently happened, and since Sa Pins are a sharp touchy family way, their tempers soon become bearable. You would not have wa one of them round a minute if you known that they were just looking a chance to prick some one. But the Buttons did not care a bit; they shirked their work whenever they could and then made fun of the cross Safety Pins .

That brought about a dreadful state of affairs. In a certain household of six little children the Safety Pins had so much to do that they grew tired and bad-tempered. They refused to pin anything for anyone.

The mother of that family was very busy from morning till night. The baby needed a great deal of attention, meals had to be cooked for the five other children and for their father, and dishes had to be washed and rooms swept.

Sometimes she was so busy that she could not attend to the children as she wished to do. When one of the little boys ran in from play and cried, "O mother, a Button has come off my overalls!" she would merely turn from the stove and exclaim, "For pity's sake! Another Button off? Well, I can't leave the griddlecakes a minute! Here, take this Safety Pin!" And sometimes when one of the little girls started to put on a clean apron in the morning, and stopped and cried, "O mother, I can't fasten my apron! There's not a sign of a Button on it from top to toe! What shall o?" her mother would have to answer, "O dear me! More Buttons off? by won't let me put him down; 'll have to use a Safety Pin!"

When the Buttons heard remarks e that how they did laugh, and how y did yank themselves off, and how y did rub themselves on the washrd until they rattled! At last they uld all go tumbling and rolling ay to play games and have parties l picnics without a care in the rld to trouble them.

Of course, while the Buttons were ring such good times the Safety s had to work harder and harder; only the little ones that always k care of the baby, anyway, but the granndfather and grandmother s,. who naturally expected to be e to lead an easy life. The time ne when they had to work even at ht, holding fast the necks of the ldren's nighties.

Then it was that the whole Safety Pin family struck. They got together and declared that they would not do any more work. They would not hold up petticoats, they would not fasten sweaters, they would not even pin the baby's clothes. And in order that no one should compel them to work they all scurried away and hid. They slipped into cracks, they slid behind couches, and they wedged themselves under the cushions of chairs; they rcawled into places where nobody ever even thought of finding a Safety Pin.

The next morning there was a great to-do. The Buttons had all gone from the children's clothes some time ago; they were rolling round on the floor in a perfectly irresponsible way, or chattering together in boxes and bags and drawers. And now, all of a sudden, the Safety Pins were gone, too. Such fussing, such crying, such complaining began among the children! There they stood hanging on to skirts or to blouses, all talking at once to their poor mother, and all very unhappy. The baby was the only one who did not care. He merely caught hold of his foot and tried to put his big toe into his mouth.

"Oh, where have all the Safety Pins gone?" the children cried over and over. Then they began to hunt for them, although they could not search very well with their clothes coming off at every step.

They hunted and hunted. Once in a while a sharp eyed child would spy out the hiding place of one of those bad Pins, and there would be a powwow, with everyone talking at once.

"O mother, see what I've found! A Safety Pin, a Safety Pin! Right here under this rug! Just when I needed one so badly!

"Oh, let me have it!" one would begin.

"No, let me! I need it the most, you know!"

"No, I need it the most! Look at my clothes—they are all sliding off as fast as they can!"

The children made such a fuss over a single Safety Pin that he could not help feeling proud of himself and almost glad that he had been found. You can imagine how that mother felt after a whole day of such goings on. She decided that something had to be done, and that it had to be done at once.

That night, after the six children were tucked into bed,—each of them covered with an extra blanket because their nighties came open at the neck,—the mother sat down in front of her workbasket. In her lap she held a bowlful of Buttons. On a table beside her was a great pile of children's clothes—every skirt, every petticoat, every waist, every little garment, that she could find. There was not a single Button on any of them.

Then the mother took a needle with a big, wide-open eye and threaded it with stout waxed thread. She sewed each Button to a little round piece of very strong material, about the size of a nickel, and then she sewed Button and all on the children's clothes.

The way that needle traveled back and forth through each Button was enough to prove to anyone that it would be a long time before that Button got loose again.

The children were delighted when they found their clothes the next morning; they dressed so fast that they did not know themselves. The Buttons were sulky, but what could they do?

The Safety Pins grew tired after a while of staying in stuffy cracks. Now and then one of them would peep out. But for a while it was no use. Whenever a little boy, tightly buttoned into his shirt, or a little girl, perfectly sure that her petticoat was not coming off, happened to spy a Safety Pin peeping out somewhere, the only remark was:

"Pshaw, look at that old Safety Pin!"

But as time went on, the Safety Pins came out of their hiding places and went back to the nursery. Then, whenever a Button decided suddenly to go off for a holiday, a Safety Pin would almost jump into the place he had left.

Very few of the Buttons went off for holidays, it is true, for they, too, had learned their lesson. They stayed faithfully at their posts, and ever after there was good feeling between the Safety Pin family and the Button family.

CANNING TIME AGAIN

Canning time is here again and with the present high prices of fruit no scrap should be wasted. Cull and small fruits that never were canned or dried before will be saved this year for jams and jellies and fruit syrups. And rhubarb will be used as a carrier of the more expensive flavors contained in berries, currants and other fruits. The combining possibilities of rhubarb are endless. It has the acid that easily takes other flavors, and its pulp is quickly incorporated with and becomes part of mixtures—not that anybody needs to conceal the fact that rhubarb has been used, for it is good on its own account, but it does help to make the more expensive fruits "go farther."

To prepare the rhubarb, pull stalks, wash and clean while fresh—do not remove peel or skin, for the peel contains the color and most of the fine flavor. Cut in inch or less pieces, put in kettle with cold water and a little soda, let come slowly to boil, remove from fire, pour off soda water and use in any other fruit or jam. (If preparing the rhubarb to use by itself, simply add sugar and set over slow fire for a few minutes to let the sugar dissolve. Practically no further cooking is required.)

Get Supplies Now.

But as to canning in general. If you have not already secured new tops and rubbers for the old jars, and additional jars if necessary, now is the time. And now is the time to plan on using the fresh green fruits for jellies, especially the early berries; no others jelly so well.

Recipes for jelly and jam making we will give in these columns in later issues. For this week we give directions for canning fruit by the cold pack method.

The Home-made Canner.

Make false bottom to fit inside ordinary wash boiler. This may be of heavy wire screen, a wooden grating, or even straw.



He hasn't forgotten-

No need to tie a string 'round *his* finger to remind him of Ghirardelli's Ground Chocolate—for that's *one* good thing he never forgets.

Nothing more delicious or more nutritious! And nothing quite so handy! A hundred uses in every can—always keep a can on hand!

Ask for Ghirardelli's *by name*—and see that you get it. In ½ lb., 1 lb. and 3 lb. cans—wherever you do your trading.

Say "Gear-ar-delly"



Since 1852 D. GHIRARDELLI CO. San Francisco

Ghirardelli's Ground Chocolate

All jars, tops and utensils used in canning should be given thorough cleaning, washing in hot suds, using small scrub brush for tops, then rinse thoroughly.

Use fruit as soon as possible after it is picked. The fresher the fruit, the better the canned product will be and the less sugar it will require.

Wash fruit in small quantities, peel and pit quickly and pack directly into jars or cans.

If all the fruit is washed at one time and left to stand some of it will soften and some of it will ferment.

Fill cans with hot water or with syrup. (Jars should be warmed first to avoid cracking). The fruit will keep if no sugar is added, but is richer if the sugar is cooked with it rather than added later, though many prefer the "fresh" taste of the fruit canned without sugar.

The usual sugar syrup for apricots, peaches, plums and berries is made by dissolving 3½ pounds of sugar in a gallon of water. For apples, pears, quinces, prunes, and cherries 2¼ pounds of sugar to the gallon is sufficient. If neutral 65 degree grape syrup is used, from 5½ to 3½ pounds should be used per gallon of water.

Place the full cans or jars with loose covers on the false bottom in the wash boiler, adding water to about two-thirds their height. With cans boiling water is best; with jars it should be simply warm. A second tier may be placed on a wooden rack resting on top of the first tier.

Place the cover on the boiler and heat to boiling. The boiling should continue for 20 minutes for apricots, free-stone peaches, plums, berries, apples and cherries. For pears, cling-stone peaches, and unripe fruits, 30 minutes are necessary to cook the fruit.

The tops of the jars should be screwed down tight while still boiling hot and placed upside down or lying down on a table to cool. Wax-top cans should be removed quickly and sealed while still boiling hot.

CANNING AND DRYING NOW

The canning and drying season will soon be at its maximum. If containers have not been secured, order them at once. Make sure the tops and jars on hand are in good condition, and likewise get a plentiful supply of good rubbers. Can and dry a sufficient quantity of early fruits and vegetables for next winter's use, and also make the necessary plans for putting up berry and fruit juices by laying in plenty of bottles, caps, and other needed supplies.

HOUSEHOLD QUERIES

Kumquat Marmalade

Here is a good recipe for kumquat marmalade. I have tried it and found it splended, and am very glad to pass it on. I enjoy reading the Home Department in the Cultivator:

One quart kumquats, two lemons, sugar, water.

Quarter the kumquats and remove seeds. Slice lemons, rejecting seeds. Combine the fruits and let stand for 24 hours in twice their quantity of water. Place over a low heat in the same water and boil gently for one hour. Cool, add two cups of sugar to each pint of fruit and juice and boil gently till clear and thick. This amount will fill nine medium sized glasses.—Mrs. H. Fraser, Pasadena.

Kumquat Marmalade.

In response to your request (in issue of May 24) for kumquat recipes, I am enclosing one for marmalade which I use every year, and we all think is very good.

Wash and remove seeds. Slice very thin or put through the food chopper. (I do the latter, as it is quicker and just as good.)

Weigh, and add same weight in water. Set away until next day. Then boil until tender in same water. Set away again. The following day boil thirty minutes. Weigh again and add same weight of sugar. Boil twenty minutes. Put in glass cans or jelly glasses.—Mrs. H. W. Hall, Grand Bay, Alabama.

Soft Soap.

I saw in the issue of the Cultivator for May 24 an inquiry for a recipe for soft or home made soap. I have used that kind of soap for laundry purposes for years and will give you my method of making it.

In the first place when you wish to save ashes for soap be sure you burn nothing but oak or ash wood. Prepare a leach anyway you please, but I take a barrel and bore some holes across the bottom of it, then set it on an inclined platform, placing a piece of board on each side of the holes to make a channel for the lye to run through, then before filling the barrel with ashes, place two or three inches of clean straw in the bottom of the barrel, then put your ashes in, leaving a little place scooped out at the top in which to put water. The first lye that runs through will be very strong, but it becomes weaker the more it is drained off. I have a 15-gallon kettle in which I make soap and I pour the lye in this until it is about three-fourths full, then test it with a fresh egg, and if the egg shows more than a spot the size of a silver dime above the surface of the lye it is too strong and must be weakened by adding water; if the egg barely floats it is too weak and will require more boiling.

(Continued on Page 829.)

Such a Little Thing!

TEA is such a little thing that we never stop to think how intimate a part it plays in our daily lives and what a wholesome influence fine tea exerts upon our restful moments.

Would you like to get more enjoyment out of tea? And if that greater pleasure can actually be enjoyed for less money than you are now paying for tea, would you like to know about it? Isn't this worth a little thought?



When people think about tea, they forget that tea-leaves contain tannin as well as tea-flavor. *Tannin*, you know, is an acid found in all kinds of leaves and is used to tan leather. Tannin may be all right for leather, but not for the delicate tissues of the stomach. It injures digestion and is hard on the nerves. Besides, it isn't tea—that harsh puckery taste isn't tea.

People don't want tannin of course. They want tea-flavor which gives enjoyment, gentle stimulation, rest and cheer. That is the charm and value of tea—and the only thing worth buying.

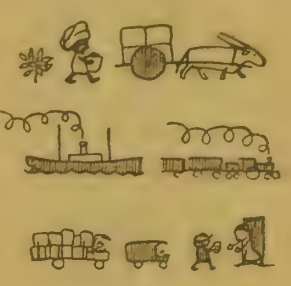
Common tea, which comes from the older leaves of the tea-plant, has only a small amount of tea-flavor—and coarse flavor at that. The main strength of common tea is tannin.



Fine tea, which comes from the young tender leaves of the tea-plant, is rich in sap and fine tea-flavor. It has only a very small proportion of tannin, and even that is avoided by proper making at home.

Now the tea in the cup can't be any better than the tea on the bush. A coarse leaf makes poor tea; and all the money you pay to bring it over here doesn't make it a bit better.

The costs of getting tea from the tea-plant to your kitchen are heavy; there is picking, grading, firing, packing, sending over in ships, and a lot more—20 or 30 things to be done, and each one costs money. All together these costs are more than two-thirds of the price you pay for common tea.



You are now ready to understand something that we have not dared ask you to believe before—and that is:

Fine tea is actually cheaper than common tea. It is much stronger in real tea-flavor, and makes a great many more cups to the pound. The result is that a cup of fine tea, like Schilling Tea, costs less than tea selling at 15 to 20 cents less.



This is astonishing but true; and the thing that makes it true is the great cost of getting tea to you from the tea-plant. You have to pay this cost for common tea, with half tea-strength, just the same as you would pay it for fine tea with full tea-strength. In buying common tea, you pay these expenses twice over for the tea-strength you get. It isn't worth this high cost to bring over poor tea with so little tea-flavor.

So you see that after all, getting full tea-enjoyment is more a matter of knowledge and good judgment than it is a matter of money.



Schilling Tea is the fine economical practical tea of this country. It is rich in tea-flavor and costs only ⅓ of a cent per cup. It is the cheapest drink next to water.

Isn't it pleasant to know that the comfortable social pleasure of enjoying fine tea is open to everyone?

A Schilling & Co San Francisco

Los Angeles Markets

Los Angeles, June 11, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 57 lb.; prices to retail merchants in 1-lb. squares, 57@58.

Dairy exchange prices last week on extras:

June	4	5	6	7	9	10
'19 ...	55	..	57	57	57	57

CHEESE

Brokers' prices.

California fresh, lb., 28; price to retail merchants, 30@31.

EGGS

Fresh extras, Produce Exchange closing price, 47 doz.; price to retail merchants, 50 doz.; case count, Produce Exchange closing price, 45 doz.; price to retail merchants, 47 doz.; pullets, Produce Exchange closing price, 45 doz., price to retail merchants, 47.

Dairy exchange prices last week on extras:

June	4	5	6	7	9	10
'19 ...	43½	..	44½	45	47	47

POULTRY

Prices to producers: Hens, 30@34; broilers, 26@27; fryers, 30; roasters, 35; old roosters, 14; capons, 42; ducks, 27; ducklings, 30@31; geese, 25; turkeys, 35@40; squabs, 45.

Belgian hares, 15.

LIVE STOCK

Recent sales of beef steers in Los Angeles at $10.50 per cwt f. o. b. here are not altogether an accurate criterion of the market for good steers. These cattle were sold at that price because they had to be marketed at once. The market was full of good cattle and these sales had to be forced, hence the low figures.

The local market indicates signs of improvement for steers. California steers sold today in Kansas City are as follows: 275 steers, 1122 to 1163 pounds at $12.25; 25 steers, 1100 pounds at $11.50; one lot of steers still unsold; 1500 spring lambs from California sold in the same market for $17.75 to $18.00 with 250 culls out at $14.00 average 65 pounds; 250 ewes, 118 pounds at $9.45.

The local market for hogs is weak at a $1.00 decline under last week's prices. The supply is fully adequate. Lambs of good quality are very scarce and the market is strengthening daily. An advance of $2.00 per cwt. is recorded during the week just past. Ewes and wethers hold steady under a light demand.

The following prices represent those paid by local killers f. o. b. Los Angeles. County point prices are usually $1.00 to $1.50 less than these figures, dependent upon the distance from the city:

Cattle:

Good steers	10.00@11.00
Medium steers	9.50@10.00
Common steers	8.00@9.00
Good cows	9.00@9.50
Medium cows	7.00@8.00
Common cows	5.00@6.50
Hogs No. 1, 175-225 lbs.	18.50@19.00
Hogs No. 2, all other weights	17.00@17.50

Sheep:

Lambs No. 1, 55 to 75 lbs.	15.00@16.00
Lambs No. 2, 65 to 80 lbs	12.50@13.00
Wethers	9.00@9.50
Ewes No. 1	8.00@9.00

POTATOES AND ONIONS

These are the actual prices obtained June 10, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Potatoes: Demand and movement moderate. Carlot sales to jobbers—closing prices yesterday, market firm, no change in prices. Sales from storage: Idaho, Russets, sacked per 100 pounds 2.25@2.35; California, Burbanks, sacked per 100 pounds mostly 2.50. Sales to retailers—opening today. New stock—white varieties, lug boxes 1.15@1.30.

Sweet potatoes: Lug box best 1.10@1.25.

Onions: New crop, homegrown Green Onions 50 per dozen small bunches. Imperial Valley and Coachella Valley, Wax and Yellow Bermudas, standard crates, best 3.75, poorer 3.00 up. Stockton Red Weathersfield, 4.75@5.00; Yellows, 5.00@5.25.

VEGETABLES

These are the actual prices obtained June 10, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Asparagus: Northern, green, local fancy, 14@15; fancy, 11@12.

Beans: Kentucky Wonder, best 9@9½. Wonder, best 9@9½.

Beets, doz. bunches, 25@30.

Cabbage: Sales to retailers, best, cr. 2.25@2.50; poorer, 1.75@2.00.

Carrots, doz., 50.

Cucumbers, Signal Hill, 14 pound box, 1.30@1.50; lug 2.60@2.75.

Corn, sweet, doz., 1.25.

Eggplant, lb., 16@18.

Lettuce: Sales to retailers, best lettuce in cabbage crates, 75@85.

Parsley, doz., 15.

Peas: Local (San Pedro) best, 10@12.

Radishes: Round Red 25 per dozen bunches. Long White, 40 per dozen bunches. Long Red 30 per dozen bunches.

Rhubarb: Local Giant Cherry, 1.25@1.50 per packed box. Strawberry, fancy 1.00@1.35 apple box.

Spinach, doz., 25.

Squash: Imperial, per 4 basket crate, 1.00@1.10.

Tomatoes: Imperial, 4 basket crates, 1.50@1.85; lug 1.75@2.25.

Turnips, doz., 30@40.

FRUITS

These are the actual prices obtained June 10, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtons, fy. medium size, 4.50@5.00; loose, 9@11 lb. Oak Glen, Rome Beauties and Pearmains, 3.75@4.00.

Apricots: Bulk in large boxes, 6@8 pound.

Blackberries: Cr., 3.00@3.50.

Cantaloupes: Market over supplied, weaker, prices declining. Sales to jobbers—green meats, wrapped, standard 45s, and green meats, unwrapped 2.00@2.25, green meats wrapped and unwrapped, ponys 45s 1.75@2.00, flats, standards 15s, green meats, unwrapped, flats, standards 12s, mostly 85.

Carlots: Brawley. Demand moderate, prices lower. Few buyers holding off. Few sales—quality and condition good, mostly well netted. Carloads f. o. b. usual terms—green meats, wrapped and unwrapped, standards 45s 2.25@2.75, ponys 54s 2.25@2.50, green meats, unwrapped, flats, standards 12s and 15s 1.30@1.50, mostly 1.25. Many shipments rolled unsold. No carlot arrivals and no cars on track. Full ripe—coast shipments—supply temporarily exceeds demand, prices lower. Few sales—green meats, wrapped and unwrapped, standards 45s 1.75@2.00, few 1.50, ponys 54s 1.50@1.75, flats, standards 12s and 15s mostly 1.00.

Cherries: Black Tartarians, 16@17; Bings, 17@18; Royal Annes, 15@16 lb.

Figs, per 10 lb bx, 1.75@2.00.

Gooseberries, 11@13 lb.

Loganberries, cr., 4.00@4.25.

Raspberries, cr., 3.00@3.50.

Peaches: Alexandrias, lb., 12½.

Pineapple, lb., 17½@18.

Plums: Climax, lb., 11@12½.

Strawberries, cr., 3.50@4.50.

Watermelons; Imp., lb., 2¾@3.

Lemons. Fancy packed, 5.25@5.50; local pack, 4.00@4.50; loose, some tree ripe, 1.50@2.00.

Oranges: Valencias, medium fancy, 5.00@5.50, local pack, 3.50@4.00.

Grapefruit: Local fy., 3.50@4.00 bx.; poorer, 2.00@2.50.

BEANS

Demand and movement moderate, market firm, little change in prices. Carloads f. o. b. usual terms—pool prices, sacked per 100 lbs., choice, recleaned basis, Henderson Bush 7.50, warehouse cash to growers—best, choice recleaned, Small Whites, sacked per 100 lbs., 6.30@6.40, Large Whites, sacked per 100 lbs., 6.00@6.25; Blackeyes, sacked per 100 lbs., demand and movement good, 3.40@3.50; Tepary, sacked per 100 lbs., 2.25@2.50; Limas, sacked per 100 lbs., 9.00.

HONEY

Too few sales to establish market.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat	16.00@20.00
Barley	14.00@18.00
Alfalfa	14.00@18.00
Wheat or Barley straw	6.00@8.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy	26.00
Standard alfalfa	18.00@20.00
Stock alfalfa	14.00@18.00
Standard dairy	21.00@22.00

GRAIN

Prices on local Grain Exchange, carlots:

Egyptian corn, 3.15.

Milo maize, 2.80.

Barley, 2.67½.

Corn, sacked, No. 3 White, 3.20.

Wheat, 39.00@40.00.

San Francisco Markets

San Francisco, June 10, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½c; 1-pound squares, parchment wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:

Extras	57

Prices extras past week and year ago:

June	3	4	5	6	7	9
'19 ...	57	55	56	59½	..	57
'18 ...	..	..	..	44	44½	..	..

Rcts. wk. ending June 9, 172,850 lbs.

CHEESE

Dairy Exchange quotations:

Cal. Flats	29
Cal. Y. A. fy.	32
Ore. Triplets	36
Jack, full cream	25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	51½
Extra Pullets	47½

Prices extras past week and year ago:

June	3	4	5	6	7	9
'19 ...	49	47½	46	48	..	51½
'18 ...	..	..	42	41	..	..

Rcts. wk. ending June 9, 5755 cases.

POULTRY

Hens, 36@39; roosters young, 45@50; old roosters, 20@24; broilers, 29@33; fryers, 33@36; squabs, 60@65.

squabs, 60@65.

Belgian hares, live, 14@16; Jackrabbits, doz., 2.50@3.50.

LIVE STOCK

Cattle—On foot, gross weight, No. 1 weighing 1000 to 1200 lbs., 11@11¼; do, weighing 1200 to 1400 lbs., 11@11¼; do, second quality, 9½@10; do, thin, 6@8.

Cows and heifers—Grass-fed, No. 1, 9@9¼; do, second quality, 7½@8; do, common to thin, 4@6.

Calves — Light weight, per lb., 12½@13; medium, 11@12; heavy, 8½@10.

Lambs, yearlings, 10@11; milk, 13@13½; sheep, wethers, 10@10½; do, ewes, 8@8½.

Hogs—Hard grain fed, 100 to 150 lbs., 18; do, 150 to 250 lbs., 18½; do 250 to 300 lbs., 18; do, 300 to 400 lbs., 17¾.

cisco.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers—Choice, 1000 to 1200 lbs.,

Cattle—Good grass steers, 1000 to 1200 pounds, 11@11½; medium to good grass steers, 950 and over, 9½@10; good heifers, 1000 and over 10@10½; good cows, good cows, 900 and over, 8@9; canner cows, 5@6; good bulls, 6@7; calves, 9½@11.

Hogs — Today's market on top packer hogs, hard and well finished, weighed and delivered off cars at our plant, South San Francisco; 175 to 250 pounds, 18½; 150 to 175, 18; 250 to 300, 18; over 300, 18; under 150, 17½. Usual dock and price discounts for other weights and kinds.

POTATOES AND ONIONS

Price to wholesalers:

Potatoes: Supplies heavy. Demand and movement slow, market unsettled prices lower. Sales to jobbers: old stock, California Burbanks, fy., 2.25@2.40; Idaho and Washington, Netted Gems, U. S. grade No. 1, 2.00@2.15, fy., 2.25@2.40; Oregon, Burbanks, fy., 2.10@2.35. New stock, street sales: Garnets, best 3½, whites, 4½.

Onions: Per ctl: Reds, 4.00@4.25, at dock; yellow, 3.25@3.50; Bermuda, Crystal wax, 3.75@4.00; yellow, 3.50@3.75.

Garlic, 50@75.

VEGETABLES

Wholesale selling price:

Artichokes, doz., 15@50.

Asparagus, lb., 5@12.

Beans, String, 10@18; Wax, 12@14; Pole, 12@13; Limas, 20@22½.

Carrots, sack, 4.00@4.50.

Cucumbers, hothouse, box of 30, 2.00@1.25; other, 1.75@2.00.

Corn, doz., 30@40.

Eggplant, southern, 15@20.

Lettuce: Cr., 50@1.25.

Okra, green, lb., 20@25.

Peppers, Bell, lb., 15@30; Chili, 20@25.

Peas, lb., 3@8.

Rhubarb, Strawberry, bx., 1.25@1.75; Mammoth, 2.00@2.50.

Spinach, 75@1.25.

Squash: Summer, 60@90; Italian, box, 1.00@1.25.

Tomatoes, Mexican, crate, 2.50@4.00; Imperial, 2.50@2.75; Southern California, 2.25@2.50; Merced, 1.75@2.00.

CITRUS

Per bx: Lemons, 4.00@5.50; lemonettes, 2.50@3.00; grapefruit, 3.00@5.00; oranges, 4.25@5.50.

FRESH FRUITS

Wholesale selling price:

Apples: Newton Pippins, 2.50@4.00.

Apricots: Winters, 1.50@1.75; loose, 7@9; Royal, 8@9.

Bananas, 8@8½.

Blackberries: Southern, 2.00@2.50.

Cantaloupes: Supplies heavy. Demand and movement moderate. Quality and condition fair, market unsettled, prices lower. Weaker tendency. Street sales—greenmeats, standards, 3.00@3.50, few 4.00, ponys 2.50@3.00, flats 1.00@1.25.

Cherries, 1.25@1.75 per tray and drawer; bulk, black, 8@10; do, white, 6@8; Royal Ann, 11@13.

Currants, chest, 12.00@13.00.

Figs, 1.50@1.75 bx.; Brunswick, 1.25@1.40; whites, 1.00@1.25.

Gooseberries, ch., 9.00; lb., 6@8.

Loganberries, ch., 14.00@16.00.

Loquats, 6@8.

Peaches: Redbanks, 1.00@1.25; Sacramento, 1.50 cr.; 1.25 bx.

Pears: Winter Nellis, 3.00@4.00.

Raspberries, cr., 2.50.

Strawberries: Chests, 11.00@15.00.

Watermelons, lb., 6@7.

DRIED FRUITS

Price to growers:

Apples: 14@16.

Apricots: Opening prices on 1919 dried apricots to the trade:

Sunsweet Quality: Ch., 25; extra ch., 26; fy., 27; extra fy., 29; fy. Moorparks, 29; extra fy., Moorparks, 32.

Growers Brand Quality: Ch., 24½; extra ch., 25½; fy., 26½.

First Quality: Standards, 19; slabs, 21. Other grades on sample.

Peaches: Packers' quotation, basis price: Standard yellow, 16; Muir, 16¼; ch. yellow, 16½, Muir, 16¾; extra fy. yellow, 17, Muir, 17½; fy. yellow, 18¼, Muir, 18¾; extra fy. yellow, 19½ Muir, 20½.

Pears, 16@18.

Figs: Calimyrnas, 18@20; Mission, 11@13; Adriatic, 12@15.

Prunes: Packers' quotations basis price: 30-40s, 19; 40-50s, 17; 50-60s, 14½; 60-70s, 13½; 70-80s, 13; 80-90s, 12¾; 90-100s, 12½; 100-120s, and 120s up, no price quoted.

BEANS

Demand and movement moderate. Quality improving. Market steady, prices slightly higher. Carloads f. o. b. usual terms—choice recleaned, sacked per 100 lbs., season's average basis: Small Whites, 7.00@7.15; large Whites, 6.15@6.35; Pinks, 6.00@6.10; Red Mexican, 5.25@5.35; Cranberry, 6.00; Blackeye, 3.75@3.90.

GRAIN AND FEEDS

Barley, (1918 crop): Feed, 2.55@2.60 per cental; shipping, 2.65@2.70 f. o. b. Port Costa; new feed, 2.45@2.50.

Oats: Red feed, 2.25@2.40 per cental.

Corn: California yellow, 3.15@3.40 per cental. Egyptian, 2.75@3.25; Milo maize, 2.50@3.00.

Rye: 3.65@3.75.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.66 1-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 1-3

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran 43.00@44.00; mill run, 42.00@43.00; Rolled barley, 52.00@54.00. Linseed oil cake meal, nominal; cocoanut cake or meal, 41.00@42.00 per ton.

HAY

Under date of June 7, Scott, Magner & Miller says:

Receipts past two weeks 2582 tons. The market the past week has been slow and inactive with the possible exception of a few cars of fancy wheat and red oat hay which have sold to advantage and have brought our top quotations. Regarding the other grades of hay there is little demand and as dealers are rushing in the balance of their holdings of old crop in order to get it out of the way before the new crop comes along in quantities it is very hard to give a correct idea of present prices.

New volunteer hay is arriving more freely every day and several lots of grain hay have been baled and are about ready to move into this market. Within the next week no doubt both wheat and barley hay of the new crop will arrive. New volunteer hay has been selling at from 8.00 to 11.00 per ton in the country districts and new wheat and wheat and oat hay at from 12.00 to 14.00 per ton according to quality and freight rates.

The second cutting of alfalfa is being harvested at this time and we believe that within the next two weeks the scarcity of good alfalfa hay will be relieved. Considerable alfalfa hay has been purchased in the interior for grinding and as soon as cured will no doubt be used that way.

The alfalfa crop appears to be large, and should water for the irrigation districts continue plentiful no doubt there will be a very large crop of alfalfa harvested.

There is practically no demand for straw.

We quote today wholesale prices in carload lots for old hay as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat Hay (light 5 wire bales)	19.00@21.00
No. 1 Wheat or Wheat and Oat Hay	16.00@18.00
No. 2 Wheat or Wheat and Oat Hay	12.00@15.00
Choice Tame Oat Hay	17.00@19.00
Other Tame Oat Hay	12.00@15.00
Wild Oat Hay	11.00@14.00
Barley Hay	11.00@14.00
Alfalfa Hay	15.00@19.00
Stock Hay	11.00@13.00
New first cutting Alfalfa, in order	10.00@13.00
No. 1 Barley straw, bale	50@80

Citrus Markets

Los Angeles, June 11, 1919.

Oranges, especially small sizes, of which there are large numbers in the Valencias, have suffered during the past week. Larger sizes and fine stock have been better received. Valencias have been going forward in large quantity and heavy supplies in some of the larger auctions have helped to weaken the situation somewhat.

Excessively hot weather has helped the lemons out, however, and every offering is quickly picked up with prices nearly doubling those of two or three weeks ago.

Shipments.

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 24,158 cars, lemons 6158, total 30,316. To same date last season; oranges 10,772, lemons 3349, total 14,121. Central California this season; oranges 4340, lemons 354, total 4,694. Last season to same date; oranges 2520, lemons 115, total 2635. Northern California; oranges 244, lemons 2; last year same date oranges 202.

AT THE AUCTIONS

June 4

New York: 51 or., 3 grapefruit, 11 lem. Oranges lower, lemons higher. Val. 2.80-6.75, Nav. 2.55-6.00, Sweets. 2.50-3.70, Seeds. 2.45-4.75, Mikes. 4.00-4.90, grapefruit 2.70-5.05, lem. 5.15-7.60.

St. Louis: 8 or., 2 lem. Val. 2.65-5.20, Sweets, 4.35, grapefruit 5.40, lem. 5.25-5.65.

Cleveland: 8 or., 3 lem. Val. 2.20-6.30, Nav. 4.25-5.10, Seeds. 3.55-4.75, lem. 7.35-8.95.

Pittsburg: 7 or., 6 lem. Val. 3.65-5.65, Seeds. 3.25, Mikes. 5.00, Nav. 3.15-3.35, lem. 4.50-7.60.

June 6

New York: 37 or., 7 lem. Val. good stock holding up, poorer lower. Val. 1.95-6.60, Seeds. 2.85-4.25, Mikes. 3.75 4.85, grapefruit 2.25-4.20, lem. 3.40-6.50.

St. Louis: 8 or., 1 lem. Val. 3.25-4.50, lem. 6.10-6.40.

Cincinnati: 5 or., 3 lem. Val. 2.65-4.80, Nav. 2.75-4.00, lem. 6.35-8.10.

Boston: 15 or., 2 lem. Val. 2.50-5.60, Nav. 2.50-5.70, grapefruit 1.25-5.25, lem. 7.35-7.85.

June 9

New York: 77 or., 3 grapefruit, 4 lem. Val. 2.40-7.00, Nav. 4.15, Sweets. 2.65-3.90, Mikes. 4.00-4.80, Seeds. 1.45-2.90, grapefruit 1.60-2.85, Tang. halves 1.30, lem. 5.25-6.35.

St. Louis: 11 cars. Val. 2.80-3.90, Sweets. 4.10, grapefruit 3.55-4.00.

Boston: 26 or., 3 lem. Val. 3.40-5.50, Nav. 4.20-6.30, Mikes. 3.85-4.75, Sweets. 3.50-4.10, Bloods. 4.35, grapefruit 2.45-3.75.

Cleveland: Val. 3.85-6.05, grapefruit 4.15, lem. 6.00-7.70.

Philadelphia: 31 or., Val. 2.50-6.20,

Mikes. 4.70, Sweets. 3.70-4.00, grapefruit 2.35-2.70.

June 10

New York: Oranges lower. Val. 1.70-6.60, Nav. 1.80-4.00, Seeds. 1.90-4.15, Mikes. 2.90-4.15., grapefruit 1.86-3.95.

Philadelphia: 16 or. Val. 2.65-5.65. Nav. 2.30, Mikes. 2.30-4.25, Sweets. 2.75-3.50.

Boston: Val. 3.30-5.55, Seeds, 2.90-3.70, grapefruit 2.80-4.20, lem. 5.15-7.65.

St. Louis: Val. 3.25-3.50, Sweets. 3.25-4.60, grapefruit 2.75-4.00, lem. 5.40-7.10.

Cleveland: Val. 3.65-6.05, grapefruit 2.45-2.70.

Saves a Team on the Binder



Cushman Binder Engine

The Cushman 4 H. P. is the one Successful Binder Engine. Thousands are in use every harvest. **Fits any binder.** Engine drives sickle and all machinery. Since horses have only to pull machine, two horses will easily handle 8-ft. binder in heavy grain. In a wet harvest Cushman Engine **saves the crop,** as it keeps sickle going when bull wheel slips.

Very Important—The weight of the engine on the rear of the binder, only 167 lbs., is balanced by the simple cone water cooler on the front of the binder. This balancing, and the water cooling, to prevent overheating on all day runs, are necessary to successful work in a hot field.

After harvest Cushman engine does all other work. Very light weight and easy to move around, yet runs more steadily than most heavy engines, because of **Throttle Governor and perfect balance.** 4 H. P. weighs only 190 lbs.; when stripped for binder only 167 lbs. 3 H. P. only 320 lbs. Also 15 and 20 H. P. sizes.

Write for Information
——Prompt Shipments——

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FACTORY REPRESENTATIVE
218 Yosemite Bldg.
Stockton California



The Sahara Drier

IF YOU grow Fruits or Vegetables our Drier is your Crop Insurance. Banks thrive and grow rich by a small margin of profits. Banks protect themselves against losses. The farmers persist in taking chances of losing their crops and entire year's work. The thrifty farmers are setting about this year to stop these losses and protect their years of labor and investment.

JUST A FEW of the Growers who know what they are doing—these men have just placed orders for "SAHARA DRIERS." Look them over—they are the leading farmers in their respective districts—they make few mistakes:

D. B. Gray, Fowler, Calif.—Raisins.
Chellini & Reith, Sonoma—Prunes.
Sanitary Fruit Co., Red Bluff.—Prunes.
D. D. Erwin, Chico.—Prunes.
Piru Land Co., Piru, Cal.—(5 Driers) Apricots.
Jos. Feige, Healdsburg.—Prunes, Apples.
H. B. Reed, Chico—(8 Driers) Prunes, Apricots.
Geo. W. Clemson, Owensmouth—(6 Driers).
Kelly Bros., Chico.—Prunes.
G. L. Barham, Chico.—(2 Driers) Prunes.
Anderson-Barngrover, San Jose—(2 Driers).
A. R. Friesen, Dallas, Ore.—Prunes.

There are many others. See our Representatives for catalogue and particulars.

Cameron-McDonald, Chico.
A. L. Bowman, Lodi.
C. F. Moon, Fresno.
Chas. F. Wyre, Napa.
Anderson-Barngrover, San Jose.
Jno. P. Davisdon, 305 Security Bldg., Los Angeles.

California Dried Products Co.
149 California St.
San Francisco California

CAPRI FIGS

Delivery June 15th to July 1st
Do not take chances but order now and order sufficient, for Smyrna Figs are money this year. Price $10.00 per thousand, delivered. Quality Guaranteed.

L. C. Collins, Ceres, Cal.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Boulevard, Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Hollow Tail (Indigestion)

Would like to know what causes hollow tail? My neighbor has a cow affected with it now and again. She loses her cud and will not eat for several days. Is the milk good while she is affected and what is the remedy? —Subscriber.

There is nothing wrong with the tail. It is only indigestion and does not affect the milk. Get one ounce of aloin, one ounce of powdered Nux Vomica, four ounces of turpentine and two quarts of raw linseed oil. Mix and divide into six doses. Give one dose once a day while it lasts. Also give her a tablespoon of baking soda in the feed once a day for two weeks.

Dehorning Goat

We have a half Toggenburg and half Nubian goat five years old whose horns have been cut off once, leaving about seven or eight inches. Can these horns be cut off close to her head without injury? She was shipped to us from Pasadena and gave 1½ quarts to the milking. We have had her about two weeks and she hardly gives this in two milkings. How long before she ought to come back to her milk?—Subscriber, Lakeside.

Yes, the horns can be cut off close to the head, but the closer you cut them the more they will bleed. You can stop the blood by soaking a wad of cotton in tar and tying it on each horn. Leave it on about ten days. She will probably increase in her milk again if she gets plenty of green feed and is milked regularly.

WATCH FOR THESE TWO PLANT ENEMIES

Two plant enemies of a very serious nature have gotten into this country from Europe. They are the European corn borer and the European potato wart disease. At present both apparently are confined to a comparatively limited territory, but every precaution and the utmost care will be necessary to prevent their spread. Unless controlled they may become the most destructive enemies of two of America's greatest food crops. The corn borer now is known to exist only in Massachusetts and New York. It feeds on all parts of the corn plant and has an appetite for many garden and ornamental plants. Its presence is detected by broken tassels and with sawdust-like material at the breaks, and by holes in the stalk surrounded with the same sawdust-like material. The potato wart disease is now confined to a part of Pennsylvania. This disease is noticeable at harvest time, and is characterized by warty, spongy, cauliflower-like growths on the underground portions of the plant. Write to the United States Department of Agriculture, Washington, D. C., for information on these plant enemies, and watch for them in new places.

ESTIMATING PAINT REQUIREMENTS

In estimating the amount of paint required for the home, the property owner is sometimes at a loss as to just the number of gallons required. While the quantity of paint required varies somewhat with the nature of the surface to be covered and the conditions under which it is applied, yet the following method of measurement will serve as an accurate guide:

A good grade of prepared paint will cover at least 350 square feet to the gallon, two coats. First, measure the distance around the house and multiply by the average height; then divide by 350 and the result will be approximately the number of gallons to buy. Of this quantity one-fifth will represent the paint required for trimmings, cornices, etc.

20,000 MOTOR TRUCKS FOR ROAD WORK

More than $45,000,000 worth of motor trucks is about to be distributed by the secretary of agriculture through the bureau of public roads to the state highway departments. These trucks have been declared surplus by the war department. They must be used by the states on roads constructed in whole or in part by federal aid, for which $200,000,000 in addition to the former appropriation was given to the states under the same bill. All that the states must do to acquire the use of these 20,000 trucks, which range in capacity from two to five tons, is to pay the loading and freight charges.

Of the 20,000 motor vehicles to be acquired practically free by the states, 11,000 are new and 9,000 are used, but all are declared to be in serviceable condition. The motors will be apportioned to states only upon request of the highway departments on the basis of the requests received from the respective states, and in accordance with the apportionment provided in the federal aid law approved in 1916.

HOUSEHOLD QUERIES

(Continued from Page 827.)

To have it the proper strength is very essential. Having the lye the proper strength, put your grease in and start your fire. If, when it comes to a boil, the lye absorbs all the grease, add some more until some floats on top after the soap thickens, which it is apt to do almost as soon as it comes to a boil. I boil it half or three-quarters of an hour. Sometimes it seems thin at first but thickens after it gets cold; if it absorbs the grease it will be soap.—Mrs. E. T. Smith, Upper Lake.

WEATHER REPORT

San Francisco, California, June 7, 1919.

Stations	Rainfall Wk.	Rainfall Season.	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.00	39.66	45.32	64	42
Red Bluff	.00	26.19	24.71	100	62
Sacramento	.00	17.20	20.01	100	50
San Francisco	.00	25.64	22.17	88	49
San Jose	.00	18.87	16.75	96	48
Fresno	.00	6.90	9.66	102	58
San Luis Obispo	.00	18.09	20.49	96	48
Los Angeles	.00	8.58	15.57	96	56
San Diego	.02	8.74	10.01	90	60

Benjamin Franklin says: "If you would know the value of money, try to borrow some." Accumulate funds with interest for yourself by putting your savings into W. S. S.

Investigate Our Complete Line of Organic

Commercial Fertilizers

of our own manufacture, under the following brands:

"Banner" Brand
(Guaranteed Analysis)
Nitrogen, 4.00 per cent; Phosphoric Acid, 7.00 per cent; Potash, 1.00 per cent.

"Reliable" Brand
(Guaranteed Analysis)
Nitrogen, 3.00 per cent; Phosphoric Acid, 3.00 per cent; Potash, 1.00 per cent.

We respectfully solicit inquiries and will be pleased to mail booklet upon request.

Southern California Fertilizer Co., Inc.
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Broadway 1381 Telephone, Home 60329

CITRUS TREES
Lemons—Oranges—Grapefruit

I have on hand for immediate delivery:
25,000 Eureka Lemons.
1,000 Lisbon Lemons.
25,000 Valencia Late Oranges.
10,000 Washington Navel Oranges.

All carefully selected buds from record producing trees. Unexcelled root system. One inch and up.

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Los Angeles Address, 529 Grosse Bldg.
Phone 12893

DO YOU WANT MONEY?

Pay off that mortgage, or
Put down that well,
Fence the place, Build a house,
Level and seed that land.

I Have an Abundance of Money Without Commission or Expense

Exceptionally low rates with accommodation clauses.
Write today for quick action.

——SAVE THE COMMISSION——

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BEAN THRESHERS —SIX SIZES

Largest Cleaning Capacity of Any Thresher Made



Requires less help to operate. Pays for itself in one season. Hardwood construction throughout. Won't split the seed. Double cylinder. Write for Catalog.

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Hay, Grain, Potatoes
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and other Farm Produce
Let Us Handle Your Shipments
Quick Sales Prompt Remittance

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Fisk Cord Truck Tires

Give Long, Uninterrupted Mileage At Low Costs

TRUCK Tires represent an important investment—and their selection should be made on the basis of the mileage they deliver plus their qualities of resiliency and safety.

Put Fisk Cord Truck Tires on your truck and watch their record; keep track of their long mileage—uninterrupted mileage; the freedom from repair bills; and the sure positive way they hold the road under all conditions.

These Cord Tires are so resilient that you can operate at speed without damage to working parts of the truck. That means less truck depreciation—your truck lasts longer and you get more work from it every day.

These qualities are Fisk features—the result of twenty years' of continuous tire-making experience.

Whatever kind of a truck you own, Fisk Cord Truck Tires will give you *uninterrupted mileage*, great tractive power, safety and remarkably low costs per mile.

Next Time—BUY FISK

"There is now a Fisk Tire for every motor vehicle that rolls?



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CALIFORNIA CULTIVATOR

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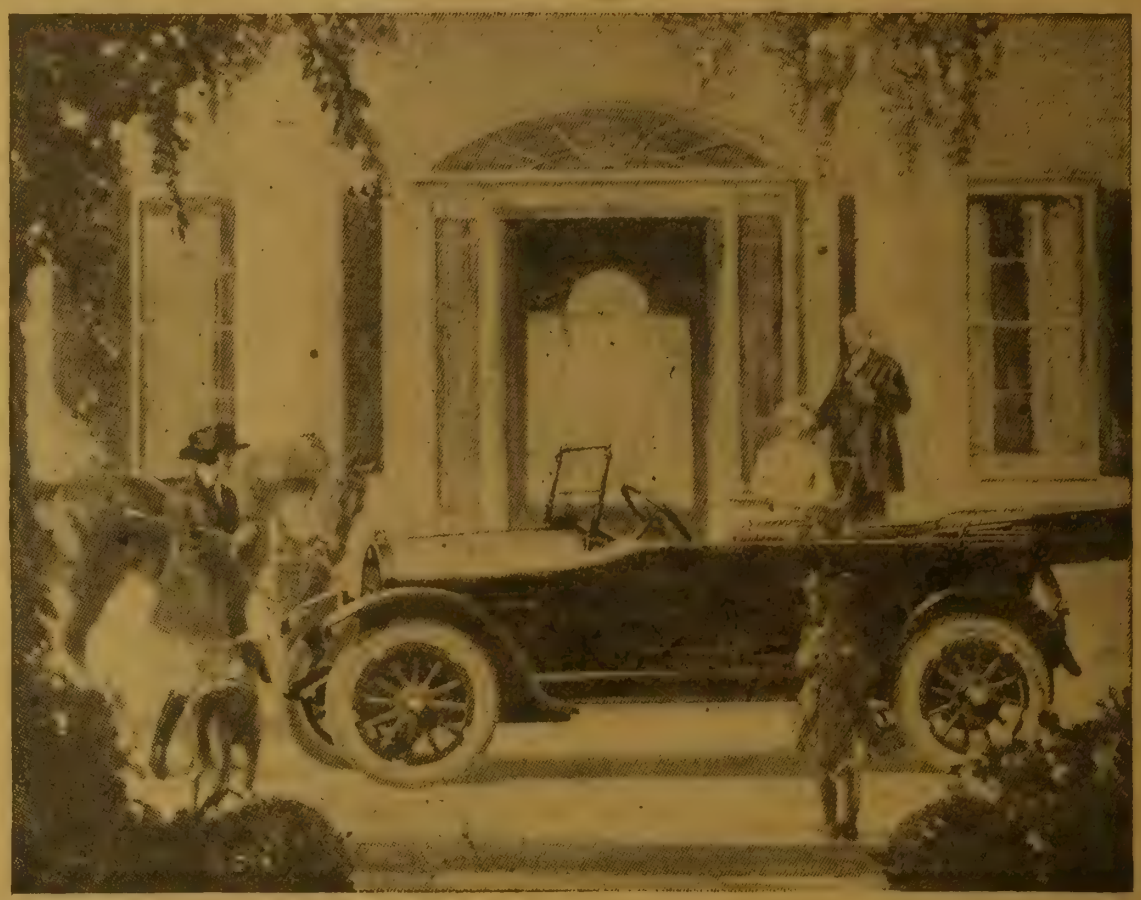
Vol. LII — June 21, 1919 — No. 25

REPRESENTING MILLIONS OF DOLLARS



Nearly a Billion of Dollars last year for California Farms. Much of that great wealth because of Irrigation. Most of this because of cooperation either voluntary or through Irrigation Districts. At one time the bonds of these Districts were not in highest favor but today they are as good as gold. The bonds create the wealth which makes their own value.

Overland
TRADE-MARK REG.



Why Model 90 Makes Friends of Owners

When a *stock* Model 90 Overland car broke the world's non-stop *high gear* record at Oklahoma City the other day, Overland owners were *not* surprised.

4,370 miles in 7 days and nights in *high gear*, over bad roads, through wind and rain, without one pause, was a performance that thrilled the crowd. Onto this wonderful mileage record was piled the gas record of 20.6 miles per gallon.

But Overland owners knew from experience how well Model 90 could perform.

This Model 90 record is of value only in explaining the appreciation Overland owners have of the economy and faithful performance of their cars. It explains how Model 90 makes friends of its owners. The demand is great right now.

WILLYS-OVERLAND INC., TOLEDO, OHIO
Model Ninety Five Passenger Touring Car $985: Price f. o. b. Toledo
Willys-Knight Touring Cars, Coupes, Limousines, Overland Motor Cars and Light Commercial Cars
Canadian Factory, West Toronto, Canada

California Cultivator

Vol. LII, No. 25 Los Angeles, June 21, 1919 One Dollar Yearly

Details of Service Rendered Members of C.W.G.A.

By C. Thorpe,
Manager California Walnut Growers Association,
at Riverside Convention

THERE are two equally important factors in every horticultural enterprise—producing and marketing. The average horticulturist devotes over 98 per cent of his time to producing his crops and less than two per cent to marketing them. Yet the selling end is fully as important as the producing end. Of what avail is an abundant yield of fine quality without a ready and profitable market? It costs the average fruit grower at least ten times as much to produce his crop as is charged by cooperative organizations in intelligently marketing it.

Most of the large California growers' cooperative associations were organized primarily for the purpose of reducing marketing costs and obtaining a reasonable price for the producer without materially advancing the price to the consumer. All of these organizations, I think, in their early stages to a varying degree accomplished these results and thus reduced the number of hands their product passed through in its journey from producer to consumer.

But the modern and highly efficient producers cooperative association has developed a much broader field. Of course the economical marketing of the merchandise handled is still an important feature of the organization, but the larger growers' associations are now serving the grower, the trade and the consumer in so many other ways that the mere accomplishment of economically marketing the growers' crops is but a portion of its functions.

The California fruit grower of today generally is, or at least should be, a specialist. He properly concentrates his full business efforts on producing larger and better crops. The field of knowledge in his profession is so varied and intricate and is being added to so constantly that it takes practically all of his time to keep abreast of the latest developments in the most aproved methods of producing the crops he is specializing on. The California grower who gives a great deal of study to the most improved methods for producing his crops is the successful grower.

Every successful grower must necessarily give a great deal of his time to assimilating and putting into practice these modern producing methods. Consequently he has little time to devote in becoming a marketing expert, little time to give to legislative matters affecting his industry such as tariff questions, freight rates, etc., and it is utterly impossible for the individual grower to obtain unbiased market information and impossible for him to definitely know of foreign competitive conditions where the crops he is growing are also produced abroad and imported to America in competition with the domestic product. Consequently it is impossible for him to individually market his crop to best advantage.

Growers remaining independent of their organization usually turn the association's marketing information to their benefit, that is, they get under the association's umbrella by selling their crops on a basis of the association prices and not on their own judgment. This recalls a statement that one of our successful country bankers made the other day when he said: "I would have about the same opinion of a man who continued to sell his walnuts on the outside that I would of a man who used my bank for his convenience in cashing checks, but who made all of his deposits in the bank across the street."

Every large growers' cooperative association should be and generally is in a position to gain and disseminate all such information to its members. It should and generally does exert its every effort in securing fair and equitable freight rates and reasonable tariff protection for its members, and these growers' organizations are in a position to gain the best possible market information both domestic and foreign.

But particularly with regard to the California Walnut Growers Association. In 1914, when I became manager, our annual business totaled $1,800,000. We have since constantly expanded until our last season's sales totaled between $8,000,000 and $9,000,000 and we are expecting to do over $10,000,000 this year.

We market the output of 25 local walnut growers' associations located throughout the principal walnut producing districts of California. These local units receive, grade and pack the output of their individual grower members under standardized regulations and specifications of the California Walnut Growers Association.

The California Walnut Growers Association has no capital stock. Its membership is voluntary and members have the privilege of withdrawing at the end of each season. A similar withdrawal provision is extended the individual growers of the local walnut associations. Consequently we must give our growers satisfactory service and satisfactory returns in order to retain their membership, and I am pleased to say that our record since organization shows that we have gained in membership 42 acres for every one acre lost.

Prior to the organization of the California Walnut Growers Association the local associations marketed their output through the large California commission houses, paying six per cent commission for their sales efforts only—no other service was given by them. These local associations have never been charged more than three per cent selling expense on the f. o. b. value of the product by the California Walnut Growers Association, and this charge has sometimes been as low as two and one-half per cent. Thus, the selling cost has been cut in half. This reduced cost has meant a saving on the 1918 crop alone of a quarter of a million dollars to Association members. But the big point is that when the California walnut growers sold through the commission houses there was hardly a season when the crop was sold out at the opening prices. Almost always a heavy carryover resulted, with a subsequent material decline in price which, of course, the grower had to stand. The California Walnut Growers Association (notwithstanding prices have constantly ruled higher since the Association was organized) has always moved its entire holdings at the opening prices and has often, as this year, obtained a material advance for a perceptible portion of the crop.

But while we call our three per cent charge to the grower a marketing cost, it includes much other necessary and expensive service that the grower never received through the commission men. We maintain salaried representatives in the principal walnut producing countries abroad from whom we receive cable and mail advices as to the extent of the foreign crops, their quality, and the general market conditions abroad. We maintain a selling organization of over 150 representatives in the principal distribution markets of America. These representatives have been carefully selected for their ability not only as salesmen, but also for their ability in furnishing accurate information on the general conditions of their market which affect the consumption of our goods. Thus, the Association is in touch at all times with both domestic and foreign market conditions, and the information it thereby gains is invaluable in determining the best prices at which its product can be readily placed into consumption.

As important as market conditions is an accurate estimate of both the foreign and domestic production. We must be able accurately to judge the supply as well as the demand. An individual grower can but guess at the extent of either the foreign or domestic crop, whereas the Association's predictions on both foreign and domestic crops have, each season, been more nearly accurate than any other published estimates either by independent packers or individual growers, and this information has a great deal of value in enabling the Association to place the proper price on its product as only justified by accurate advance knowledge of supply and demand.

A few years ago the Walnut Association developed a field department service which I may predict will be shortly followed by most of the large cooperative organizations in this state, for with us this department has proved of very great value. As our industries enlarge our cultural problems increase. Both the federal and state appropriations for handling the growers' problems are grossly inadequate. The Walnut Association has kept two experts in the field under the direction of Professor Batchelor of the department of agriculture of the University of California, and through this department and the cooperation of the University, we are solving the cultural problems of the walnut industry. The three worst pests we have are the walnut blight, the aphis, and the codlin worm. Methods for eradication of the aphis have been perfected. The codlin worm, it is believed, will be controlled within the next year or two through the joint efforts of our field department, the state horticultural commission, and Professor Ralph E. Smith of the University. Apparently there is no possible method of control for the blight, but we have brought out new varieties of walnuts that are practically blight resistant. Our field department works on soil management, fertilization, pruning, die-back, root stock selection, bud selection, and all other cultural problems, and through the expenditure of less than $10,000 annually, and through the cooperation of the University, we have already solved problems which will mean the saving of several hundred thousand dollars annually to the California walnut industry. So I say that a similar field department will doubtless become one of the important features in every large growers' cooperative association in the near future.

The time was when overproduction meant a weak and declining market. Thanks absolutely to the California growers' organizations that time has passed. No unorganized industry can develop markets nor do anything to increase consumption. Only through the volume possible through organization can these things be accomplished. The California Walnut Growers Association has perhaps as wide a distribution of its product as any national sales organization in America. The greatest efforts are being made to develop an average per capita consumption throughout every section of America. Only through uniform consumption can the maximum demand be developed. To obtain and maintain uniform consumption requires a great deal of special sales work. An unorganized industry cannot do this, and in most of our California horticultural industries we are right now facing a period of greatly increased production which apparently has no limit. For instance, the production of walnuts is doubling about every six years. If we sit by and do nothing to increase consumption over-production will soon overtake us. Besides the special sales work which is a big factor in maintaining consumption, national advertising is a prime necessity. An unorganized industry cannot advertise.

Nor can an unorganized industry successfully attack unjust tariff legislation, discriminating freight rates, or obtain helpful legislation.

The California Walnut Growers Association accomplishes all of these things including its national advertising, special sales work where necessary, widens distribution, handles the national legislation, maintains its field department and has just organized a membership department to put on a campaign for increasing its membership, and markets its members crops at satisfactory prices and does all of these things at a cost to the grower of three per cent of the f. o. b. value of its product.

These accomplishments are only possible through the principles of growers' cooperative associations.

Agricultural News Notes of the Pacific Coast

Northern California

Shasta County will have good crop of olives this season.

The Glenn County Rice Growers Association has been organized.

Prune and apricot packing house at Chico is being overhauled and enlarged.

Siskiyou County is the latest to make concerted campaign against ground squirrels.

About 2,000 acres of spinach is being harvested on Natomas district for the Sacramento canneries.

Earle Mills, commissioner of Butte County, estimates a million hoppers to the acre in some sections.

Eldorado County farm center meetings: Kelsey, June 24; Placerville, 25; Cold Springs, 26; Union, 27.

Harvest of seed peas on the Natomas district is in full swing. About 5,000 acres were planted this year.

Milk distributors of San Francisco have been indicted because of alleged violation of the state anti-trust law.

Fred Kiesel has erected protected and fly screened stalls in oak grove for cows which are under full official test.

The Farm Owners and Operators' National Association, started recently at Stockton, is making campaign for members.

Glenn County farm bureau center meetings: directors' meeting, Willows, Saturday, June 21; Elk Creek, 25; Grapevine, 25; Larkin, 27.

Pear growers at Hayward, Alameda County, are contracting Bartletts at $85 f. o. b. point of shipment; No. 2 Canners are commanding around $50.

Yuba City will have another modern packing house for dried fruits. The Farmers Union warehouse will be used for overhauling and practical reconstruction.

Veterinarians have announced that conditions created by the rice industry are responsible for increase of insects which carry and spread contagious anthrax.

Contra Costa cow testing association is making some fine reports for its cows which are exceeding the 50 pound per month mark. One cow made 73.80 pounds of fat.

The Anderson-Cottonwood irrigation dstrict had for a time a serious shortage of water which has now been corrected. Additional pumping facilities will soon be available.

Nevada County reports that some of the canyons of the Sierra Nevada show countless numbers of the beneficial lady birds which are captured and sent to the various parts of the state to aid in control of aphis.

The recently elected directors of the Acampo, San Joaquin County, Fruit Growers' Association are: George L. LcFeber, president; W. W. Henderson, L. A. Hause, Asa Van Valkenburgh, Joe McKindley, W. H. Adams and L. C. Vertees, directors.

Earle Mills, horticultural commissioner of Butte County, recommends the use of grasshoppers in the construction of soup. He says that in the Philippines some 400 tons of grasshoppers are annually sold as a delicacy equal to shrimps, and he sees no reason why Butte County folks shouldn't enjoy such a delicacy to the limit.

Central California

Grain harvest is in full swing in the San Joaquin Valley.

Tulare County Live Stock Association plans for a show in Tulare in October.

A successful fight against grasshoppers is being reported in many parts of the valley.

Horticultural Commissioner Rutherford of Stanislaus County reports a 75 per cent kill in the squirrel fight.

Owing to low water supply Modesto and Turlock districts will have a much shorter irrigation season than usual.

It is proposed to unite some 16 creameries of the San Joaquin Valley with a capital approximating a million dollars.

County Adviser Jungerman of Stanislaus County announces a fat lamb auction to be held at Modesto, June 27.

The California Peach Growers recently distributed $900,000, this being the final payment on last season's delivery.

Many grain storage warehouses are being improved by putting in cement floors, and capacity is being generally increased.

Tulare County board of supervisors has voted to allow $1,000 for the expense of a citrus expert who shall be assistant farm adviser.

The Kings County Fair Association has elected T. E. Cochrane secretary. "The best ever" is the slogan for the next fall's fair.

Soledad, Monterey County, has organized the Salinas Valley Dairymen's Association. It is possible the association will install creamery to handle dairy products.

An evaporating company at Watsonville, Santa Cruz County, is planning a new feature of the industry, steam drying for fruit. The steam cured fruit is put up in sealed tin cans.

The Pajaro Valley apple output will doubtless be much larger than ever before, and it is thought that this year there will be a greater proportion of it cured than any preceding year.

San Joaquin Valley wheat growers have started a campaign to protect the grain growers' interests, and to that end have kept the wires to Washington warm urging modification of storage and dockage rates.

One cannery at Porterville has already booked orders for 110,000 cases of peaches and apricots, this season's delivery. The peaches are commanding around $80 per ton to the grower, which will mean around 50 cents to the consumer.

Packing houses of the Pajaro Valley which have purchased apple orchards are now selling to fruit evaporating concerns because it is claimed the promise is greater than for selling fruit fresh. Evaporators are now contracting at from 13 to 17 cents per pound for dried fruit.

Last year's raisin crop is being cleaned up as rapidly as possible, and growers are finding that some drying plants which made a special effort to save rain damaged raisins were more successful than was anticipated. Some raisins which it was feared would be a total loss have netted the growers $50 per ton.

Southern California

Ventura County farm bureau recently picnicked at Foster Park.

The San Dimas marmalade factory now has a packing house for cull oranges.

Many Southern California canneries are planning to open on July 1 on apricots.

Orange County's citrus acreage has increased 225 per cent between 1909 and 1918.

The San Bernardino Valley Potato Association has discontinued its organization.

Ventura County walnut growers report most satisfactory results from walnut dusting.

An important meeting of walnut growers of four counties was held at Hemet last Tuesday.

Blythe, Riverside County, recently shipped its first car of honey, which brought the bee men $3600.

Coachella, Riverside County, plans the erection of a factory for manufacture of date breakfast food.

Orange County bean and beet growers held their annual picnic at Huntington Beach last Saturday.

One 40-acre field of barley east of Brawley, Imperial County, netted 35 sacks to the acre and sold for $2.75.

Riverside County farm bureau has passed resolutions petitioning congress to repeal the daylight saving law.

Beaumont, Riverside County, recently observed Cherry Day. The Beaumont crop is much larger than usual.

A number of Eastern bred Jerseys have been distributed to the dairymen of Hemet and other Riverside County sections.

Ventura County reports Lima beans going out every day. Manager Essig reports little more than 100 carloads of holdovers.

Imperial Valley's tomato shipments during the month of May amounted to 67 full carloads besides 20,000 crates sent by express.

"Watch your tomato plants at this period for attacks of insects and fungous pests" is warning sent out by various farm advisers.

Redlands reports contracts for fumigation so general that its fumigation campaign will be more general than any preceding year.

The Rialto Heights fruit growers have been sending California grapefruit to Boston. The fruit has averaged them $7.35 per box.

Bean growers are planning a more effective marketing organization to take the place of the present pool which is organized only for one season.

With contractors ready to offer 26 cents for dried apricots, apricot growers are taking notice that their orchards get all the care they are entitled to.

Los Angeles and Orange Counties are engaged in an extended flood control plan; the first work in Los Angeles County was recently begun in San Dimas Canyon.

Castor bean growers who scored a loss on account of not being able to sell products are asked to file claims with the California Castor Bean Association, Santa Barbara, and the claims will be presented to the government.

The Coast and General

Maryland peach orchards repor crop far under normal.

Chas. J. Brand has resigned as hea of the bureau of markets, U. S. D. A.

Sugar beet blight is ravaging suga beet fields of Yakima Valley, Washing ton.

Sheep shearing in Colorado is finish ed, average clip running around eigh pounds.

An early June frost caught many o the cantaloupe fields at Rocky Ford Colorado.

Yakima County, Washington, leade of boys and girls agricultural clubs re ports a membership in that county o 65.

A carload of old horses has bee shipped from Mesa, Arizona, to Peta uma, California, to be used for poultr food.

Present estimates are that the Sa River Valley, Arizona, will have a output of between 1700 and 1800 ca loads of cantaloupes.

Many cattle fatalities have occurre in the Puyallup Valley, Washington because of wild parsnip and wate hemlock in the pastures.

A tractor demonstration was hel last week in Denver. Over 2700 acre of land were plowed up by tractor from 50 different factories.

Car lot shipments of apricots fro the Salt River Valley, Arizona, bega June 1. The first figs of the seaso came on the market about June 1.

Tractor owners in Maricopa Count Arizona, are to be urged to use som device on tractor wheels with lug which will prevent damage to th roads.

One and 22/100 inches of rain fe in Coconino County, Arizona, durin May. This is the heaviest precipit tion for May that has ever been re corded.

Chehallis, Washington, milk pro ducers have organized a cooperativ marketing association. The plan is t make it a state wide organization a soon as possible.

Hood River, Oregon, is shippin carlots of strawberries, the first ca having gone out on May 30. Recor prices have been received, usually run ning around $4.50 per crate.

Range conditions throughout Ari ona are reported as in fair to excellen condition, with the exception of the Grand Canyon country. Fat cattle from the range will soon be ready fo the market.

Hatcheries in the Salt River Valley of Arizona report an extraordinary season. The demand for day-old chicks has been so great as to be im possible to supply it, and many orders have been turned down, although the prices were 50 to 100 per cent higher than usual.

Sixteen thousand acres of land in the Salt River Valley, which has had only temporary water from the Roose velt reservoir by a recent vote of the council of the water user's associa tion has been granted permanent wa ter rights. These lands have pre viously been served with flood water and, for the past two years, under the stress of necessity for more food pro ducts, were furnished water the same as other lands under the project. This decision adds this acreage to the pro ject for all time.

More Milk, More Butter, More Cheese

By M. E. Bemis

THIS is not intended to be the "ultima palabra" in dairy industry forecast. In fact it will ever be impossible to tell the last word in dairy progress. There are some factors though which have a bearing on the future of the industry and may to some extent at least help one to predict the future of the dairy business in Arizona.

Conditions have been peculiar, and it is the peculiarity of these conditions that has resulted in the rise and decline of the dairy industry and the still peculiar, though different, conditions which now bid fair to rejuvenate the business once more and make it stronger and more profitable than ever.

As I have had occasion to say before to readers of the Cultivator, "Alfalfa, the greatest of all legumes, grows here to perfection. There may be other places on the face of the earth where alfalfa does as well as it does in the irrigated valleys of the Southwest, but there is certainly no place where it does better."

The general drift of the dairy industry has been towards those sections of the United States where feed is produced cheapest and where the winters are mildest. While New York and Wisconsin continue to lead in the number of dairy cows and will for many years to come, the drift has been largely southward and westward. Arizona, up to a year or so ago, had made the largest percentage of increase in the number of dairy cows of any state in the Union. During the past year and a half or two years the tide has turned and there has been a decrease, although the same general conditions have, so far as I am able to learn, continued to increase the number of dairy cows in practically all states which had previously shown something of the same increase that Arizona had.

Here is where the peculiar conditions that affected Arizona are shown. Previous to 1916 the acreage in cotton had not been a material factor in Arizona agriculture. In 1917 the acreage increased to 35,000 acres, more than double that of the previous year, which had in turn been a great increase over 1916 or any other year. Coincident with the increase of the acreage of cotton was a graduál increase in the price of hay and grain, without a corresponding increase in the price of dairy products. Dairymen who had by evolution developed from alfalfa farmers to dairymen merely as an expedient to sell their alfalfa, were much inclined to drop the dairy game and get back to the first love. Others seeing their neighbors apparently getting rich raising cotton were asking themselves why they too could not as well make some quick and easy money with cotton without the endless grind of milking cows twice a day.

This had its effect, and herds of cows have been sold, many at prices below their actual worth, because there were more sellers than buyers. Others have culled and culled to advantage; still others have sold their old cows and retained the young stock, and this is true to an extent which makes the proportionate number of young and old dairy cattle rather marked to the careful observer and encouraging to those who have regretted to see the number of dairy cows declining.

Right now we have the paradox of higher prices for butter fat than at any previous time in the history of real dairying in the state; prices that are rising instead of decreasing, and at a season of the year when ordinarily there has been a drop, and with it cheaper cows and less demand than when butter fat sold for not much more than one-half what it brings today.

I am not gifted with a prophet's vision and therefore any prognostication which I may make should be qualified with facts which substantiate, or at least confirm, the faith that is in me. With the facts before me, I firmly believe that a new era for the dairy industry is dawning for farmers in the irrigated valleys of the Southwest. Here in the Salt River Valley, we have had high prices for long staple cotton, and this has induced many to raise cotton who would not have been otherwise inclined to consider this as a commercial crop on a large scale. Many have planted their entire acreage to cotton, but this must of necessity be only temporary. In the article which appeared in the Cultivator of March 8 of this year I stated that my interviews with the best cotton growers brought out the fact that the largest yields were almost always produced on land which had previously been in alfalfa. Where cotton is grown continuously on the same land year after year the yield is bound to decline, and this is borne out by the experiences of growers here as well as elsewhere, though some of them are loath to admit it. Obviously, the time must come when much of the land in cotton must be reseeded to alfalfa. The Southwest Cotton Company has made a radical change in its farm management plans and has this year seeded a considerable portion of its land to alfalfa, although still growing cotton on a large scale, and the alfalfa seeding will be simply a means to an end, the growing of cotton more successfully.

What the price of cotton will be this fall is somewhat problematical, though not likely to be as high as the past season. The price will determine largely future plantings, but it is significant that while last year the increase was 100 per cent or more over 1917, which was an increase of 100 per cent over the year before, that the increase this season is only about 18 per cent over last season. It is also significant that there is a general tendency to reseed considerable old cotton land and plow up old alfalfa fields that have become infested with Bermuda or Johnson grass.

This is again an indication that the crest of the cotton wave has been reached, and it is doubtful if the acreage increases much beyond what it is at present. Probably the increased acreage in cotton will not equal the increased acreage of new land taken in each year.

The seed companies report a very marked increase in the sales of alfalfa seed this season over last which, together with certain facts which are known, proves conclusively that there has been and is a considerable effort to get unproductive alfalfa acres to producing the maximum, and this has been accomplished largely by plowing up infested and old fields that have run out and seeding down cotton fields that are in ideal condition to produce alfalfa.

Last season there was more activity in silo building than ever before; several hundred being built. This season more are going up, most of them of concrete too. The increased feed from the silos and from increased production of alfalfa fields due to reseeding and better management will in the aggregate amount to considerable and will proportionately increase the carrying capacity of the farms.

More important, however, than the increased feed production is the condition of the hay market. Previous to the entrance of the United States into the war troops had been stationed on the border and furnished a market for a considerable quantity of hay. Texas, which is one of the largest markets for hay from Arizona, has been a heavy consumer of hay, owing in a large measure to a drouth of several years in the western part of the state and also to army needs which increased consumption. These conditions, plus a world shortage of hay owing to the war, have made an extremely abnormal condition of the hay market of Arizona. Now conditions are rapidly changing; war conditions throughout the world are daily lessening the demands for hay. Generally, fair crops of hay in the localities which are competitors with corresponding prices have tended to restrict the market area, and at the present time hay can not be laid down at the logical markets at a price which will pay the grower here the cost of production. The consequence is that the growers will hold their hay to a greater extent than ordinarily. Although good prices have prevailed the early part of the season and a large part of the first and second cutting has been sold at fair prices, hay dealers do not hold out much hope of better prices for several months at least, and unless freight rates can be adjusted so as to be more favorable, it is extremely doubtful if prices will be encouraging to hay growers.

The condition of the hay market brings us back to something like the same conditions that prevailed before the war when dairying made such rapid strides in the Southwest. In other words, the alfalfa grower, forced to find a market for his product, sees in the dairy cow his salvation. Dairying today is not the crude industry that it was a few years ago. The silo is recognized as an important adjunct to profitable dairying. Milk houses are now required by the new state dairy law and creameries and factories are hedged about with restrictions which tend to protect the dairyman and give him confidence. All these things have a tendency to stabilize and make permanent the industry, for the farmer that turns dairyman now must expend more money for silos, milk houses and proper equipment and is not so likely to turn it down for some will-o-the-wisp industry that promises greater temporary returns. He will have too much at stake to quit the game as so many have in the past.

As I have said, butter fat is bringing more than ever before and the prospects of good prices for all dairy products are most excellent. Possibly we may not expect to supply Europe to so large an extent as during the war. Denmark's production of butter was curtailed, not so much because of loss of dairy cows as because of the impossibility of securing condensed feeds from America. Denmark has been and will be dependent upon America for cotton seed meal and cake as well as some other concentrated feeds. These will now be available and the production of butter brought back to near normal conditions, supplying in a large measure the needs of the United Kingdom. France, however, may be a buyer of dairy products, either American or possibly Australian, but any rate, opening a market. Milk in France before the war was six cents a quart and recently was selling for 17 cents according to reports of the United States bureau of markets. Cows which before the war were worth $58 advanced to $232.

The war has served to open up possible markets that did not exist previously, and to what extent these markets may be developed is only to be conjectured. As an instance, China has bought condensed milk to the value of $3,500,000 during the past year, and the American consul at Hong Kong says in a report to the department of state: "Present indications are for an indefinite continuance of the demand for American milk upon a scale not existing before the war." Other parts of the world offer markets for dairy products in small amounts, but many of these will add considerable to the world demands Cuba in 1918 doubled her imports of cheese from the United States. In Porto Rico milk and other dairy products are scarce. Even in Switzerland dairy products have doubled in value because of shortage.

Great as are the markets of the world and the opportunity of American dairymen to supply them, the greatest opportunities for extending the markets are right at home. The discoveries of Dr. McCollum, showing the value of butter fat as a part of the diet of animals and particularly of human beings, gives dairymen an opportunity to increase the consumption of dairy products in every section of the country. The consumption of milk, butter and cheese in every state in the Union might well be doubled, and will be if the dairymen and dealers in dairy products get down to a sane and systematic plan of advertising.

Never before has there been a brighter outlook for the dairy industry, and particularly in the Southwest Lower prices for feed stuffs, lower prices for good cows, and higher prices for dairy products, with the markets of the world open more and more to products of the dairy, and the dawning of an era when the markets at home will demand in an ever insistent voice, "More milk; more butter and more cheese."

SOUTHERN CALIFORNIA FAIR

Manager Van Pelt of the Southern California Fair Association at Riverside is already pushing for a real Southern California Fair October 7-11

Mr. Van Pelt says that one of the features of great importance will be the farm bureau exhibit. Various farm bureaus are expected to take an interest with the Riverside County farm bureau which is already busy devising a representative exhibit. One prize in the general exhibits, or rather in the county exhibits, which will be keenly sought for is $500 to the county making the best general agricultural exhibit. The second in merit will draw down $250; third, $125.

Established 1877 Forty-second Year

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and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock
Rural Californian, Established 1877
Combined with California Cultivator 1914
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Saturday, June 21, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

A scene near Willows in Glenn County is shown on the cover of this issue. Only a few years ago a large company organized this district, or rather a tract of several thousand acres, and financed an irrigation scheme which covered barren land—at least land producing but a few sacks of grain per acre—with wealth-giving water. These lands well repaid the effort, for during the past few years of war they have produced thousands of tons of fruits and other products, together with thousands of tons of rice and other staples—this because of irrigation.

AMERICAN BOTTOMS

At the beginning of the war America's products — which are so largely agricultural—were carried almost exclusively under foreign flags. To be exact, 9.7 per cent of America's exports and imports only were transported in American bottoms. Merchantmen now flying American flags constitute over 46 per cent of the shipping plying between our own and foreign ports, and this per cent is rapidly increasing. Compared with all the shipping of the world our flag now flies over one-fifth of the entire seagoing tonnage of the world.

One of the latest proofs of activities along this line is the establishment of a direct service between the ports of Los Angeles and the Orient.

JULY 1, 1919

Everybody knows that fully ripened peaches, apricots, grapes, potatoes and even alfalfa hay go to market cheaper and arrive in more salable condition if carted over roads rather than chuck holes.

Everybody knows that these roads cost money, and this money means more taxes or bonds, and this means that the voters must march up to the poles on Tuesday, July 1, and vote for California's advancement.

Everybody knows that California already has a greater mileage of good roads than most other states and that it has already advanced our prosperity. They also know that this is the next biggest state in the Union and that it takes great mileage to reach the producing sections.

Everybody knows

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Because it will give work to returned soldiers, sailors and unemployed men.

Because it will prove of vital good to the farmer and fruit-grower.

Because it will aid materially in developing local manufacturing.

Because it will open up immense tracts of land for settlement.

Because it is to every one's financial interest and welfare.

Because it will extend and cheapen transportation to all users of roads.

Because it will vastly benefit every California county.

Because it will help effectively to cheapen the cost of living.

Because it will mark a milestone in the progress of California.

JULY 1, 1919.

TAXING TWICE

Now comes the money shark, or at least some influence is making itself felt in an endeavor to force taxation of federal farm loan bonds. In giving the farmer a chance at money on something like the same basis on which it is secured by commercial interests, congress saw fit to make the bonds which were based on the loans exempt from taxation. This has made these federal farm loan bonds attractive enough that they have been generally sought, and this has made possible the securing of the large sums necessary to finance the federal farm loan scheme.

The interests at work are very active and are flooding the country with literature advocating taxing the bonds. The claim is usually made that this affects only the large moneyed interests, but this is not true, for much of this money has come from those who are not possessors of large wealth, but small investors. Should this effort be successful it will result in the farmer being taxed twice—on what he owns, and again, under this proposed system, on what he owes.

The urban dweller has been for many years exempted from this double taxation to this extent at least, that where he was a home builder and has secured money from building and loan associations these monies have been exempt from taxation, the one taxation on his home being considered sufficient return. Stock in the federal reserve banks of the United States is exempt from all taxation, and the bankers owning these stocks receive 6 per cent dividends on them, yet nobody questions the propriety of this arrangement. Cities and towns issue municipal bonds for the purpose of paving and improving their streets and otherwise making city life convenient, comfortable and happy. These bonds and the income therefrom are exempt from all forms of federal taxation. This is a fine thing for the cities and towns because it gives the people a low rate of interest and enables these necessary improvements to be made, and nobody objects to it.

It seems to be different with the farmer, however, but the farmers are watching. In fairness to the bankers it is but just to say that little of this opposition has come from them. The California Bankers' Association at its recent meeting at Catalina was most cordial in its approval of these federal farm loans, which are now being made at the rate of about a half million dollars per month in this single Pacific Coast district.

LABOR

Everything seems to indicate a serious shortage of labor during the harvest season. People talk of it; financial institutions in reporting business conditions refer to it and to the fact that the demands of Europe for food will be even greater than during the war. This is contrary to the belief of a few months ago when it was thought that the signing of the armistice, at least the signing of the final peace terms, would set all the idle busy and give reassurance to business conditions in those countries. But as time passes it appears that many Europeans are settling down to the belief that America will feed them in any case, and certainly this year's crop production of central Europe will be vastly under normal. This will induce continued demand on this country. With the disposition of organized help to devote its energies to increasing its wages and demanding many impossible labor conditions there will be less of real production than is anticipated unless labor employers study the situation seriously and make preparation for proper care and distribution of the laborers.

Plainly the time for falling prices has not come, and with the demand keeping up manufacturers are nearly all extending their operations. Building is becoming more general, and these activities are calling for increasing demand for laborers. A look-in at one of the largest federal employment bureau branches showed literally hundreds of men standing about and waiting for a job. A talk with the manager developed the fact that this one agency is placing a man every ten minutes. He can fill any order for help at once providing it does not take the men from the city. Thus far he has met all demands for ranch help, but has only a limited number at his command.

Manager O. V. Cobb of the Valley Fruit Growers Association at Fresno reports:

"We find that at the present time there is no shortage of farm labor, apricot picking and cutting is active, but so far orders for help are easily filled. We are now actively engaged in planning the erection of community camps in conformity with the state housing act taking effect July 21. By letters received from outside counties of California and Eastern states, and judging from the experience of the past and following along those lines, there should be no shortage of help during harvesting season, especially as we are perfecting a system of the proper distribution of labor, we shall then have at hand and avoid wastage of time, in securing new jobs for men and placing them at work which has been so common in the past."

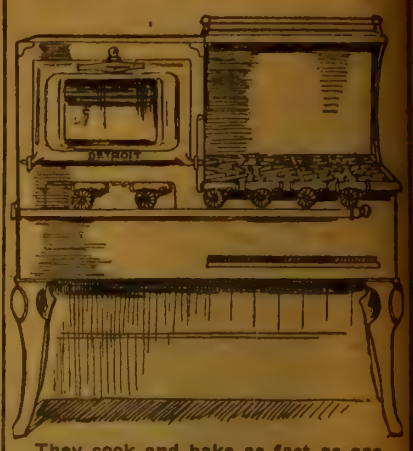
This establishment of community camps and distribution of labor is most important. If reasonable assurance can be given to the laborers that they will be cared for during an entire season, the situation will be materially cleared.

OUR SACRAMENTO OFFICE

California is a big state. The Cultivator is the big farm and live stock paper of this state, so in an effort to give our readers an even better paper than we have in the past, we have recently established a branch editorial office at 210 Ochsner Building, Sacramento. We now feel that we are in a position to render the widest possible service to our readers and our advertisers—and service is the big idea back of the Cultivator.

Our new office will be in charge of our live stock editor, Mr. Royce, and will also be the headquarters of our fieldman, Mr. Bennett. We trust that our friends will make our office their headquarters when in Sacramento and that they will call upon that office for any service that we may be able to render. All mail pertaining to live stock affairs and inquiries should be addressed to the Sacramento office.

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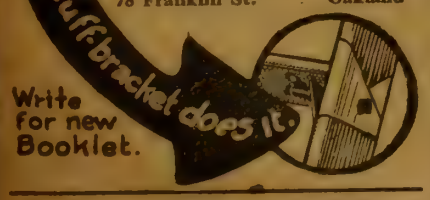
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J. B. Patterson
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When Writing Advertisers, Mention The Cultivator.

PREPARING FOR FUMIGATION

FUMIGATION of citrus orchards will be more general this season than any preceding year. More outfits will be in operation and it now appears the season will be longer. Work is already shaping up for a start on the campaign at least by the middle of next month. More outfits will start early in the month of August. County work, that is, work done under direction of the county horticultural commissions, will be less general than in preceding years, and there will be a number of private or cooperative outfits in every county. The citricola scale, which has induced early work in central California, is now found in some southern orchards, and, amongst others, Redlands will begin a campaign within the next few days on this scale. But even for black scale alone the campaign will be general, partly because the season has been very favorable for their increase and perhaps more because the exceptionally good prices for high-grade fruit induce better care of the orchards. Some orchardists formerly felt that one fumigation every three years was sufficient, but notwithstanding the cost of fumigation it has become more general and will continue to do so if present conditions continue to prevail. As some growers express it: "The scale is becoming used to fumigation, or to an extent is immune, so that stronger and more frequent treatment is necessary."

Possibly the pest is immunized. In any case, the grower is after him with the latest improved methods of fumigation. This of course will be through more general use of fumigation machinery, that is, apliances for manufacturing gas or for pumping liquid gas under the tent. There will be but few of the old-time interior generators in operation. The liquid gas proved so generally satisfactory last season that this method will probably almost entirely replace the former generation machine. There will be at least two large plants supplying liquid gas and machinery for its application.

MORE AIRPLANE PATROLS IN FORESTS

Two additional routes in the patrol of national forests by army airplanes, to give early warnings of fires in the forests, have been arranged by the war department and the forest service. The routes will be operated from Mather Field near Sacramento. The first will cover the northern Eldorado and Tahoe forests on the valley side of the Sierras. It will start from Mather Field and proceed to Placerville, Colfax, Nevada City, Strawberry Valley and Oroville, where the planes will land. This route will be covered in the morning of each day and return trips will be made in the afternoons.

The second route will cover the southern Eldorado and Stanislaus forests. Starting from Mather Field the route goes to Placerville, Grizzly Flat, Big Trees, and to a landing near Sonora or Tuolumne. This route will be covered in the morning and return trips will be made in the afternoons. Both of the Mather Field routes have a roundtrip length of about 150 miles.

Forest service reports tell of a successful trial patrol undertaken recently. No difficulty was experienced in detecting fires in heavy timber at elevations of 6,000 to 10,000 feet.

Secretary Walker writes that The California Tractor and Implement Association recently recognized the good work performed by Manager R. M. O'Neil in conducting the recent demonstration at Arden Acres near Sacramento, by making a material increase in his salary. Mr. O'Neil has also successfully managed the two last demonstrations held in Southern California.

A survey of Mormon Flats, Arizona, is to be made by the Salt River Water Users' Association for the purpose of finding a site for a new storage dam which will hold in reserve some of the flood waters below the Roosevelt Dam.

MOLINE MANDT MOUNTAIN WAGON

The Moline Line of Implements
Plows (steel and chilled)
Harrows
Pulverizers
Cultivators
Grain Drills
Lime Sowers
Mowers
Hay Rakes
Hay Loaders
Hay Stackers
Grain Binders
Corn Binders
Pitless Scales
Spreaders
Wagons
Moline-Universal Tractors
Stephens Salient Six
Automobiles

THE Moline-Mandt Mountain Wagon is now built according to United States specifications in standard auto track of 56 inches, and is built with a thorough knowledge of the difficulties of wagon traffic in all mountainous regions.

It is not merely an ordinary farm wagon built of heavier stock. It is correctly designed and properly proportioned to stand the extra strain and to resist the wear and tear of weather and of hard, rough-road hauling.

Axles, hubs, spokes, rims, reaches and poles—practically all wood stock, are one size larger than on ordinary wagons of same size. Special care is taken in selecting and air-seasoning the stock.

Wheels have heavy second-growth, white-oak spokes driven to place in glue. Hubs and felloes of same material.

All wheels and gear parts soaked in hot linseed oil before being ironed, and covered with two coats of old-fashioned red lead, the best and most expensive wagon paint known.

Moline-Mandt patent dust and sand-proof collars prevent wear. Extra heavy gear brakes with long, malleable iron shoes.

Ask your Moline Dealer to show you the Moline-Mandt Mountain wagon or write us for information.



MOLINE PLOW CO., MOLINE, ILL.
MANUFACTURERS OF QUALITY FARM IMPLEMENTS SINCE 1865

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—for the items in which you are interested. Send to us and you will receive complete catalogs by return mail.

Gas Engines
Oil Engines
Distillate Engines
Centrifugal Pumps
Turbine Pumps
Deep Well Heads
Deep Well Cylinders
Sand and Dredge Pumps
Contractors' Pumps
Water Works Pumps
Acid Pumps
Rotary Pumps
Oil Pumps
Steam Pumps
Electric Motors
Louden Barn Equipment
Hay Tools



American Centrifugal Pumps

It's a satisfaction to buy a pump that is absolutely guaranteed to the limit—your purchase is then a certainty and not a gamble. American Pumps are so guaranteed — by the manufacturers as well as by ourselves—guaranteed to meet all conditions specified, to perform the work efficiently, and to be free from defects of workmanship or material. Don't experiment—buy an American.

WRITE FOR ILLUSTRATED CATALOG

It describes the entire American line and contains much valuable information for the irrigator.

We have some open territory for live dealers.

American Pump Co.,

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Citrus Trees of Quality

Washington Navel Valencia Late Eureka Lemons
Marsh Seedless Grape Fruit

Walker-Hubbard Nursery San Fernando, Calif.

Citrus Trifoliata

WANTED: 2000 one year old California grown Citrus Trifoliata for next spring delivery.

Elbert S. Lewis
222 East F Street, Ontario, Cal.

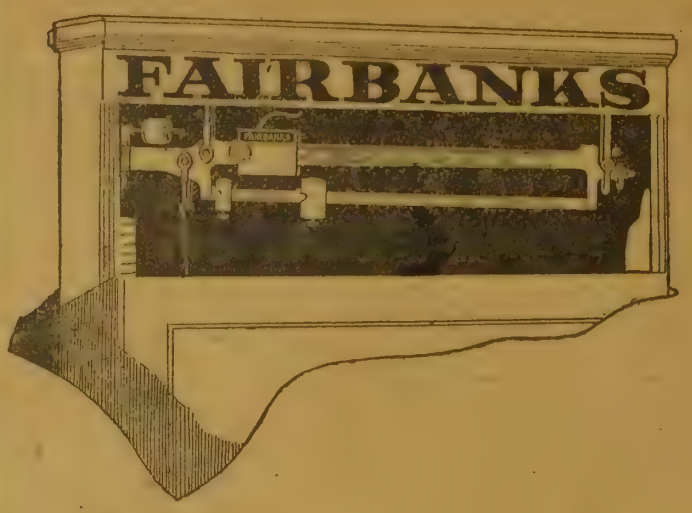
CAPRI FIGS

Delivery June 15th to July 1st

Do not take chances but order now and order sufficient, for Smyrna Figs are money this year. Price $10.00 per thousand, delivered. Quality Guaranteed.

L. C. Collins, Ceres, Cal.

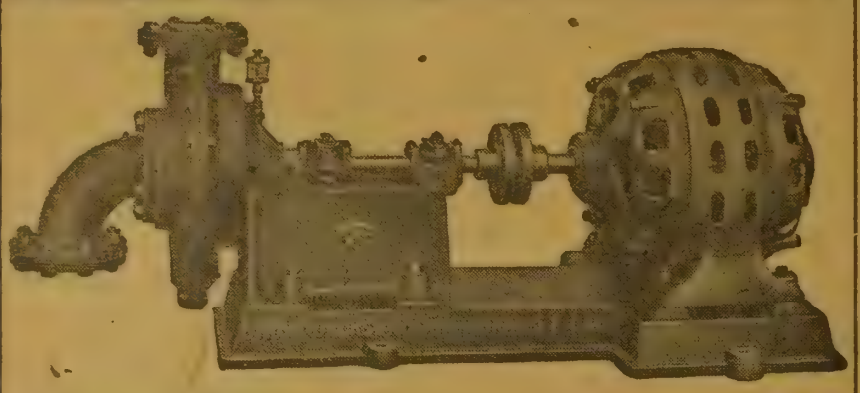
"If it's weighed on a FAIRBANKS, There's no Argument"



THERE can be no uncertainty regarding the correctness of weights when both buyer and seller—using a scale for any purpose—look for and find the name FAIRBANKS. Over 87 years of faithful weighing service firmly establishes this fact.



Fairbanks, Morse & Co.
MANUFACTURERS CHICAGO



Have You a Producing Ranch?
If not, Why not?
The difference between a "live" and a "dead" Ranch is "Water" and "No Water."
"Byron Jackson" Pumps meet every water condition
Write us giving your water conditions and requirements.
Our New Catalog No. 60-B for the asking.
Byron Jackson Iron Works, Inc.
Los Angeles San Francisco Visalia
Portland Salt Lake

PIPE
For Every Purpose New Threads & Couplings Hot Asphaltum Dipped
New and Used Screw Casing
Fittings and Valves Special Fittings Made to Order
TESTED AND GUARANTEED
Pacific Pipe Co. Main and Howard Sts. San Francisco

The Cultivator Costs Only $1.00 Per Year

New Grape Syrups

By W. V. Cruess

THE past year has seen many announcements of wonderful processes by which the wine grape growers may be saved from ruin. Some of these "discoveries" would, if true and commercially feasible, enrich the wine grape growers far beyond the returns possible from wine making. One of the plans most commonly suggested is that of converting the grapes into syrup.

To date the writer has no definite information of anyone's undertaking seriously the manufacture of grape syrup upon a commercial scale. Evidently no one has enough confidence in the syrups proposed so far to invest any great amount of capital in the venture.

Until very recently the University has not been thoroughly satisfied with any of the syrups that had been produced. We have, however, since the publication of Bulletin 303, been able to develop a method which we consider superior in every way to any process thus far suggested and one which results in a product of undoubted commercial possibilities.

The process is based upon the concentration of the juice to a syrup by freezing combined with the ordinary vacuum pan process. When any sugary liquid is frozen pure ice first separates, leaving the residual juice enriched in sugar. This is especially true if the liquid is allowed to freeze slowly. Too rapid freezing causes the ice crystals to be too small to be easily separated and causes the ice to include part of the syrup. But if allowed to freeze slowly large ice crystals will form and can be easily separated from the syrup by means of a sugar centrifuge.

By two or three freezings and centrifugings it is possible to make a thin syrup of about 55 degrees to 60 degrees Balling. This is rather too thin for most purposes. In order to increase the sugar content to 65 degrees Balling we would blend with it a syrup of 70 degrees Balling made in a vacuum pan.

Syrup made by the freezing process contains all of the flavor of the original juice in a concentrated form, while that made in a vacuum pan has lost practically all of its grape flavor. This has been the principal objection to the vacuum method.

The freezing method was first developed by Monti of Italy but has been used for many years in the maple syrup regions where the sap is often allowed to partially concentrate by natural freezing. H. C. Gore has patented the freezing process described above and has given it to the public for free use without royalty.

We have made two different types of syrups: One for table use only, which is a light colored syrup of low acid and strong grape flavor; the second, a deep red syrup of tart taste and strong grape flavor. This latter syrup is not only a delicious "liquid jelly" table syrup, but is also excellent for beverage purposes when diluted with carbonated water or as a basis for sherbets, for ice cream sodas, ice cream sundaes, and finally as base for wine making. For the last purpose it is much more convenient to ship and use than raisins.

The syrups in both cases contain about 25 to 33 per cent of their volume of syrup made by freezing and 50 to 66 per cent of syrup made by the vacuum process. A very excellent red syrup suitable for wine making can be made without use of freezing.

In order to give an idea of the steps in the method the following outlines are given:

Red Syrup of Full Grape Flavor

(a) Crush and press ripe red wine grapes of any variety. Heat juice to 130 to 140 degrees Fahrenheit and return to skins for eight or ten hours to extract colors. Press. Heat to 160 degrees Fahrenheit. Allow to cool. Filter and concentrate in a vacuum pan such as used for grape syrup in wineries under 25 to 28 inches vacuum to 70 degrees Balling. Allow juice and syrup to remain in the pan never longer than 1½ hours; i. e., empty the pan often to prevent caramelizing.

(b) Crush and press wine grapes of good flavor, such as Semillon, or use Muscat grapes or in absence of these any sound clean ripe grapes. Heat to 150 degrees Fahrenheit, cool and filter. Freeze slowly in tin lined containers at five to ten degrees Fahrenheit to mushy mass of crystals and syrup. This may require 12 to 24 hours. Whirl mixture in sugar centrifuge. Discard the ice which remains in the centrifuge. If the syrup obtained is not concentrated sufficiently freeze it a second time to 0 degrees Fahrenheit or less and centrifuge again.

(c) Combine the syrup made by freezing with that made by the vacuum pan to produce a syrup of fresh flavor and about 65 degrees Balling. Allow to settle three weeks to remove cream of tartar.

(d) Place in cans or bottles and seal. Place bottles in water. Heat water to 150 degrees Fahrenheit for 40 minutes. Syrup is then ready for labelling and sale.

Table Syrup

(a) Use any variety of wine grape. Crush and press. Heat to 150 degrees Fahrenheit and add precipitated chalk to reduce acidity to .2 per cent (as tartaric); about ½ ounce of chalk per gallon. Cool. Filter. Concentrate in vacuo to 70 degrees Balling.

(b) Mix with this syrup syrup made by freezing to give syrup of 65 degrees Balling. Allow to settle three to four weeks. Bottle or can and sterilize at 150 degrees Fahrenheit 40 minutes.

Red Syrup for Wine Making and Table Use

(a) Crush and press any variety of ripe red wine grapes. Heat juice to 130 to 140 degrees Fahrenheit. Return to skins eight to ten hours to extract colors. Press. Heat to 160 degrees Fahrenheit. Cool. Filter.

(b) Concentrate in vacuum pan to 65 degrees Balling. Allow to settle three weeks. Bottle or can. Pasteurize at 150 degrees Fahrenheit 40 minutes. This syrup has a "blackberry jelly" flavor. It is excellent on hot biscuits, etc., and makes an excellent wine when diluted with water and fermented. It is the most easily made of the three syrups discussed and has ample merit to warrant the highest faith in its commercial possibilities.

Opportunity for Breweries

All of California's breweries will soon retire from the beer business. In many cases their expensive plants will remain idle or be sold for junk. Grape syrup can be made in most of them with very little expense for new equipment. All of them have a good supply of steam. Most of them have refrigerating plants in operation. These could be used for the freezing of the juice. Filters, glass lined tanks and kettles are at hand. A vacuum pan, grape crusher and press would have to be installed. The breweries of the Northwest have made a great success of loganberry syrup; the California breweries' opportunity lies in the manufacture of grape syrups.

CONSERVE THE SNOW

The conservation of snow seems to have but little interest for the California fruit grower when his orchard is surrounded by perpetual flowers. But it should have, and will have if he reads "Conservation of Snow: Its Dependence on Mountains and Forests," a pamphlet issued by the International Irrigation Congress.

California orange blossoms depend more upon the snows that fall upon the mountains than upon the rains of the winter season, and when the fruit grower sees the smoke arising that means snow conservation is being jeopardized by midsummer fires, he then begins to appreciate the fact that his greatest asset is being diminished. The pamphlet referred to discusses the question in part from the technical standpoint and largely from the timber standpoint, but the findings are applicable to the needs of the irrigationist. Regarding the increase in our resources the pamphlet suggests:

The development of the national forests to their full capacity means not only the control of the present run-off but also a large increase in the storage of snow, without in any

way jeopardizing legitimate lumbering interests. For pine, the timber of commerce, seems to prefer the warmer southern exposures, while fir, the most available cover for snow, thrives best on the shady northern slopes. The southern slopes, therefore, where snow can be protected only with difficulty from the direct rays of the sun, can be set aside for lumbering, while shaded northern slopes can be reserved for the fir, only sufficient fir being cut to insure the maximum storage of snow. At 8,000 feet and over, where protection from wind is temperate, the mountain hemlock or tamarack should be planted wherever conditions will permit their growth. In this way, water can be conserved for direct application where the soil is arable, without permitting a large portion of it to be evaporated or to run off uselessly. Furthermore, the greater portion of the seasonal evaporation will occur in summer through transpiration by the trees rather than in the winter through the effect of the wind. The transfer of moisture to the air will thus occur in the summer when its presence is most needed.

PEAT AS A MANURE SUBSTITUTE

Peat, finely pulverized after drying, has been used as a manure substitute and its value is often asked. On this point there is much difference of opinion. Plainly it is of great value as a mulch; it is also a carrier of nitrogen, but this nitrogen seems to be locked up in the inert peat which for ages has resisted the nitrifying bacteria. In answer to questions which have come to this office we quote the summary of Prof. John S. Burd's bulletin 203, issued by the California agricultural experiment station:

The substances commonly included in the term organic matter and derived from plant or vegetative tissues have a recognized value as soil amendments apart from their plant food contents.

Organic matter is contained in manures of all kinds, in straw, hay, etc., and in peat.

The commercial value of substances of the same kind, such as manures, should be based upon their percentages of organic matter.

Fresh peat contains about the same amount of organic matter as the average fresh manure.

Dried peat will normally contain less organic matter than manure of the same degree of dryness.

Peat, unlike farmyard manure, does not decay rapidly in the soil, nor is it readily nitrified; it cannot, therefore, be regarded as an available material.

We regard the inoculation of peat as a useless procedure and an unnecessary expense to the farmer.

Peat frequently contains considerable sand or silt, making it still less valuable agriculturally.

Any plant substance which has undergone partial decay in water is to be regarded as peat.

In the absence of more favorable results than those heretofore obtained in experiments with peat, the use of this material is not advised.

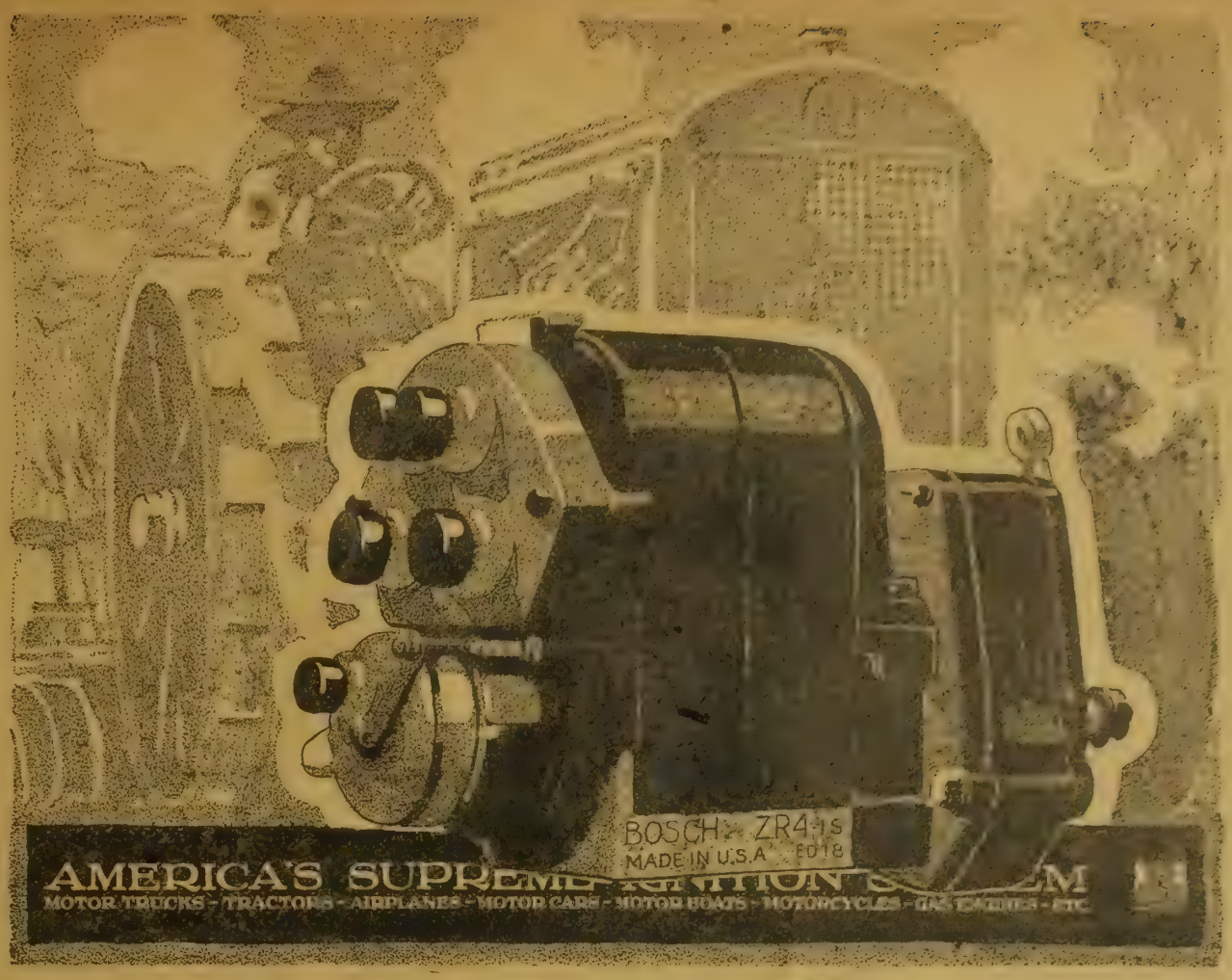
Farmers are especially advised that the plant food constituents of peat are not to be regarded as having the same commercial value of those of high grade fertilizers, nor is peat commercially or agriculturally as valuable as farmyard manure.

CALIFORNIA MAN FIRST AGRICULTURAL TRADE COMMISSIONER

The first agricultural trade commissioner to work in foreign lands for the interests of American food producers has been named by the United States Department of Agriculture. He is Edward A. Foley of San Francisco, who has been appointed to represent the department's bureau of markets in the United Kingdom. Mr. Foley will investigate conditions in the United Kingdom and study the marketing and distribution of farm products with a view to the development and improvement of foreign trade in American agricultural products.

Mr. Foley sailed for Liverpool May 24. As he is to do much traveling, at the beginning of the work, at least, his headquarters abroad have not been fixed.

Mr. Foley is a graduate of the law school of the University of California and has had experience eminently fitting him for the important post he is to occupy.



The Man Before the Plough

It used to be "the man behind the plough"; but today it is the man before the plough. Ploughs are now guided and pulled from the front. The Gas Engine leads agriculture.

The economy, durability and dependability of any Farm Engine is determined by its Ignition System. The searching strain of farm work demands magneto ignition and the qualities of Magneto Ignition reach their highest development in Bosch—"America's Supreme Ignition System."

Hot, intense and uniform—Rip Roaring Bosch Sparks get every atom of power from any fuel—kerosene, distillate, coal oil, tops or gasoline—in any Tractor, Truck, Automobile or Gas Engine. Bosch Dependability and Bosch Endurance have been proved through years of Supreme Service.

Any dealer can convincingly demonstrate Bosch Superiority. Every single Bosch Magneto for Farm Engines gets the continuous, expert Bosch Service of over 200 Service Stations in more than 200 centers, in all parts of the United States.

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Main Offices and Works: Springfield, Mass. . . . Branches: New York, Chicago, Detroit, San Francisco

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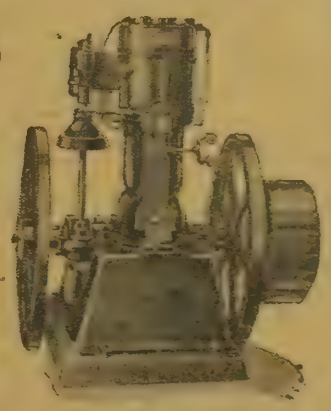
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OPERATE ON LOW GRADE FUELS

The Bosch High Tension Magneto Insures Starting and Operation.

Let us tell you of its *Low Cost* and demonstrate its *Economy in Operation*

Made and used in California for 5 years



Catalogue on Request

SMITH BOOTH USHER CO

ESTABLISHED 1893

THE PUMP AND ENGINE HOUSE OF THE PACIFIC COAST

LOS ANGELES

When Writing to Advertisers Say Where You Saw Their Advertisement



DE LAVAL

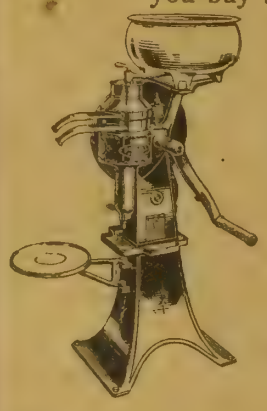
"The Distinguished Service"

CREAM SEPARATOR

There is service built into every part of a De Laval. Forty years of leadership in cream separator construction have made it the unquestioned leader in close skimming, light running, easy cleaning, and durability.

The De Laval is sold through local agents who are well informed with regard to the machine and the Company's policy. These agents localize the Company's service. They carry repair parts in stock and are trained to give intelligent advice and prompt help, in order to insure complete separator satisfaction and continuity of service.

There is a De Laval agent in every dairy community throughout the world—a constant reminder of the fact that when you buy a De Laval, the Company feels that its obligation to you has just started.



It is because of these facts that the De Laval has been justly called

"The Distinguished Service Separator"

50,000 Branches and Local Agencies the World Over

De Laval Dairy Supply Co.

THE LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST

61 Beale St., San Francisco

SURFACE IRRIGATION

10 FOOT CINCHES LONG — DOUBLE LOCK SEAM — ONE PIECE BODY

MANUFACTURERS OF

Well Casing, Tanks, Riveted Water Pipe and Supplies

AMERICAN STEEL PIPE & TANK CO.

P. E. Building, Los Angeles, Cal. Branch at Fresno



When writing advertisers, mention The Cultivator.

Well-Known Dairymen and a Well-Bred Lady

By A. M. Nelson

The picture shows Ed. H. Webster, former chief of the dairy division, United States department of agriculture, inspecting Jessie Hengerveld Johanna, owned by James E. Peck of Brawley.

The photograph is taken on Mr. Peck's ranch in Imperial Valley where Mr. Webster is also ranching. Mr. Webster, with a firmly established reputation as a dairyman and agriculturist, earned through his work for the federal dairy division, as dean of Kansas experiment station, and as associate editor of Hoard's Dairyman, came to the Pacific coast as superintendent of one of the largest California creamery corporations. His work took him to Imperial Valley and after a study of dairy conditions there he resigned his position and went to farming south of Meloland in the valley. During April and May he has been putting up hay. On his first cutting he got three tons of alfalfa and oat hay and expects to average ten tons per acre for the year. In the fall he is going to Wisconsin to pur-



A Well-bred Lady

Jessie Hengerveld Johanna, butter seven days 27.83 pounds, milk 597.10 pounds. The gentleman at the right holding the rope is James E. Peck, owner of the cow. The gentleman standing just behind is Ed H. Webster, former chief of the dairy division, U. S. D. A.

chase a string of Holsteins for his Imperial Valley place.

Mr. Peck is now in the East, having attended the Holstein-Friesan convention at Philadelphia, June 4 to 7. He recently has made several additions to his pure-bred Holstein herd, among them Jessie Hengerveld Johanna, who comes from the Smith herd at Sumas, Washington. She has a seven day butter record of 27.83 pounds and is bred to Carnation King Sylvia, the bull which brought $106,000 when six months old.

Live Stock News Notes

SALE CALENDAR

Shorthorn Cattle

July 10, W. M. Carruthers, Sacramento.
August 2, Butte City Ranch, Butte City.
October 16, Dr. H. M. Elberg, Woodland.

Poland-China Swine

September 17, John M. Bernstein and W. L. Haag & Son, Hanford.
October 29, Tulare County Poland-China Breeders' Association, Tulare.

Berkshire Swine

August 2, Butte City Ranch, Butte City.

Shropshire Sheep

August 2, Butte City Ranch, Butte City.

Duroc-Jersey Swine

July 16, Tulare County Duroc-Jersey Breeders' Association, Tulare.

Swine Show to Move

Cedar Rapids, Iowa, will not be the home of the 1919 National Swine Show scheduled to be held there in October. The reason given for abandoning the enterprise is that the various business interests of Cedar Rapids have been so heavily taxed since the recent starch factory explosion that they find it impossible to finance the show.

The new location has not been announced but a committee from the National Swine Growers' Association is engaged in considering the invitations of a number of Middle West cities and it is expected that their selection will be announced within a short time.

Jenkins' Jersey Sales

A. A. Jenkins, Tulare, reports the following sales from his herd of Jerseys: To W. W. Caldwell, Tulare, Gertie's S. V. Fern Lad, a son of Gertie's Son's Victor and out of the Register of Merit cow Smith's Mermaid. The dam has a record of 494 pounds fat as a three year old. Joseph Shively of McFarland secured a young son of Gertie's Son's Victor and Pretty Lady Celia. Mrs. Watts of Lindsay selected a son of Gertie's Golden Victor and out of G. S. V. Exile. The dam and granddam of this calf have Register of Merit records.

Mr. Jenkins states that he has never seen a more active demand for Jerseys than exists at the present time.

Morris Elected Holstein Director

At the annual meeting of the Holstein-Friesian Association of America held at Philadelphia June 4th, Frank L. Morris of the firm of A. W. Morris and Sons, Woodland, was elected as director to serve three years.

D. D. Aitken of Michigan was re-elected president and F. L. Houghton was re-elected secretary.

The Holstein-Friesian Association of America is the largest registry association in the world. The total membership is 14,322 and the total registration is 783,427.

Big Duroc-Jersey Sale

The breeders of Duroc-Jersey swine of Tulare County known as the Tulare County Duroc-Jersey Breeders' Asso-

PURITY Purity BIOLOGICAL First LABORATORIES

Live Stock Profits

are directly dependent upon the general health of herds and flocks. Not all live stock diseases can be controlled or cured, a fact that justifies owners of live stock taking advantage of every proven method for eliminating possible risks.

Purity Biological Products
(not always cheapest but always best)

offer the greatest protection against certain diseases.

PURITY BLACKLEG AGGRESSIN—Germ Free Vaccine — produced by the Kansas method. One treatment immunizes for life. Being germ-free its use will not introduce blackleg into healthy herds. Over 1,500,000 calves vaccinated without loss.

PURITY ANTI-HOG CHOLERA SERUM is the most extensively used in the world.

PURITY MIXED VACCINE FOR SWINE prevents Swine Plague and Necrotic Enteritis.

PURITY HEMORRHAGIC SEPTICEMIA VACCINES for cattle and sheep prevent Hemorrhagic Septicemia and reduce losses in infected herds.

We are prepared to offer the highest degree of service—service that counts, and does not end with selling. Correspondence and consultation invited. Write, wire or phone.

Purity Serum Company
J. L. Thatcher, Manager
(Successor to Thatcher Serum Co.)
Riverside, Calif. Sacramento, Calif.

Why It Pays to SALT YOUR HAY DOWN

When You Stack It or Bale It—

Because

It prevents musting

—checks the growth of molds when the moisture cent is high.

Improves the feed

—cattle thrive on salted hay and they like its taste. Stock will eat it up clean, where unsalted hay will be mussed over and wasted.

Increases the Milk

—makes the cows thirsty and they drink more water and produce more milk. Leading dairymen use salted alfalfa hay the year round for feeding their dairy cows.

Really Costs Nothing

—the salt more than pays for itself in the weight of the hay—holds the moisture, making 5 tons equal 6.

20 Pounds of Salt to Each Ton of Hay

—that's the proportion. And the method is very simple. Stack three feet of hay, sprinkle the salt over by hand; then another layer of hay, more salt, and so on.

Don't Fail to Try It This Year



Hardiness

Observe the calves of two different breeds; of one they live and grow without especial care; of the other they perish easily if they do not have the best of care.

Holstein-Friesian calves weigh 100 to 135 pounds at birth. Reasonably fed on skim milk and a little oil-meal, they grow like weeds.

If interested in

HOLSTEIN CATTLE

Send for our booklets—they contain much valuable information.

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA, Box 120 Brattleboro, Vt.

Beef Cattle Specialist

For 30 years I have been devoting my entire time to pure bred beef cattle. I know the kind of cattle California needs and where and how to buy. I make regular trips to the great producing centers and will buy on order. Best of references. Satisfaction assured. Correspondence invited.

R. M. DUNLAP, Hotel Land, Sacramento, Cal.

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ciation, are making big preparations for their forthcoming midsummer sale. The committee which was appointed to visit the herds of the different breeders and select only such animals as conform to the standard set for their sales report the selection of 60 head of sows and gilts and all bred to the different herd boars of the breeders. The new sale pavilion now being erected and nearing completion will be dedicated by this sale July 16, 1919. Both Allen Thompson, president, and R. C. Sturgeon, secretary, state that they believe this sale should attract buyers from all parts of the West and are preparing for the entertainment of a large crowd. Col. Geo. W. Bell, now in the East, will have returned by that time and will be the auctioneer.

LIVE STOCK QUERIES

Alfalfa-Foxtail Silage

Two months ago I filled my silo with fine cut and closely packed first cutting green alfalfa and foxtail. This kept in fine shape but I cannot induce my cows to eat it alone or in combination with anything I have tried. Let me hear the solution and how I can get my cows to eat it. I have read that cows would eat such silage with "a relish." If I have made a mistake I would like to know and if the plan isn't feasible other ranchers should have the facts. — Riverside Rancher.

It is quite possible to make silage from green alfalfa and foxtail and a number of feeders report good success. Silage made from green alfalfa, or green alfalfa and foxtail, is invariably more acid than corn or sorghum silage and very often it is difficult to induce stock to eat. However, once they become accustomed to it they apparently do well.

Such feeds as alfalfa carry a large proportion of their nutrients in the form of sugars and proteids in the juices of the plant. These nutrients are readily decomposed and the value lost in the acid fermentation.

Your silage is probably very acid, and unless your stock eventually take to eating it, we have no suggestion to offer as to how you can correct the condition.

Raising Dairy Calves for Veal

I have been told that there is "good money" in buying very young calves from dairies and raising them for sale as veal. How should they be handled and fed? Is any preference shown by buyers as to breed?—P. H. S., Long Beach.

We would not advise an attempt to buy dairy calves for the purpose of feeding them out for veal. The fact that dairies are anxious to sell or give away calves is sufficient evidence that it is not profitable to raise them, and the experience of all who have attempted the business has been disastrous. Buyers prefer a Holstein calf or one sired by a beef bull.

Registration of Holsteins

Is it possible to register a Holstein calf sired by a registered Holstein bull and out of a registered Holstein cow if said calf is black or otherwise so off color as to cause suspicion as to previous ancestry?—W. A. C., Hemet.

The Holstein-Friesian Association of America has the following rule: "Colors that bar registry: (1) solid black; (2) solid white; (3) black switch; (4) solid black with white on belly only; (5) black on legs, beginning at feet and extending to knees and hocks; (6) black on legs, beginning at feet and extending to knees and hocks, with white interspersed; grey or mixed black and white generally prevailing; (8) patches of other colors than black or white; red, brown, dun, etc.; (9) red and white."

The proper maintenance of farm machines not only saves money but avoids danger to those who operate them. Keeping the harness and vehicles in repair may prevent a dangerous runaway.

Companionship, good times, and a chance to make money are the three things a country boy or girl looks forward to finding in a city. Club work provides them in the country.

ACME Feed Cutters

Now is the time to buy an Acme Cutter for Chopping Hay and making Alfalfa Meal

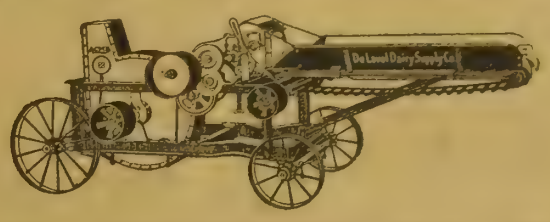
Alfalfa meal made by the Acme will replace the bran ration and cost you only half as much.

Chopped hay will prevent a waste of from 10 to 20 per cent of your hay crop.

Chopped feed is all eaten. The coarse as well as the fine hay is all eaten—none is trampled under foot.

The Acme will more than pay for itself this season on dry feed cutting.

This fall you can use it for Silo Filling



THE LIGHT-RUNNING STEEL FRAME ACME

Send for Complete Catalog

De Laval Dairy Supply Co.

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Mid-Summer Public Sale

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Duroc-Jersey Swine

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Tulare County Duroc-Jersey Breeders' Association

Seleted Sows and Gilts bred for early fall farrow

ARRANGE NOW to attend and be our guest.

Special Features—Lunch, Drinks—Free

For Catalog address, R. C. Sturgeon, Sec'y

Col. Geo. W. Bell, Auctioneer Allen Thompson, Pres.

For Further Particulars See Next Week's Paper

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The Lowest Priced 4000-lb Capacity Truck in the World

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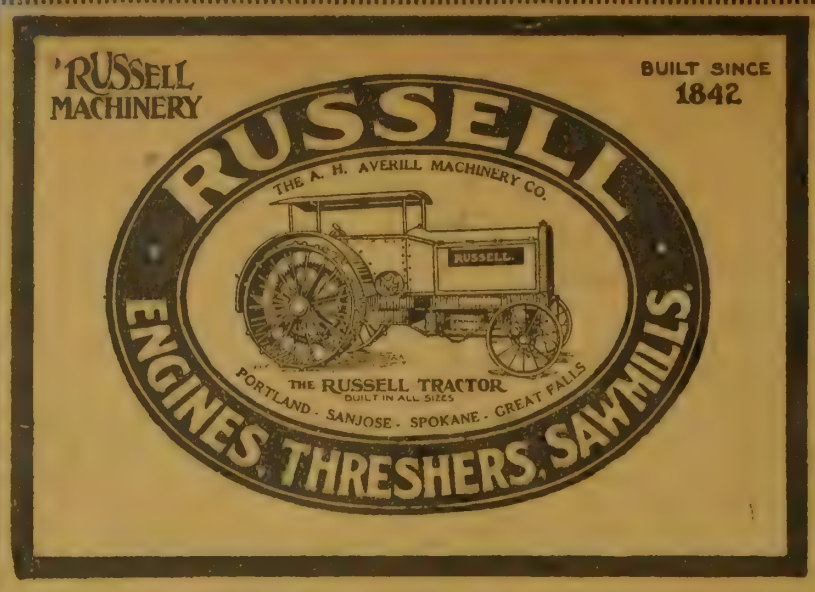
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It Makes Them Fat

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MICA AXLE GREASE

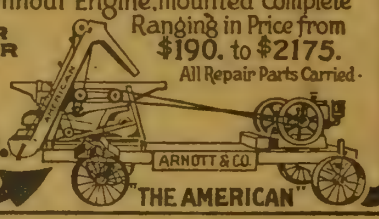


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from milk fever. Attacks heaviest milkers—50 to 60 per cent succumb quickly. Yet the new air treatment saves nineteen out of every twenty cases. With the Pilling "Easy to Use" Milk Fever Outfit you can give instant treatment—no dangerous wait for veterinarian.

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Case No. 2 contains $8.50 milk fever outfit and 8 other "Easy to Use" Cattle Instruments.
$15.00 Value for $10.00

EFFECTS OF WORKMANSHIP ON THE QUALITY OF BUTTER

By Thomas C. Moran, Oakdale Creamery

Paper presented at the buttermakers' meeting of the California Educational Butter and Cheese Scoring Contest held at Gustine, California, by the Dairy Industry Division, College of Agriculture, University of California.

THE effect of workmanship is more noticeable on the body of butter than anything else. In fact the body shows whether the workmanship is good or bad. The body tells the whole story of how the butter was made. Out of some 70 samples of butter at the Western Dairy Products Show there was not one sample that had perfect body. There were, I believe, two samples scored perfect on composition and color and if I remember right the highest commercial score was 93½.

Now it is very evident that there is something wrong either with the workmanship or with the judging. But whether the judging was right or wrong, there is no question but that there is plenty of room for improvement in the workmanship. I believe the defects of body are more often the result of trying to incorporate certain percentages of moisture than anything else. Still if we use the proper temperature we will have no difficulty in getting the maximum legal moisture content and the amount of working required will not injure the body. It is true that the longer butter is worked the shorter the grain becomes. In the first stages of working you will find the water is in large pockets and butter in this condition will leak, but as the working continues, the water is divided into smaller and smaller droplets. If you break a piece of butter and see little beads of water about the size of pinheads on the surface of the broken part, such butter is not overworked, and from a commercial standpoint is preferable to butter which has not been worked quite so long and has a longer grain and more open texture and is more liable to leak brine. A mistake that is often made, however, is to work butter until quite dry. This will cause it to be sticky and brittle and sometimes even tallowy. It is useless to try to work moisture into butter if there is none in the churm and before the butter gets quite dry is the proper time to stop. Leaky butter is something which gives you more or less trouble at this season of the year. When cows are fed on soft grass the butterfat is naturally soft and has a tendency to have weak, leaky body in butter. I don't suppose there is any creamery where leaky butter is continuously made but there are very few creameries which do not have a churning of leaky butter at some time or other.

Leaky butter may be caused by using too cold wash water, by too high salting, by churning too much butter at one time and by not working the butter long enough. The amount of working given butter has more influence on the way it holds its brine than anything else. Leaky butter invariably is low in moisture content and there is little danger of exceeding the limit by giving a little additional working, so that the question of leakiness is one which is entirely within the control of the buttermaker. There is one thing about leaky butter. Such butter is not overworked and if the flavor is all right the only loss will be the loss in weight through leakage.

The churning temperature has a great effect on the body of the butter. Many buttermakers do not take the time to churn at the proper temperature. Some believe, too, that it is easier to incorporate moisture if the cream is churned warm. The moisture content of butter is governed by the amount of working it receives. Other factors influence it to a certain extent, such as temperatures, sizes of granules, style of churn, size of churning, acidity and percentage of butterfat in the cream. There are two great objections to churning cream warm. One is that too much curd is incorporated in the butter. It is generally believed that off flavors in butter are due to an oxidation of the curd and it is advisable to avoid a butter with a high curd content. We know that a high curd butter will go off flavor much quicker than butter which is made and washed according to the

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Out of our choicest thoroughbred mares and sired by our famous imported stallion Ibn Mahruss we are offering some splendid two year olds. Also some especially desirable young saddle stock sired by Ibn Mahruss, world renowned Arabian desert stallion and Don Castano, five gaited saddle stallion, winner in many prominent shows.

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We have for sale a number of two and three year old jacks, big, growthy fellows of exceptional breeding and quality.

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Anita M. Baldwin
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Registered young bulls from best families.

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Attention Buyers

For Sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.

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The Leading Live Stock Auctioneers

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Sales of pure bred and grade cattle and hogs conducted in California and adjoining states. References: The leading breeders in the state. Write or wire for dates and terms.

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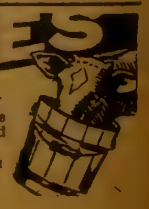


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Wean calves from milk in four weeks. Send for free literature.
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Alfalfa and Molasses base, concentrated, re-enforced and partially predigested.

A large part of the crude fibre has been changed into Carbohydrates, or the starches and sugars and the analysis, or feeding value, has been increased to practically the same as barley.

Feed some of it in place of some of the grain you now use.

At your dealers, or shipped from the factory, freight prepaid, $2.50 per 100 pounds.

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BERKSHIRES

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Introduce his blood into your herd through weaners from his litters.

We guarantee you absolute satisfaction or all money refunded.

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The Most Popular Sire in the West

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Shorthorn Beef



Six lots of steers, 10 to 15 in each lot, were fed 110 days by the Experiment Station, Manhattan, Kans., the period concluded in May. Two lots, 15 each, made profits of $18.75 and $19.20 per head respectively. The other four lots all lost money, from $18 to $37 per head.

The two lots were sired by Shorthorn bulls. The four lots were sired by other than Shorthorn bulls.

It pays to grow Shorthorn beef.

AMERICAN SHORTHORN BREEDERS' ASSO'N.
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Ask for the new pamphlet just off the press

Some of the finest

GUERNSEYS

in the West are at

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Only Bull Calves For Sale



$35 to $165

2 and 4-wheeled
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best method and has the minimum curd content, and any buttermaker who tries to increase his overrun by incorporating curd is sacrificing the quality of his butter. Another reason is that working soft butter either increases the amount of air or by reducing the size of the bubbles has the effect of increasing the surface exposed and consequently increases the rate of oxidation. Most everybody has noticed the rapid change that takes place when the surface of butter is exposed to the air. It becomes rancid in a very short time. Many people have assumed that butter would keep indefinitely if protected from the air but they forget that a large part of the volume of butter is air enclosed in small bubbles so that a large part or rather a large surface of the butter must be exposed to the action of the oxygen of the air. Deterioration in butter then being at least partly due to oxidation shows that any manipulation (such as the overworking of soft butter), which would increase the amount of air should be avoided.

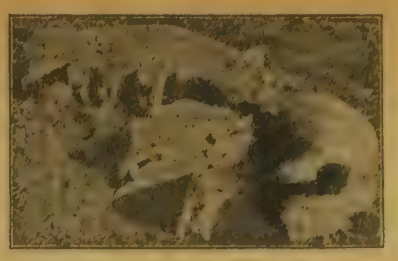
Defects of flavor which come under the heading of workmanship may be caused by improper pasteurization and in the case of sour cream improper neutralization. I do not know of any part of the buttermaker's work which is more important than the neutralizing and it is one which is very often neglected or left to inexperienced help. The rate of deterioration in butter is in direct proportion to the acidity of the cream. Other conditions being the same, butter made from sweet pasteurized cream should when cream is churned without ripening, have a better keeping quality than that made from the same cream ripened even to a low acidity. If the acidity is developed to, say five or six tenths, then the difference is very marked. So in order to make butter of good keeping quality from sour cream it is necessary to bring it as near as possible to the condition of sweet cream by neutralization and pasteurization. By then churning this neutralized cream at a low acidity a uniform butter may be made which will reach the consumer in good condition and may even be put into storage with safety and not only can one creamery make uniform butter but any number of creameries can make butter of uniform flavor and quality so that dealer may be able to obtain a supply all of one grade and it also has the advantage of a better keeping quality. Not only will it reach the dealer in good condition but it will establish a reputation among consumers also. To the creamery man the flavor of butter as it reaches the consumer is more important than the flavor at the churn. Butter is just as old as it tastes and in the week or two that it takes to reach the consumer, it often becomes six months old. There is always a ready outlet for good butter, and the consumer is willing to pay a good price for it, and it will be noticed that when butter is accumulating on the market it is never the best butter that is accumulating. So it is our plain duty as buttermakers to turn out the best finished product that it is possible to make from the grade of cream that we receive, and if we cannot always make fancy butter we can at least make uniform butter.

GOES TO HELP THE DEAN

California cow testing associations lose an enthusiastic worker and supporter in the transfer of Edwin C. Voorhies from direction of cow testing work to the position of assistant to Dean Hunt of the agricultural college, which has made necessary his resignation from the work of the animal husbandry division. His successor in the animal husbandry work has not been appointed.

FARMERS' SHORT COURSES

The University Farm at Davis is already making preparation for the farmers' short courses which will be given September, 1919. A booklet with particulars as to the educational staff which will participate in these schools, together with general statement as to farm equipment and the six weeks courses makes up the book. It will be mailed to every farmer who is interested enough to inquire for it and who has appreciation of need for better mental and material equipment.



Raising the Standard of California Bacon

MONTELENA HERD

Large Yorkshires

Have large litters. Service boars of exceptional quality, in best breeding condition. They are strong, active, long, deep fellows, with big bone and splendid heart girth. Come and see them, or write to

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Poland Chinas, Medium Type

Choice breeding stock, both sexes from Panama-Pacific International Exposition prize winning strain; 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



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Hanford, Kings County, Cal.



ANCHORAGE FARM BERKSHIRES ARE PROFITABLE



Select Now Your Future Herd Sire

A young boar pig carrying the blood of that world's famous boar—Star Leader will add the necessary quality to your herd. These young boars are ready for shipment and priced reasonable. Let us send you full particulars. Write us at once.

Anchorage Farm, Orland, Calif.

5 Champion Blood Champion Prospects 5

Do you want a good herd boar? Do you want to win at the fall shows? I have five yearling boars sired by the phenomenal Hampshire boar Director—sire of Director Jr., grand champion as junior pig at state fair 1918. Two are full brothers, three half brothers. They have been pronounced as good as the winner.

Write now for full particulars and secure your herd boar as well as an excellent prospect for the fall shows. Buy Winners.

L. A. DENKER
Saugus, Boquet Canyon California



Wakeen Herd Polands

Wakeen—the stamp of quality—Our big type Poland-Chinas are true to type. Get a son of the famous King's Big Bone Leader to head your herd.

Les McCracken Ripon, Calif.

Lark Meadow Ranch

Noted for its BERKSHIRES of size and quality, Escalon Majestic, a son of the 1917 G. C. Majestic King 6th, is herd sire. Satisfaction goes with every animal shipped.

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Greenwood DurocS

are not only selected to measure up with the best individually, but care is taken that proper blood lines are used so that their excellence will breed on.

Prepotency Counts!

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GOOD BOARS ARE SCARCE

We can offer one or two that have been pronounced real prospects. Our Duroc-Jerseys represent the best blood of the breed. Priced within reason.



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Raise Your Hogs and Cattle at a Profit

Assist Nature by Feeding

Economy Stock Powder

A general conditioner, a worm expeller and a disease preventive.

Send for FREE SAMPLE and our BOOK on LIVE STOCK.

Save Your Hogs

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Hearst Bldg. San Francisco, Cal.

Arcata Testing Association Report

Professor E. C. Voorhies of the animal husbandry department of the University of California has forwarded a report of the Arcata Cow Testing Association for the month of May. This association which was organized this year has a membership of 45 and 1760 cows are under test.

Last month 122 cows were on the "honor roll." The association requires a butter fat production of 62 pounds or a milk production of 1000 pounds for 30 days for eligibility to the honor foll.

The leading cow last month was a Holstein owned by Joe Riberio. During the month she made the unusual record of 1816 pounds of 7.1 per cent milk, containing 128.9 pounds fat. A grade Jersey in the herd of Iver Iverson ranked second with 88 pounds fat. Three grade Jerseys belonging to Eugene Bondin produced 81.2 pounds, 79.9 pounds and 78.1 pounds fat. S. V. Foster's Jersey tied for third place with 81.2 pounds. R. S. Chaffey was fifth with Jersey credited with 79.6 pounds. Gregiro Costa was sixth with a grade Holstein that produced 79 pounds. James B. Kane was seventh with grade Jersey producing 78.4 pounds. W. Kirkpatrick and Eugene Bondin tied for tenth place with grade cows producing 78.1 pounds fat each.

Goat Show

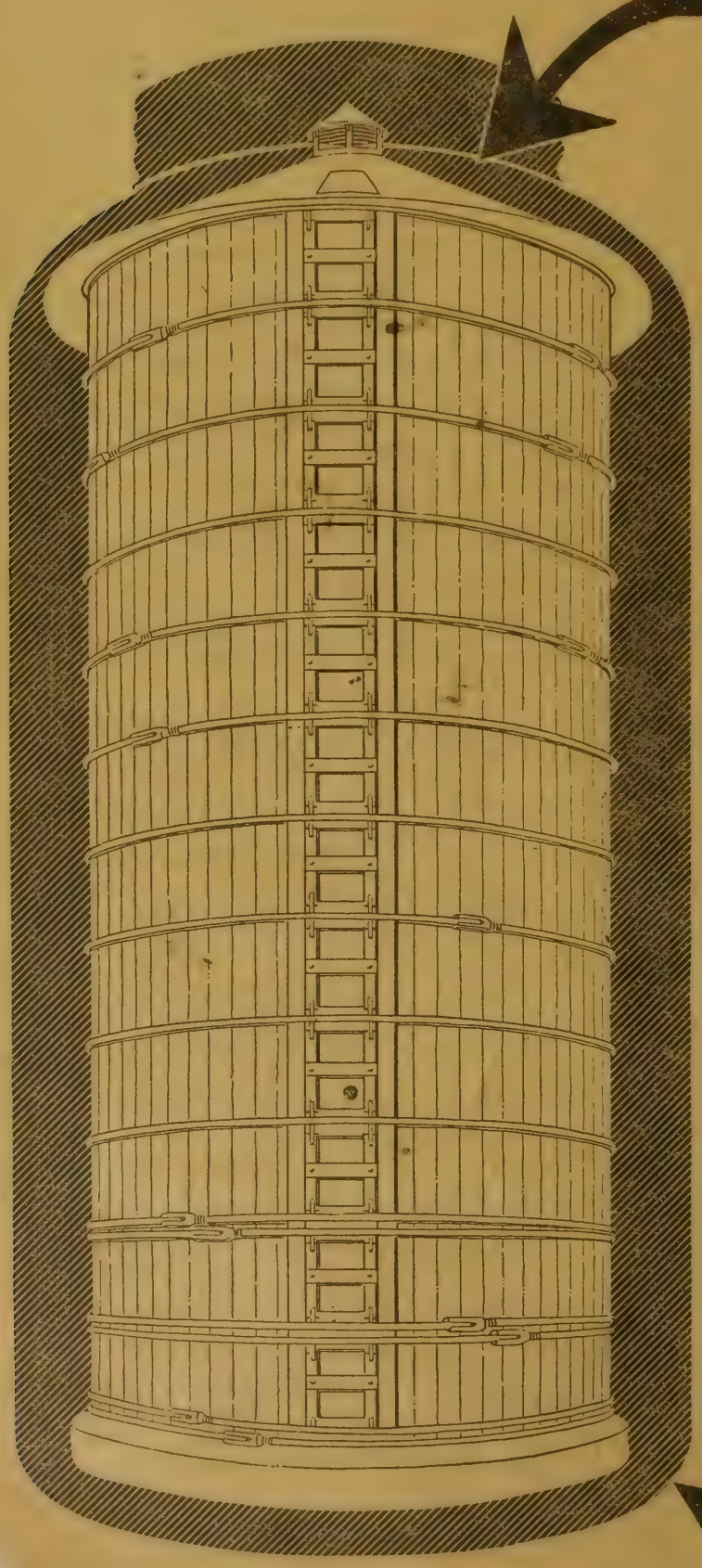
AN ENTHUSIASTIC collection of milch goats and milch goat people gathered at the corner of Olive and Fifth Streets, Los Angeles, last Saturday. There were Toggenburgs, Saanens, Nubians and grades, 265 entries all told. At least half of these were Toggenburgs, the remainder being divided about equally among Saanens, Nubians and grades. The southern end of California now has about as many milch goats as all the rest of the United States combined, and this is true both as to pure breds and grades. There are some ranches which have thousands of grades milking, but these are as a rule not of high class producing stock. Pure breds are increasing rapidly, and this state will ultimately be a center from which stock will be drawn for all sections of the country. Importation has been prohibited for some years because of animal diseases in Europe where the best of pure breds are raised. However, in the matter of production it is claimed by the owners of some of the stock exhibited at the Los Angeles show that this section now has in actual producers a far finer showing of stock than any European country.



Judging the Kids

In the "ring" at the Los Angeles goat show. Two hundred and sixty milch goats were exhibited in the greatest milch goat center of the United States.

Some Ventura County Lima bean growers report rather poor stand on this season's seeding.



Can For Your Cattle

The Mason jar preserves food for your family—the silo preserves food for your cattle. You know that the air must be excluded from a Mason jar else the contents will spoil. The same is true of a silo.

When a silo is filled with green fodder, fermentation takes place, releasing the oxygen and generating carbon dioxide gas. The success of the ensilage process depends upon the action of this gas, which must pass through the entire mass of silage, driving off all air from within as it rises to the top.

If the walls of the silo are not absolutely tight, the carbon dioxide escapes through the nearest outlet, air is admitted and the silage spoils.

THE PACIFIC SILO

is built of heavy redwood staves, bound together by round steel hoops that insure a strong, air-tight container. Each stave is milled to the true circular outline of silo.

Twenty-five years' experience goes into the construction of the **PACIFIC** Silo. We build the **PACIFIC** of redwood because that is the most durable lumber, and the necessary lengths can be obtained free from knots and other defects. Besides, redwood contains a natural preservative, which resists fire and decay, making it the ideal material for silos.

The **PACIFIC** is as near perfect as any silo ever built. It is designed to stand any strain to which it may be subjected. It will not shrink, warp, or leak, and once erected will last longer than the average lifetime. Fill in the coupon and mail it today.

Pacific Tank & Pipe Co.

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Send me descriptive matter and complete information regarding Pacific Silos and water tanks.

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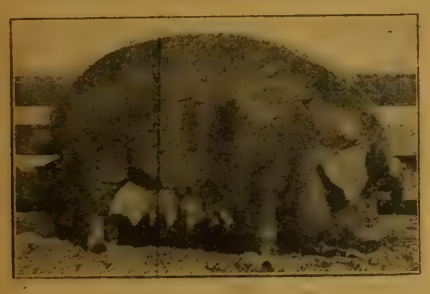
SACRAMENTO-YOLO COW TESTING REPORT

The report of the Sacramento-Yolo Cow Testing Association for the month of May records 116 cows on the "honor roll." In order to qualify for the honor roll a daily production of one and one-half pounds butter fat is required.

The top cow, a registered Holstein, owned by Bonita Stock Farm, Sacramento, produced 96.7 pounds fat during May. Two registered Holsteins owned by F. W. Kiesel, Sacramento, ranked second and third with 86.1 pounds fat and 82.7 pounds fat. Bonita Stock Farm also had the fourth, sixth, seventh and ninth cows, with 80.6 pounds, 74.7 pounds, 74 pounds and 73.4 pounds. A grade Holstein owned by J. W. Schultz ranked fifth with 76.8 pounds, and two grade Holsteins owned by A. W. Greene, Hood, ranked eighth and tenth with 74 pounds and 73.1 pounds.

The herd standings for May were: First, Bonita Stock Farm, 53 cows with an average monthly fat production of 47.1 pounds; second, A. E. Greene, 21 cows, average production 44.9 pounds; third, E. E. Bunnell, Hood, 49 cows, average production 39.9 pounds; fourth, F. W. Kiesel, 71 cows, average production 38.1 pounds; fifth, J. N. Dimmick, 16 cows, average production 36.7 pounds.

The Emigh-Winchell cup for the five highest producing grade cows for the



Twice Grand Champion

Model Defender Lady, 800 pounds, owned by Winsor Ranch, Bonita, San Diego County.

month of May goes to E. E. Bunnell of Hood, whose cows produced an average of 1.992 pounds of butter fat on the day tested. This class is open only to grade cows and a cow in the winning group once is barred from further competition. The five highest cows in the association last month were from the Bonita Stock Farm, whose average daily production was 2.57 pounds. This place was closely contested by five cows of the Jane Garden Farm whose production on the day tested averaged 2.41 pounds.

The directors of the association contemplate putting on another tester and taking on more members, there having been for some time quite a waiting list of those desiring to test.

SUGGESTIVE RESULTS

In a feeding experiment recently concluded by the experiment station, Manhattan, Kansas, in which six lots of steers were fed for a period of 110 days, two lots sired by Shorthorn bulls made profits per head of $18.75 and $19.20 respectively, while the losses on the others ranged from $18 to $37 per head. There is a responsiveness in Shorthorns that enables them to make good on the farms and ranches, in the feed lots and in the farm dairies. While these steers were making good in the feeding experiment at Manhattan there were also on the station farm a group of big, thick-fleshed Shorthorn cows that were bred for beef yet making milk records of practically 8,000 pounds per year. It is this ability to return profits through two channels that attracts the patronage of practical farmers and stockmen.

LIVE STOCK SHOW

With $6500 already invested in their sales pavilion at Tulare the Tulare County Live Stock Association has decided to put in an equal amount for additional buildings to accommodate features for the live stock show which will be held the week of October 6 to 11. The Tulare board of trade has taken up the work of disposing of the additional stock in the association and at their first meeting secured over $2000 of the needed amount and will begin a selling campaign this week to secure the balance. To add to the amount of prize money to be offered at the show the board of trade will stage a Fourth of July celebration similar to the one held last year when $6500 was raised for the Red Cross.

MADE IT WORSE

Mr. Plain—You are sure to admire him; he's a strikingly handsome man.

The Girl—I'm glad he is. I simply detest homely men. (Suddenly starting blushing). Oh, I beg your pardon; I didn't mean to say that.

Don't despise the little things. It takes a myriad of fragrant blossoms to make a field of clover.

Shorthorns of Rare Quality

At Public Auction

Carruthers Farms Second Sale

Thursday, July 10, 1919

State Fair Grounds **Sacramento, Cal.**

45 Registered Scotch Shorthorns



42 Females 3 Bulls

An Event That Will Make Shorthorn History in the West

In this sale Mr. W. M. Carruthers, owner of Carruthers Farms, Live Oak, California, is making an offering of Scotch cattle of such noteworthy breeding and individuality that it is attracting the interest of leading breeders and lovers of the breed even throughout the mid-west stronghold. Those who are fortunate enough to be present on sale day will unquestionably witness the recording of a bright new page in the history of the breed in California.

Hallwood Villager

the wonderful white bull by Village Flash and out of Lavender Queen, will be a feature of the offering. He was first prize two year old at Sacramento last year, and is unquestionably the greatest combination of Shorthorn breeding and individuality yet led into a western sale ring.

Many of the very greatest Shorthorn tribes are represented in this sale by males and females individually worthy of their inheritance, and it is entirely conservative to state that no Shorthorn offering of equal merit has ever appeared in a single western sales ring. Practically all of the Carruthers Farms show herd will be sold, and it will be a real opportunity to strengthen an established herd or found a new herd with animals of outstanding breeding and superb individuality.

Practically all of the cattle are now on the sale grounds at Sacramento, and those interested are cordially invited to call and see them.

EVERYTHING TUBERCULIN TESTED AND GUARANTEED TO BE BREEDERS

Catalog mailed on request to sale managers.

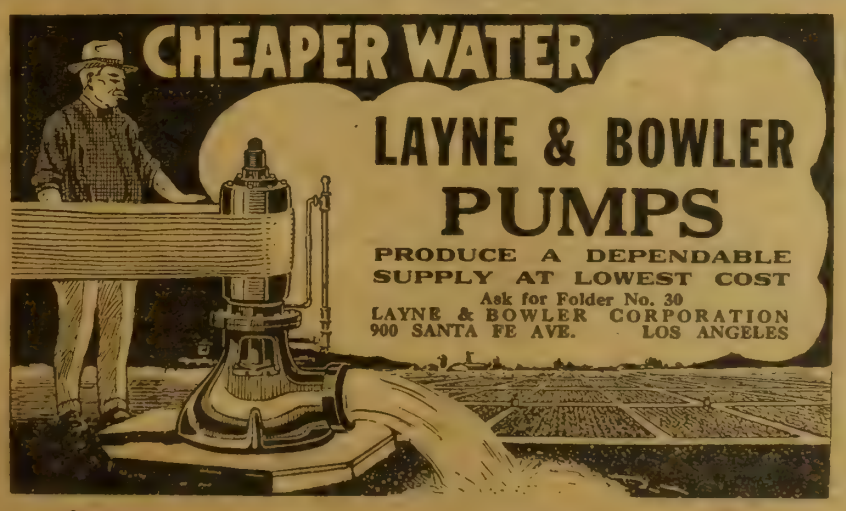
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California Breeders Sales and Pedigree Company

Auctioneers: Reppert, Milne C. L. Hughes, Sales Manager, Sacramento, Cal.







Brighton Farm Herds

Registered Shorthorns and Berkshires---Both Sexes

H. L. & E. H. Murphy

Perkins, Cal.

MACHINERY

OF EVERY DESCRIPTION

Bought, Sold and Rented

BUTTRESS & McCLELLAN

205-7 N. Los Angeles St., Los Angeles

Eggs From Five Counties

How they are collected, graded and marketed by the Poultry Producers' Company of Southern California.

By Jean A. Koethen

WHEN the Poultry Producers' Company was organized in December, 1916, less than three years ago, the enterprise was not received with great enthusiasm by many poultrymen. Enthusiasts there always are; they are the people who move the world; and the men who had talked and written and conquered objection after objection until the first board of directors was finally elected were of their number. But there were many doubters, men who couldn't see, and didn't know, and suspected the other fellow was trying to put one over on them somewhere. Nevertheless, because something had to be done to keep egg prices commensurate with their cost, the Poultry Producers' was organized.

As its name indicates, the Poultry Producers' is an organization of poultrymen. In order to be a member a man must own a sufficient number of hens to sell eggs by the case and must purchase a $10 share of stock for every 1000 hens owned. The owner of 2000 hens must therefore invest $20 in stock. He must also sign a marketing agreement, pledging himself to market all his eggs except hatching eggs, through the organization. "What about selling a dozen eggs to a neighbor?" I asked Mr. Davison, the president, as he was explaining this feature of the organization. "Oh," he chuckled, "that isn't commercial marketing; that is just accomodation. We don't say anything about such trifling matters." From which I gather that the Poultry Producers', unlike some corporations, really has a heart.

The board of directors consists of ten members, five from Los Angeles County (one each from Van Nuys, San Gabriel, Gardena, Pomona and the Burbank district), one each from Riverside, San Bernardino, Orange and San Diego Counties, and a member at large who is a representative of the state market director. The list of directors at present includes T. C. Browning, J. M. Davison, W. L. Grubb, B. R. Holloway, T. M. Hurley, A. J. Neimeyer, L. W. Prewitt, C. G. Ross, M. A. Schofield and the representative of the market director, A. O. Martin. The officers elected for the present year by the directors are: J. M. Davison, president; W. L. Grubb, first vice president; B. R. Holloway, second vice-president; L. A. Brooks, secretary and treasurer; H. W. Stanley, manager. The secretary and manager are the only salaried officers, the others being paid merely for the time spent in attending the monthly meeting of the directors and the weekly meeting of the committee.

All expenses of the organization are defrayed by a flat charge of two cents per dozen for all eggs handled. As this two cents a little more than covers the operating cost a refund is made at the end of each year. Last year 1½ cents covered this expense and the extra one-half cent was returned. In order that the whole of the $100,000 capital stock may be taken by actual producers, one cent is deducted from the price of each dozen eggs to be applied to the purchase of additional stock. That is to say, if a producer markets 75 dozen eggs in one week, 75 cents of the proceeds is put away to pay for more stock. When $10 has accumulated in this way, the producer receives another share. By this method all stock is kept in the hands of the producers and is distributed strictly in proportion to the number of hens owned. There are now 500 stockholders.

Handling the Eggs.

The Poultry Producers' keeps an account with every individual producer and in order that there may be no mistakes every shipment is checked 13 times between the front door of the company's building on Industrial Street, Los Angeles, and the train or truck which carries it to market or storage.

The eggs come in daily by truck, except those from San Bernardino, Orange and San Diego Counties, which are shipped by express. Arrangements with the truck drivers are made by the local poultry associations. The Poultry Producers' has nothing to do with them until they are delivered on the pavement at its door. It costs 11½ cents per case to ship from Gardena, 15 cents per case from Van Nuys, 12½ cents from San Gabriel and 26 cents from Riverside. The truck, when it calls at each ranch for the cases of freshly-packed eggs, leaves as many empty cases as it took away filled at its last call, all cases and fillers being furnished by the organization.

Every case of eggs is entered in a receiving book under the producer's name before it is carried inside the building. In the candling room it is checked again, and again when the different grades of eggs are packed in their respective cases. They are checked when they are classified and again when they are stacked. Every man who touches them checks them on the producer's card, and by the time they have passed through the 13 hands necessary to take them through the building and to make out the weekly statement, every possibility of a mistake is eliminated.

Candling and Grading.

In the long dark candling room 16 candlers were busy the day I was there. In the height of the season the work requires 20. They receive 60 cents an hour for a nine-hour day. Here, by the aid of a carefully shaded droplight and two sets of scales for each candler, the eggs are graded as Extras, Pullets, Dirties, Brown, Brown Pullets, Peewees, Crax and Rots. Peewees are the very small eggs laid by pullets that are just beginning. The difference in the prices received for the various grades is shown by that day's price list: Extras, 51 cents; Pullets, 48.7; Dirties, 50; Browns, 51; Brown Pullets' 48.7; Peewees, 42.8; Crax, 47.66. It will be noticed that there is no difference in price between brown and white eggs, but it is necessary that they be graded and packed separately. The price paid for Peewees seems surprisingly good considering their small size. The cracked eggs are perfectly good if used immediately. They are sent out at once to the retail market.

Extras must be absolutely clean and weigh at least 22 ounces and they must average 24 ounces to the dozen. No egg that weighs less than 22 ounces can be classed as an Extra.

Dirty eggs cannot be Extras, but if perfect in other respects they sell as Firsts. Eggs that have been washed show it very plainly before the candle. They cannot go into storage but are sold for immediate trade without reduction in price. Dirties may be stored for a short time but only clean, sound eggs are put into storage for a long period.

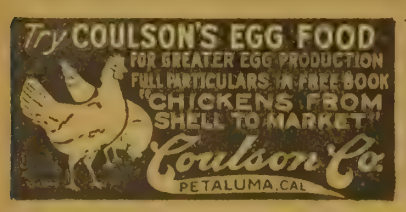
Thanks to the educational campaign which has been in progress for several years, very few Rots come in, not more than an average of one to a case, and there are comparatively few fertile eggs.

Advantages of Organization.

In the office five or six expert bookkeepers, under the direction of the secretary, L. A. Brooks, keep accounts and make out statements. Mr. Brooks is the livest wire I have met in many a day and has all the financial affairs of the organization at his finger ends. The organization, he told me, has three distinct purposes:

1. To stabilize the poultry industry in Southern California.

2. To open up foreign markets for producers In order to take advantage of exceptional prices in the East, the California producer must ship in car-





A Vision that brought Victory

They called them "Tanks" upon the Western Front because, in order to deceive enemy spies while they were being built, the British Engineers circulated the story that they were rolling water tanks, destined to carry fresh water to the troops in Egypt.

What they actually *did* do is history! And it is a very bright bit of history to the men responsible for the "Caterpillar" Tractor.

Speaking to the employees of The Holt Manufacturing Company at Stockton, California, a British General said:

"It (the machine gun with which the Germans did such terrible work against the unprotected Allied infantry) was really a disease against humanity, invented by the late Hiram Maxim; so you Americans not only have the credit of producing the disease but you have the credit of producing the antidote too. The antidote was the Holt 'Caterpillar' Tractor, invented by your employer, Mr. Benjamin Holt."

Each time one of these "armored mobile land fortresses" leveled an enemy trench or pill-box, it furnished an added proof of the superiority and soundness of principle employed in the "Caterpillar" Tractor.

And in addition to the Tanks, thousands of "Caterpillar" Tractors were in service in the war zone—hauling the big guns and ammunition trains into position — moving vast stores of food and supplies for the fighting men —*laying their own continuous tracks* over battle-torn, shell-pitted roads and fields in every kind of heavy and strenuous traction service.

American agriculture may well be proud of its contribution toward the winning of this war, for this farming machine, invented and built by Benjamin Holt to till the soil, has been a commanding factor in sounding the death knell of vicious autocracy.

American farmers patriotically accepted the situation created by the fact that the Government, during the war, had first claim upon the products of the Holt factory and that only a limited number of "Caterpillar" Tractors were available for domestic use. But now the war is over and immediate deliveries are again possible.

The same efficiency of performance—the same durability and strength under heavy usage—the same superiority and soundness of principle—all the qualities which enabled the "Caterpillar" Tractor to do such effective war service are at the disposal of the American farmer. Today the "Caterpillar" Tractor, always the leader among tractors for agricultural and other peace-time uses, but now backed by severe war-time service and experience, is better than ever before.

"Caterpillar" Tractors—built only by Holt or under Holt contracts and patents—the only track type of tractor adopted, after rigid tests, for the hardest war service of America, England and France.

The "Caterpillar" Tractor promises to be one of the greatest mechanical agents of the reconstruction. Write today for full information—ask for catalog 402.

CATERPILLAR
Reg. U.S. Pat. Off.

THE HOLT MANUFACTURING CO.
STOCKTON, CALIFORNIA PEORIA, ILLINOIS
SPOKANE, WASHINGTON LOS ANGELES, CALIFORNIA

load lots, and this only a very large concern can do. Last January when the cold weather sent New York prices sky high the Poultry Producers' was able to ship seven cars a week, and for these carefully packed California eggs it received a cent a dozen more than was paid to near-by Eastern poultrymen.

3. To eliminate waste in the distribution of poultry products. The country grocer has never been a desirable factor in egg marketing. He buys whatever is offered him, without grading, paying as little as possible and in hot weather often keeps the eggs till they are far from fresh. Eggs are delivered to the Poultry Producers' within two or three days after they are laid and are disposed of according to their keeping quality.

Profit is not one of the objects of the organization, but it is compelled to put eggs in storage during the months of heavy laying in order to stabilize prices. Some profit is bound to accrue, and in April of this year the profits from stored eggs paid a ten per cent dividend. This spring eggs went into storage at from 47 to 51 cents, a phenomenal price, and extremely high prices next winter are looked for as the inevitable consequence.

Every Friday checks for the eggs received up to Thursday night of the previous week are sent out, and the volume of business done is shown by the fact that checks sent out the third week in May amounted to $35,000. The following week they amounted to only $32,000, and a slight reduction is to be expected during the summer and fall.

The Poultry Producers' believes that it is doing an important work in raising the poultry industry to a higher plane. The purposes for which it was organized are being realized and its members are no longer compelled to market their eggs at a loss. It deserves the support of every large producer of eggs.

Best Way to Grow Tomatoes

By A. F. Clarke

THIS is about the time of year that the old-time controversy over the best manner of growing tomato vines takes place. Shall they be tied to stakes and trimmed up to assume tree shapes or shall they be allowed to sprawl over the ground in the manner that nature apparently intended.

Well, now, that depends. When field culture on a large scale is planned the staking method is of course impossible because of the labor involved. Under these conditions the plants should be not less than three feet apart in rows and the rows not less than four feet apart. These distances should be increased rather than decreased.

In staking the "three stake" method will be found best for the home garden. The plants under this method may be set 18 inches apart in rows three feet apart. Ordinary laths are driven into the ground in triangle form with base about ten inches each way and the top a little more. Common binder twine is wound around the laths, looping at each lath.

The plant thus enclosed is quite severely pruned. The string should be placed under the branches and tied to the laths with loops. The staking method, with its attendant heavy pruning, will produce tomatoes considerably earlier than the other methods.

A compromise between the open field method and the staking plan is the "fodder mulch," and this is feasible only where shocks of corn fodder are available. This plan consists of mulching the entire row of tomatoes with corn fodder or other suitable mulch—barley straw may be used—on the south side only. The plants are allowed the sprawl over the fodder, which keeps the fruits off the ground and by reflecting the sun aids materially in quick ripening. The natural habit of the tomato is to sprawl over the ground, and by this plan the area of branches is greatly increased and will be found to produce more fruit than when plants are staked. The fodder also serves to hold the moisture in the ground and its warmth invites the insects that pollenize the early fruits.

Under whatever plan is followed one should go over the plants once a week and remove all shoots starting in the axils of the leaves. They merely draw from the plant and prevent its best development.

A teaspoon of crushed nitrate of soda crystals to the plant will hasten ripening and is an aid in holding the blossoms on the plants when they have a habit of falling early in the season. Sow broadcast on the surface but do not allow the crystals to touch the plants. This dosage may be repeated with success every ten days during the season.

Tomatoes should not be irrigated during the blooming season, and in general it is better to give the plants water only when they appear to be in need of it. Many tomatoes are produced on a commercial scale without irrigation in several sections of Southern California. Thorough preparation of the soil and constant cultivation afterwards is the secret of this plan. This is, of course, not feasible in the hot interior valleys where fortnightly or even weekly irrigation in the heat of the summer is practiced.

The tomato is not particular in the matter of soils, but does better on rather light, loamy soil where conditions favor rapid, vigorous and unchecked growth during the early part of the season. The California adobe is perhaps the least desirable tomato soil, but the crops grown on some of the adobe land in Puente valley would seem to argue that cultural methods more than soil make for tomato perfection.

The Stone is the favorite canning variety, the Beefsteak or Ponderosa, John Baer, Home and other varieties giving the home gardener the needed variety for mid-season and late crops. The Earliana, Chalks' Early Jewel and early June are favorite early sorts.

SWEET POTATO STORAGE

The matter of sweet potato storage is receiving more attention this year than any preceding year. Methods of handling have been studied by the experts of the department of agriculture and others, and it is declared that processes are now perfected, one or two of which are patented so that now it is possible to store and practically insure the keeping qualities of sweet potatoes. There is a movement on foot to install these curing and storage plants in California. If this is done there will be greatly increased production and California has possibilities in sweet potato production which have never yet been fully realized.

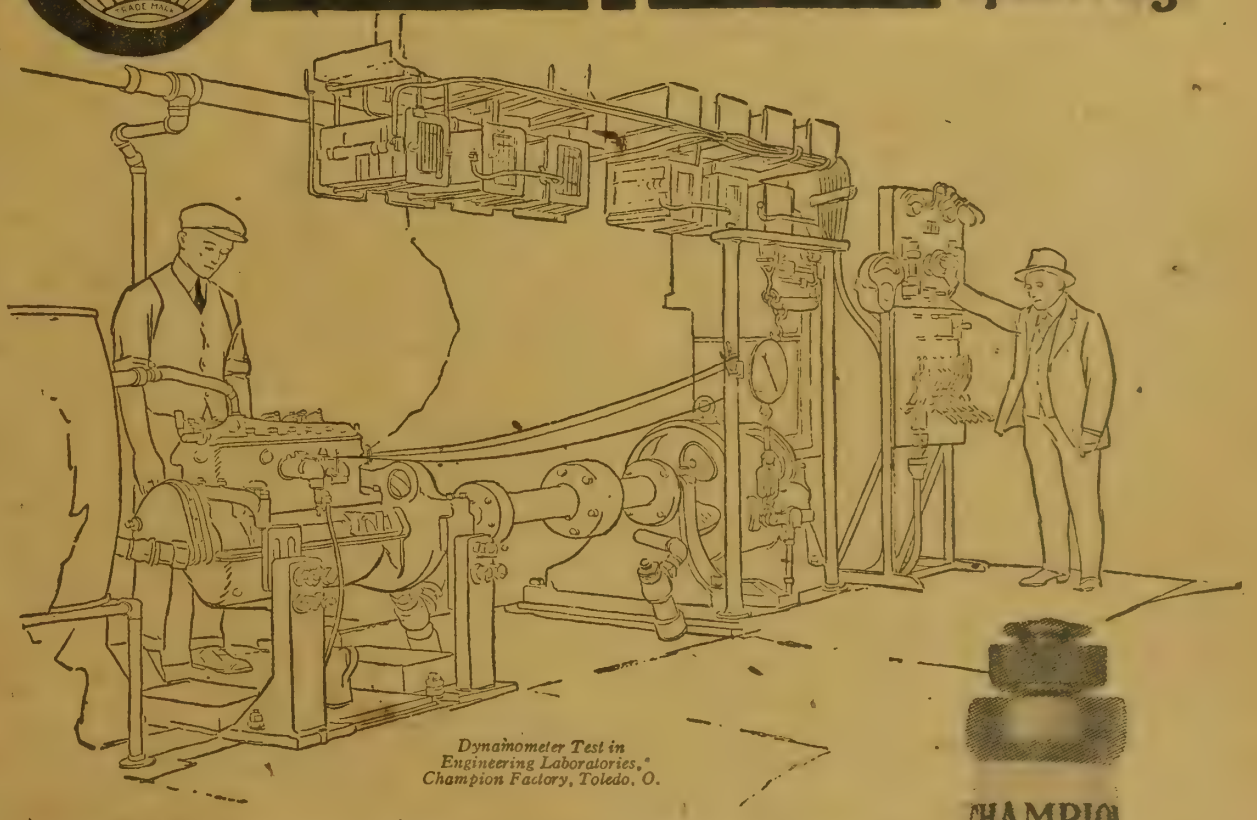
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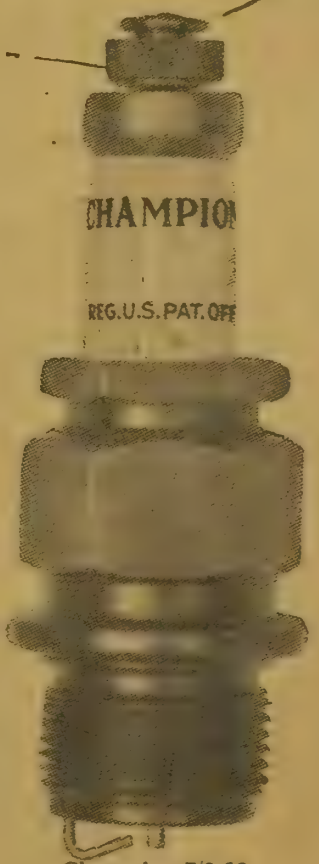
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The greater resisting power of our famous No. 3450 Insulator together with our patented asbestos gasket construction and coupled with extreme care in manufacture, close inspection and rigid production tests enable Champion Spark Plugs to stand up and keep going better and longer.

There is a Champion Spark Plug for *every* type of motor car, motor truck, tractor, motorcycle and stationary engine.



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TREES

For Sale — Budding Cloth 50c yard; also leading varieties citrus nursery stock. Selected and pedigreed buds. Order quick for early delivery. Cyrus W. Wilhite, Citrus Nurseries, Glendora, California, Box 154.

Florida Sour and California Sweet Seedling Orange Seed-Bed Stock. The time to plant is propitious; order now. SOUTHLAND NURSERIES, 1941 E. Colo. St., Pasadena, California.

For Sale or Exchange for auto—400 seedless grapefruit, 400 Eureka lemons, 2 and 3 years old. R. B. Tapper, R. F. D. No. 1, Box 205, Pasadena, California.

For Sale—3000 select orange trees. Also 3000 lemon trees; first class trees; 20,000 seed bed stock. A. R. Rideout, Whittier.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—Choice, young, thrifty Citrus Trees. W. W. Burns, 631 Security Bldg., Los Angeles.

BUDDED AVOCADOS
MATHER'S AVOCADO NURSERY, 137 N. Fair Oaks Ave., Pasadena, California.

MISCELLANEOUS

Before Selling or Buying land procure a soil analysis from a competent expert. If the report is good you can sell for better prices; if bad the buyer can save and pass it up. One party, after getting my report sold his grove for $6000 more than he had asked for it and could not sell. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles. Phone Pico 843.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 816 Washington Building, Los Angeles, California.

For Sale—Lot on High Street, Oakland. Price $350. Would exchange as part pay on 2 acres good land, balance cash. Address R. A., Box 245A, Acampo, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 816 Washington Building, Los Angeles, California.

WANTED

Wanted—Salesmen and Agents. Exclusive territory granted. Powerene is equal to gasoline at 5c a gallon. Is guaranteed to be harmless, to remove and prevent carbon, doubling the life of all gasoline motors, saving repairs, adding snap, speed and power. An amount equal to 20 gallons of gasoline will be sent to any address in the U. S. for $1.00. W. Porter Barnes, Santa Rosa, California. Dept. A-11.

Want to Buy 10 to 40 Acres Near the mountains; running water and cheap commercial electricity. Price of land must be reasonable. DR. McHUGH, 311½ S. Main street, Aberdeen, S. D.

Agricultural Efficiency Expert desires to manage ranch on efficiency basis. Experience in all branches of farming. P. O. Box 750, Chico, California.

Wanted—Tenant for mountain fruit and berry farm. Ideal climate, water and market. Cash or share. Dr. Harvey, Paradise, California.

If You Want to Sell or exchange your property, write me: John J. Black, 116th Street, Chippewa Falls, Wisconsin.

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

Feeder Hogs Wanted. R. B. & N. Ranch, Waukena, Tulare Co., California.

SEEDS AND PLANTS

The Garden Beautiful in California by Ernest Braunton, a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant, also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

One Row Pays the Extra Cost, Garden Grove, Kansas, variety real Dwarf Milo maize, 6100 pounds threshed corn to the acre grown here last year. 15c per pound. 100 pounds or over 12½c; express paid. D. M. K. Co., distributors, Holtville, California.

For Sale—Fancy Recleaned amber Sorghum and Sudan grass. Also hand-picked Seed beans; any quantity. Stock pumpkin seed 20c per pound. **Aurora Seed Mill, Stockton, California.**

Box 501, Fowler, California. Write for circular, prices on seed and plants, Sudan, Dwarf Milo Maize, Honey Sorghum, Amber Cane.

Sudan Seed—Ten cents per pound, government tested. Harry Saunders, El Cajon, San Diego County, California.

Millions of Tomato, Pepper, Celery and other plants for sale. L. C. Johnson, Pomona.

SHEEP

Sheep For Sale—500 ewes with lambs by side. Have rented my ranch and want to sell. A good buy for a small place. John M. Cox, R. F. D. No. 1 Box 160, Brawley, California.

GOATS

Handsome Vigorous Young Buck, part Toggenberg and Nubian, out of finest type 4-qt. milk doe. E. Kelly, 834 Main Street, Petaluma, California.

MACHINERY

SPECIAL BARGAINS
GALV. SURFACE IRRIGATING PIPE
4-in., $16.50; 6-in., $24.50; 7-in., $31.90; 9-in., $38; 10-in., $43. 6 hp. Lambert gas engine, $115; fine 8-in. double acting cylinder new, $150; 4-in. hor. cent. pump, $69; 5-in., $88; 6-in., $125; No. 3 Ames double acting plunger pump, $275; pipe and rods extra.
WINDMILLS-TANKS-STEEL TOWERS
8-ft. mills $29 up; 10-ft., $39 up; 12-ft., $65 up; 16-ft., $135.
New, Used Redwood Tanks Guaranteed.
1000 gal., $19.50; 2000, $28.50; 3000, $35; 5000, $48; 25.00, $125; 50,00, $250; 15,000, $95.
NEW, USED GALVANIZED TANKS.
Used 1000 gal., $28; 3000, $55; new 1000 galv., $42.50; 2000, $53.
SHALLOW SQUARE & OBLONG TANKS
COMPLETE PUMPING PLANT
4 H. P. Fairbanks engine; fine large Bulldozer pump and 4-in. pipe, cylinder and rods, belt and all fittings like new $250.
RANCH MACHINERY.
10-ft. Hoosier grain drill, $95; 4 row beet drills, $35 to $45; 3 and 4 gang disc plows, $95 to $125; bean, beet cultivators, $35; potato planters, $75; 4-ft. Fresno scraper, $14; 5-ft., $16; cider mill, $17.50; cable. Nearly new Bean spray outfit cost $75 for $35. Many other bargains. Trade tools you don't need for material you do or pay with Liberty Bonds. Also want to buy. Material guaranteed as represented or money refunded. DEMMITT CO., 120 N. Main, upstairs, Los Angeles.

Corn Harvester — One man, one horse one-row, self-gathering. Equal to a corn binder. Sold to farmers for twenty-three years. Only $25, with fodder binder. Free catalogue showing pictures of harvester. PROCESS CORN HARVESTER CO., Salina, Kansas.

3-inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2.

CATTLE

BUTTE CITY RANCH
SHORTHORN CATTLE, SHROPSHIRE SHEEP, BERKSHIRE HOGS, SHETLAND PONIES. Stock for sale at all times. Second Farm Sale—all breeds—August 2, 1919. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

For Sale—35 Head high grade Holstein cows fresh and close springers. Come and see a real bunch of cows. Cows displayed one-half mile west of Burbank on Shriner Ranch. Hannon Bros., Third Street, Lankershim. Care of Chas. Irwin.

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery Street, San Francisco, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Shorthorns — A few choice young bulls, grandsons of Fair Knight. Prices reasonable. Fair Oaks Ranch, Willits, California.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced, California.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy. Millbrae, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Ayrshires—Pure bred bull calves ready for service. Redwoods Ayrshire Farm, La Honda.

ENGINES

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

Moline Tractor For Sale Cheap, with three 9-inch plows and one Moline disc plow. Tractor has only plowed 40 acres. Ben S. Hessel, R. 2, Santa Rosa, California.

For Sale—40 H. P. Fairbanks-Morse gas engine in first-class condition—used two seasons. P. O. Box 251, Santa Ana, California.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 South Los Angeles Street, Los Angeles.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC.
The Yellow Front. Established 1892
112-118 S. Los Angeles St. Los Angeles.

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BEST OF BUSINESS TRAINING
Munson School
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Private Secretaries.
600 Sutter St., San Francisco.
Send for Catalog.

HOGS

CASTLEVIEW
Giant Type Berkshires.

We are booking orders for spring pigs from Grand Champion sows and sired by Mayfield Rockwood, sire of Champion barrow at 1919 Western Berkshire Contests.

Castleview Ranch, Santa Rosa, Calif.

POLAND-CHINA BARGAINS

BRED SOWS GILTS BOARS
In order to reduce our herd and to make room for young stuff we find it necessary to offer for immediate sale a choice lot of Poland-China sows, gilts, and boars. The offering represents as good blood lines as we could buy and has been nicely grown out. All are cholera immune. Prospective buyers should not overlook this opportunity. You will be surprised at the ertremely reasonable prices we are quoting. Scrub hogs are not profitable. Our registered hogs are money makers. Write now for prices. Act quick. These hogs must be sold. AMERICAN HOG CO., 920-922 CROCKER BLDG., SAN FRANCISCO.

BERKSHIRES BERKSHIRES

ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son, Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

TWO SOWS AND A BOAR
$100 the trio.
Two sow pigs from ten raised, sired by Baron Duke 201st, 780-pound $1100 Grand National Champion, from Rival B. Princess, a prize winner at San Francisco, Sacramento, Oregon, and Omaha National Swine Show, and a boar sired by the Grand Laurel Champion Boar from Symboleer Belle, and of Superbus blood lines; a boar from a litter of ten raised, big, long typy, stretchy pigs. Sandercock Land Co., in charge of Natomas Land Sales, 28 Montgomery Street, San Francisco, California.

Billiken Chester Whites. Not many left now; one 1917 fall boar; one 1918 fall boar; both cholera immune. All pigs farrowed to date are booked for sale excepting 10 boar pigs. Have 10 sows yet to farrow during May, June and July; will book orders from these litters, delivery to be made when weaned. C. B. Cunningham, Mills, California.

Grape Wild Farm Berkshires—Guernseys —spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. B. Humphrey, Prop., Escalon, California.

Weanlings Sired by Trailblaizer, son of Pathfinder, Derryfield Col. and Derryfield Wonder Boy—King's Col. Boars ex Burke's Good Enuff, Golden Model and Model Col. sows. Bred gilts. Service boars. Derryfield Farm, Capital National Bank Bldg., Sacramento.

For Sale—Registered Duroc-Jersey pigs, McKee Bros., Pilot Defender blood, owned by C. T. Thompson, Bishop, farrowed April 3rd, 1919. Very fine. For particulars and breeding, write: W. E. Detrick, Bishop, California.

Rancho Del Sur Durocs—A few good growthy fall boars sired by Orion's King Gano and California Orion Cherry King. Satisfaction guaranteed. Donald H. Graham, Box 569, Lancaster, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Have Sold All the Pigs advertised recently. Will have fine pigs from spring litters for sale in June. Fine Shropshire ram lambs, pure bred, for sale. J. J. Prendergast, Redlands, California.

Big Type Durocs—Herd headed by California Orion King. Am offering some excellent boar pigs of spring farrow. Inquiries solicited. Prices reasonable. Harvey M. Berglund, Dixon, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego Co., Address: R. K. Walker.

Duroc-Jersey Swine For Sale, best blood lines. Bred sows and gilts, service boars. Jersey Queen Farm, San Jose, California.

Duroc-Jerseys — We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson. Box 724, Sacramento, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLETS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

HORSES

For Sale—Work horse, weight about 1300. Call August Peukert, 7710 Towne avenue. Phone 6605-J, Los Angeles.

POULTRY

Baby Chicks For Sale—250,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock. 25, $3.50; 50, $7.00; 100, $12.50. Special prices, 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Shipped safely anywhere West of Rockies. Finest hatchery in the world. Established 1898. Must Hatch Incubator Company, 438 Seventh Street, Petaluma, California.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGAINZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

It's like groping in the dark to attempt raising poultry successfully without some knowledge of the business. Poultry for Profit tells you how to house, feed and raise chickens, ducks and turkeys successfully in California. It contains 225 pages with 18 pages of illustrations and bound in cloth $1.00 postpaid. Cultivator Publishing Co., 115 N. Broadway, Los Angeles, California.

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box B 337, Inglewood, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for 20 years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs, $2.50 per 15 eggs. Chicks 30c each; 7 pullets May hatch, laid 12 dozen December, 10 dozen January. Call mornings or phone 6599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California.

Poultry for Profit—A 225 page book, with 18 pages of illustrations, tells you how to successfully house, feed and raise chickens, ducks and turkeys in California. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 N. Broadway, Los Angeles.

S. C. White Leghorn Chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockerel at Pacific Coast Land Show. Order your chicks for June 10th delivery. A. O. & P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks From My Thoroughbred, heavy-laying strain of S. C. White Leghorns. Am booking orders now for July delivery at $12.00 per 100, $110.00 per 1000. Prices for August and September delivery on application. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Get Baby Chicks Now—Write for free booklet on fall chicks. See why they pay. Several varieties every week. Only good strong youngsters shipped. Stubbe Poultry Ranch and Hatchery. Box 67, Palo Alto, California.

Baby Chicks, Special Prices—Reds, Rocks, Anconas, $15.00 per 100. McFarland strain White Leghorns, $12.00 per 100. Hatchings Saturday and Wednesday. A. G. Rowe, Inglewood, California.

Schmitty's Barred Rocks are leaders at the showroom as well as winter layers. Write for 1919 mating list. Geo Schmitt, Box 263 Corcoran, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARMS, San Leandro, California.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

"Eastman's Bred-to-lay" Hoganized and trapnested Barred Plymouth Rocks. SEPTEMBER CHICKS. Fairmead Poultry Farm, Fairmead, California.

Chix — Barred Rocks, R. I. Reds, Orpingtons, Anconas, Minorcas, Buff, White and Brown Leghorns. Breeding Cockerels. Enoch Crews, Seabright, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

RABBITS

New Zealand Reds, rich red vigorous foundation show stock from registered animals, also fine market stock. Write: E. Kelly, 834 Main Street, Petaluma, California.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

FERTILIZER

EARL A. HOLCOMB
SOIL LIFE
Fertilizer and materials mixed to balance every soil. Bureau of testing and advice free on all horticultural and agricultural subjects. 1022 Washington Bldg., Los Angeles. Phone 62907; res. 16116.

For Sale—Chicken manure in carloads. Cheapest and best fertilizer. MacDonald Sons. Phone 101. Watsonville.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

TURKEYS

Eggs From Mammoth Bronze Turkey utility stock, 25c and 50c; show stock, $1, $2, and $3 each. White King Pigeons, $3 a pair. Paradise Valley Poultry Ranch, National City, California.

FARM LANDS FOR SALE

320 Acres—A fine stock farm near Fresno, 100 acres alfalfa, 75 acres grain land, 125 acres pasture, good dwelling house, tenant house, barn for 75 head cattle, large horse barn, dairy and separator house, garage, tool house, buildings worth $10,000. The ranch is well worth $60,000, but we are offering it for a short time for $50,000. $10,000 cash, balance on time. W. E. Bush & Co., 203 Mason Bldg., Fresno, California.

For Sale—A 15 Acre 5 to 7 Year Old Orchard of apples, peaches, plums and pears, 2 miles from Escondido, Cal., on main road. Worlds of irrigation water by electric power; good house, well, 4-room house, good barn; will yield about $1000 fruit crop in next 90 days. Price $7500; equity $6000. Come and see it. Address G. W. WISDOM, Escondido, California.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator. Box B. A. J.

Mountain Ranch—334 Acres, 90 acres under cultivation, 30 acres Bearing Orchard, balance in Timber, Oak and Pine. Free Water, deep, rich soil, eight-room house, 100 tons hay, barn and out buildings. Will subdivide. Price $7500. Terms. Address, Paradise Ranchita, P. O. Box 123, Paradise, Butte County, California.

For Sale—Eight Acres, Six in Navels and Valencias, 2 in eucalyptus trees. Close in to beautiful Riverside. A bargain, will sell on easy terms. A. WAYNE GIBBS, 265 S. Van Buren Street, Riverside.

For Sale — Imperial Valley's finest fruit and alfalfa farm for sale at a bargain, 160 acres. Earliest grapes and apricots in the United States. C. A. Myers, 1119 Haas Building, Los Angeles.

MULES

For Sale — Twenty-five young mules, one and two years old. Chas. Hubbard, Riverdale, California.

BEES

For Sale—250 colonies of bees. Price $1200. Alois Katzer, Placentia, California.

DOGS

Collie Dogs For Herding, cattle, sheep and turkeys. John G. Mee, breeder of Bronze turkeys and Embden geese. St. Helena, California.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Almonds in Coachella

Would almonds prove profitable in Coachella Valley? What varieties would be best and how much water would be required to irrigate?—Subscriber, Long Beach.

The climate of Coachella Valley is as well adapted to growing almonds as any part of California. However, saline soils should be avoided as should poorly drained lands. It must be remembered that surface appearance is no indication that the subdrainage is good, a very essential condition for almond culture. The soils of Coachella and Imperial Valleys are deceptive. They are apparently well drained and porous in many sections but there is, almost invariably, a layer of clay underneath that holds water like a tub. The soil deposits are sand and clay, one on top of the other to a great depth. This makes the planting of trees intolerant of seepage water rather risky unless great care in irrigation is used. Plant IXL, Drakes, Ne Plus Ultra and Nonpareil. —J. W. M.

Cure for Sore Ears in Rabbits

I have read from different ones inquiries for remedy to cure sore ears in rabbits and have never seen the simple and sure remedy that we use so decided to send it and ask you to give it to the Cultivator readers. It has never failed to cure any case of sore ears no matter how severe. Simply coal oil, from about ten drops to half a teaspoon, and in some instances we have had to repeat the dose in a few days. It has never injured the rabbit. — Clara E. McLellan, Alta Loma.

Rust on Rose Leaves.

Please tell me what is wrong with my rose bushes and what is the remedy. You will notice by the enclosed leaves that the underside is covered with a rust colored substance. The bushes look as though they would die before long.—Subscriber, Pasadena.

This is one of the rusts which seriously affects certain roses. Its treatment is practically the same as treatment for mildew. That is, spraying with sulphide of potash, one ounce to three gallons of water, and dusting over bushes, after spraying, with flowers of sulphur.

Apricot Trees Dying

Apricot trees about 10 years old are dying. A great deal of sap is exuding from large branches. They set a big crop but the fruit is all drying up. What can I do to prevent this trouble? Will it spread to other trees? —Subscriber, Ballard.

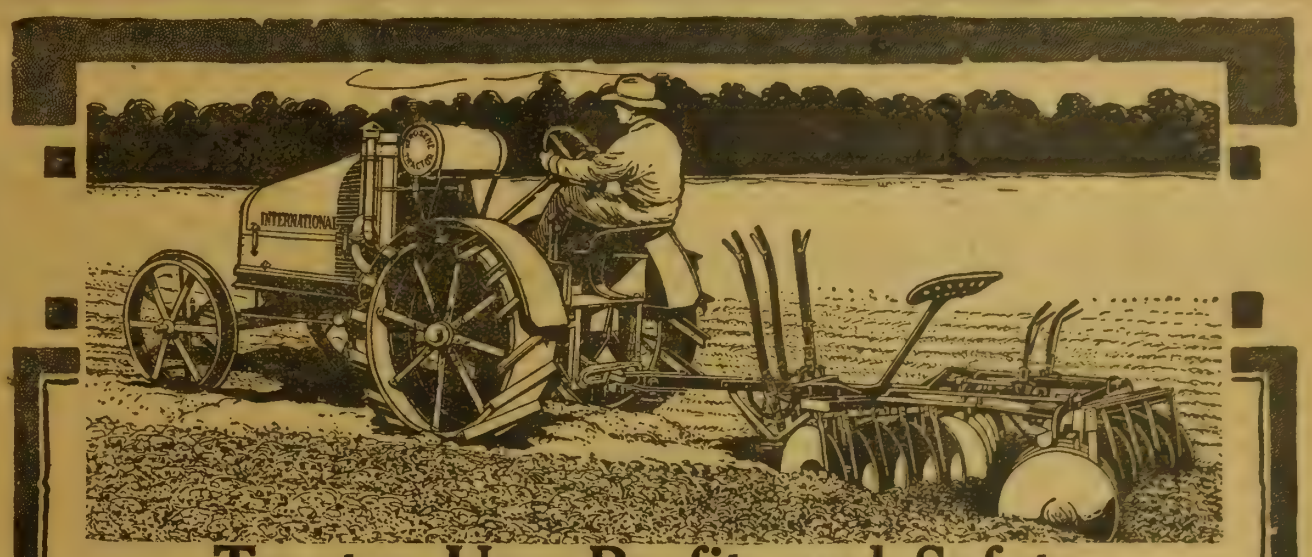
The best answer we can give to this with the limited description of the trouble is that it may be due to some physiological condition not fully understood, which means in simple language, we don't know. It may, however, be due to shot hole and leaf spot trouble or sour sap or other trouble. The only remedy which can be suggested until further information is secured is abundance of water, a little fertilizer and bettering of physical conditions of the soil. This is a case where your county horticultural commissioner may probably be able to give you very material aid.

Curing Medicinal Herbs

Is it practicable to dry medicinal herbs and plants with any kind of evaporator or other machine?—Subscriber, San Gabriel.

We know of no special appliance for this purpose. This matter of specialized crops calls for treatment which can only be learned from the drug supply house or others who contract for these herbs or plants. The first step is to determine which particular medicinal plant it to be grown and the requirements of the trade for that plant.

Plans are under way in Maricopa County, Arizona, to purchase a landing field for airplanes and build a hangar as a permanent memorial to Frank Luke, Jr., the Arizona ace whose daring in bringing down German observation balloons and airplanes cost him his life and won for his family the congressional distinguished service medal.



Tractor Use, Profit, and Safety

TRUE progress is always slow. The change to mechanical power for farm work has been twelve years in the making, but today there are few American farmers who have not given serious thought to the question of tractorizing their farms.

For the benefit of those who may not yet be convinced that the tractor is a useful, profitable farm power machine, we present again a few of the opinions of farmers who are using the International Kerosene Tractor. Some of these are about essential features, and some mention only conveniences, but taking them altogether, almost any farmer will feel, after reading them, that the International 8-16 is a tractor worth considering.

"My International supplies a power flexible enough to handle the large amount of seedbed, harvest and other work without delay."

"It can be used for continuous work if emergency demands it."

"It produces power at much lower cost than horses, and it can be used for both drawbar and belt work."

"I like the steady way it works. Without seeming to hurry, it gets through a surprising amount of hard work."

"It does a lot of good work at a cost so low I could hardly believe it. You did a wonderful thing for Eastern farmers when you made this tractor to run on kerosene."

"It is not bothered by flies, nor by bumble bees. It works steadily on the hottest days."

"Requires very little care. When the day's work is done, I run the tractor tail first into an inexpensive shed. In the morning, I fill the fuel tank and the oiler, look into the radiator, and am ready for another day's work."

These opinions are typical. They prove at least that the International 8-16 is a useful, profitable tractor. Now consider just one other thought for a minute.

This tractor is the outgrowth of twelve years of active tractor experience by a company that has sold all kinds of farm machines for many years. The beginning of this business goes back to 1831—almost 88 years ago. Does it not seem reasonable that with this experience we should offer you a tractor that you could use with profit, especially when we expect to come back some day and sell you more of the machines listed in this advertisement?

If you are now convinced that the International 8-16 is a useful, profitable tractor on some farms, and that you don't have to be an expert to buy one safely, write us to find out what this tractor will do for you, on your farm. A post card will bring you full information.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines
Binders, Push Binders, Headers, Rice Binders, Harvester-Threshers, Reapers, Shockers, Threshers

Tillage Implements
Disk Harrows, Cultivators, Tractor Harrows, Spring-Tooth Harrows, Peg-Tooth Harrows, Orchard Harrows

Planting & Seeding Machines
Corn Planters, Corn Drills, Grain Drills, Broadcast Seeders, Alfalfa & Grass Seed Drills, Fertilizer & Lime Sowers

Haying Machines
Mowers, Tedders, Side Delivery Rakes, Loaders (All Types), Rakes, Combination Side Rakes and Tedders, Sweep Rakes, Stackers, Combination Sweep Rakes and Stackers, Baling Presses, Bunchers

Belt Machines
Ensilage Cutters, Huskers and Shredders, Corn Shellers, Threshers, Hay Presses, Stone Burr Mills

Belt Machines—Cont.
Cream Separators, Feed Grinders

Power Machines
Kerosene Engines, Gasoline Engines, Kerosene Tractors, Motor Trucks, Motor Cultivators

Corn Machines
Planters, Drills, Cultivators, Motor Cultivators, Binders, Pickers, Ensilage Cutters, Shellers, Huskers and Shredders

Dairy Equipment
Cream Separators (Hand), Cream Separators (Belted), Kerosene Engines, Gasoline Engines, Motor Trucks

Other Farm Equipment
Manure Spreaders, Straw Spreading Attach., Farm Wagons, Farm Trucks, Stalk Cutters, Knife Grinders, Tractor Hitches, Binder Twine

International Harvester Company of America
(Incorporated)
Billings, Mont. Crawford, Neb. Denver, Colo. Helena, Mont.
Los Angeles, Cal. Portland, Ore. Salt Lake City, Utah
San Francisco, Cal. Spokane, Wash.

McCormick Tillage and Harvesting Machinery

B. Hayman Co., Inc.

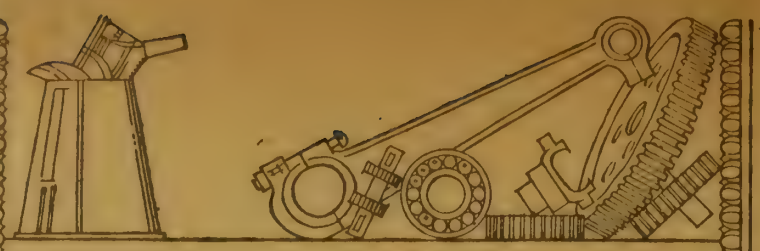
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Agents for Full International Lines

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ZEROLENE
For Motor Cars

GOOD OIL IS CHEAPER THAN PARTS

Freedom from unnecessary repairs and longer life for your car result from correct lubrication with Zerolene. Scientifically refined from selected California crude oil. Gives maximum lubrication with least carbon deposit. Get a Correct Lubrication Chart for your car.

STANDARD OIL COMPANY
(California)

Grow Wheat in Western Canada

One Crop Often Pays for the Land



Western Canada offers the greatest advantages to home seekers. Large profits are assured. You can buy on easy payment terms,

Fertile Land at $15 to $30 per Acre—

land similar to that which through many years has averaged from 20 to 45 bushels of wheat to the acre. Hundreds of cases are on record where in Western Canada a single crop has paid the cost of land and production. The Governments of the Dominion and Provinces of Manitoba, Saskatchewan and Alberta want the farmer to prosper, and extend every possible encouragement and help to

Grain Growing and Stock Raising.

Though Western Canada offers land at such low figures, the high prices of grain, cattle, sheep and hogs will remain.

Loans for the purchase of stock may be had at low interest; there are good shipping facilities; best of markets; free schools; churches; splendid climate; low taxation (none on improvements).

For particulars as to location of lands for sale, maps, illustrated literature, reduced railway rates, etc., apply to Supt. of Immigration, Ottawa, Can., or

GILBERT ROCHE,
3-5 First St., Sheldon Block, San Francisco, California.
Canadian Government Agent.

WESTERN CANADA
Farm Lands at Low Prices
The Wheat Belt of America

Krogh Pump and Machinery Company

206 No. Los Angeles St.
Los Angeles, Cal.

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Krogh Pumps are Absolutely Water Balanced
No End Thrust Possible *No Set Collars Used*

The No Trouble Pump



Krogh Direct Motor Driven Pump

Fitted with Ring Oiling Bearings

Renewable Babbitted Bushings

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We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

AWARDED GOLD MEDAL

LA CROSSE TRACTORS---IMPLEMENTS

Knapp Tractor and Machinery Co.,

416 Central Building - - - - - Los Angeles, Cal.

Hauser's Organic Fertilizers
Built for
California Conditions
Send for Booklet, "Fertilizer Efficiency." Tells You Why.
Hauser Packing Company
Los Angeles, Cal.

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

Household Department

THE HOUSE INSIDE

I have a house inside of me;
A house that people never see;
It has a door though which none pass
And windows, but they're not of glass.

"Where do you live?" ask folks I meet,
And then I say "on such a street;"
But still I know what's really me,
Lives in a house folks never see.

Sometimes I like to go inside
And hide and hide, and hide and hide;
And "doctor up" my wounded pride
When I've been "treated rough" outside.

And sometimes when I've been to blame
I go indoors and blush for shame;
And get my mind in better frame,
And get my tongue and temper tame.

I meet my Heavenly Father there;
For he stoops down to hear my prayer
To smooth my brow and cure my care
And make me brave to do and dare.

Then, after I have been made strong,
And have things right, that were all wrong
I come outside, where I belong
To sing a new and happy song.

Then I can hear the people say
"You're bright and bonnie, good and gay"
And it's because I feel that way;
But they don't know the price I pay.

You have a house inside of you
Where you may fight your battles, too
And God will tell you what to do
And make your heart both kind and true.

S. W. G.

THE REPUBLIC OF POLAND

By John Sobieski in The Golden West

AT THE beginning of the world war, perhaps there was no country of Europe so little known as Poland. I found that even among the reading public their conception was all wrong. The general idea was that Poland was a very small country, about like Serbia, Montenegro or others of the Balkan states, which fell an easy prey to their powerful neighbors. Many times where I have lectured on Poland has the chairman of my meeting, when introducing me, spoken sympathetically of "little Poland."

The fact is, that Poland was not little in anything that went to make up a powerful nation. In territory Poland was nearly twice as large as either England or France. On the great map of Europe we see that by drawing a line from Riga on the Baltic Sea to Dresden in Saxony, another line from Dresden to the mouth of the Dneister River on the Black Sea, and another from the Dneister to Smolensk, Russia, we have enclosed the commonwealth of Poland at its greatest extent. Before the partition, Posen, West Prussia, Galicia, Lithuania, Volhynia, Padolia and Kiev were Polish. Even as late as 1717, Danzig was a Polish seaport. Thus you can see what was the extent of this powerful republic prior to 1572.

Poland was an hereditary monarchy. One dynasty had long reigned in that country; but when it became necessary to either choose a new reigning house or change their form of government, they chose the latter as the less difficult of the two, and more agreeable to the feeling of the nobility. The republic was founded with a written constitution; the first written constitution that we have any account of in history, and it was many years before another was written, which was done in 1789.

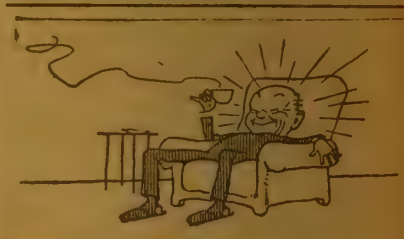
There is nothing that speaks more clearly for the character of the Polish people than this constitution. It provided that the chief officer of the republic should be styled the king and that he should be elected for life. And yet the diet could declare the throne vacant at any time and elect another without the formality of impeachment. But in the 200 years that the republic of Poland existed, they never used this power, though there were several times when they would have been justified, and for the good of the republic they should have done so. The greatest mistake made in this new constitution was that it permitted foreign princes to be elected to the throne, and this they did in most cases, which I believe, contributed more than anything else, to the final overthrow of the republic.

The nobility constituting the electoral body of the republic was the largest class of nobility in Europe, numbering about 300,000, and all nobles had the right of elective franchise. There were cases where women had the titles of nobles and the right to vote also. This was woman suffrage more than 400 years ago. So Poland has the distinction of being the first democracy of modern times. Under the constitution there were two chambers of the Diet and as in the election of a king, the members had to be chosen by a unanimous vote and all laws had to be passed by unanimous vote. The king did not have the right to veto and there was no supreme court to pass upon the constitutionality of the laws, as in this country.

The constitution provided absolute religious liberty. Jew or Gentile, Catholic or Protestant, Mohammedan or infidel, all had religious liberty and equal rights. And during the 200 years that the republic existed, no one ever suffered on account of his religious convictions. So Poland was the first country that we have any account of in modern or ancient times, where people were blessed with this privilege. And when we consider the age in which this constitution was adopted, and the fact that in the whole outside world religious liberty was unknown, it seems most remarkable, and it adds greatly to the glory of Poland.

Another remarkable article of their constitution was that prohibiting wars of conquest, wherein they declared that the arms of the republic should never engage except for two purposes: defense of the republic when assailed by foreign foe, and in defense of the Christian religion against the Mohammedan hordes that were constantly threatening the Christian world with invasion.

Another reason why Poland was probably so little known to the people of this day is that nations are known by their wars more than by anything else. Poland seldom, if ever, warred against Western Europe. Her wars were principally with the Turks that were threatening Christendom. For 200 years Poland stood like a wall of fire, protecting the Christian



Do you know the comfort, cheer and after-glow of fine tea?

There is no other drink like it; it gently stimulates and cheers, but makes no demand upon the digestion.

It is a royal drink, and yet, next to water, is the cheapest of all—⅓ cent for a cup of fine rich-flavored invigorating satisfying tea!

Schilling Tea is the fine practical economical tea of this country.

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world against the fierce and fanatical Turks—never asking or receiving any compensation whatsoever for all of this sacrifice to save the nations. And Poland stood in the fight until the last mighty attempt that the Mohammedans made to conquer the Christian world, when with an army of half a million they marched triumphantly to the walls of Vienna. The whole Christian world was in dismay. It was there that Poland's great King John the Third, with his Christian army of 70,000 met them and dealt them such a crushing blow that it ended forever any further attempt to conquer the Christian world.

(Continued next week.)

JELLY MAKING WITH THE GUESSING LEFT OUT

This is the method for jelly making recommended by W. V. Cruess of the State University. Simple directions are given for making exact tests of acidity, pectin content, time of cooking, etc. Surely the resultant product will be no better than "mother's jelly," but some wasted fruit, wasted effort, wasted time and wasted nerves may be conserved. Try it.

Boiling the Fruit

Boil the fruit until tender (cut and sliced if hard) with just enough water to prevent scorching. Strain off the juice and press the pulp in a coarse bag. Keep the pressed juice separate.

Clearing the Juice

Filter through a jelly bag. The pulp from red currants and sometimes crabapples and loganberries contains an excess of pectin and can be reboiled with a little water, strained and mixed with the first juice. It will have less flavor and acid.

Testing for Pectin

To a teaspoon of juice add an equal quantity of 95 per cent alcohol. Mix and allow to stand. It should form a thin jelly. If it does not, add some crabapple juice or other juice rich in pectin until a good test can be obtained.

Test Acidity

Compare the taste of the juice with a lemonade made of one teaspoon of lemon juice with nine teaspoons of water. If less acid add lemon juice or other sour fruit juice.

Addition of Sugar

Add one cup of sugar to each cup of juice and boil down until the Baume tester shows 30 degrees or a thermometer in the boiling juice shows 220 degrees Fahrenheit or until it will thicken quickly on a cold spoon. If the fruit is poor in pectin use only from one-half to three-fourths of a cup of sugar to each cup of juice.

Pouring into Glasses and Sealing.

Pour into jelly glasses with care not to wet the glass above the jelly. When set, cover with hot melted paraffin. Exposure to the sun before covering will assist jellying.

JELLIES AND JAMS FROM THE EARLY FRUITS

Currant Jelly

Free currants from leaves and stems. Mash with wooden masher. Add one pint water to every 10 pints fruit. Heat slowly to boiling point. Pour into large flannel bag, suspended over stone jar. Let drip, for fine jellies; squeeze gently, if an "every day" product is wanted. Measure out two pints, add two pints sugar. Boil and skim three times. It ought then to drop in heavy drops from spoon, and is done. Pour into hot glasses, set in sun, cover with glass if possible. When cold, cover thickly with melted paraffin.

Raspberry and Blackberry Jelly

Either red or black raspberries will make a soft jelly alone, but if a firm jelly is wanted, use half as much currant (or apple) juice as berry juice. Follow directions for currant jelly.

For blackberry jelly, use berries about half ripe, adding only two-thirds as much sugar as juice.

Strawberry Jelly

Equal parts strawberry and currant juice; boil hard 15 minutes. Follow directions for currant jelly.

Crabapple Jelly

Add four quarts water to eight of chopped, unpared crabapple. Cook slowly till done, strain, as you do currants. You should have but three quarts of juice. Use equal parts of sugar and juice, and boil rapidly. Very easy to "jell." Pale yellow or pink in color.

Gooseberry Jelly

Use large, green berries, proceeding as for currant jelly. It makes a pale green, tart jelly that is fine to serve with meats.

Dewberry Jelly

Pick over the berries, wash and drain. Mash a few in the bottom of the preserving kettle, using a wooden potato masher. Continue until all the berries are mashed; cook for a few minutes, strain through a coarse strainer, then through a jelly bag. Measure the juice and allow an equal quantity of sugar, bring the juice to the boiling point and boil for five minutes; heat the sugar very hot, add it to the juice and boil again; about three minutes will be required. The jelly may be tested by putting a spoonful in a saucer. As soon as a thin skin is formed on the top it is done; remember what is in the ketle is cooking all the time, so try it frequently.

Plum Jelly

Wash the plums and turn into a smooth enameled kettle. Add about one cup of water to each gallon of plums, just enough to prevent the plums sticking to the botom of the kettle. Cook for 20 minutes, lifting those at the botom so that they all may be cooked. When all the skins are broken and the juice runs freely, turn into a jelly bag and drain for several hours or over night. Measure and allow one-half pint of sugar for each pint of juice, for very acid fruit allow an equal quantity. Put the sugar to heat in a shallow pan in a moderate oven. Put the juice over the fire, bring to the boiling point and cook for ten minutes. Add the hot sugar, stir until dissolved. Test as in making dewberry jelly, pour into hot sterilized glasses and seal immediately.

Strawberry Jam

Pick over berries, remove the stems and hulls, wash and drain; weigh and allow three-fourths pound of sugar to every pound of fruit. Mash a few of the berries in the bottom of the kettle, continue till all are mashed, add sugar which has been heated, place over a moderate heat and cook gently for three-quarters or one hour. Turn into hot sterilized glasses and seal at once.

Strawberry Jam

Measure equal quantities of strawberries, chopped pieplant and sugar. Boil very rapidly for 15 minutes, (cook two pints only at a time). Pour into hot glasses, or small cans, as you do jelly. This is fine.

Currant or Raspberry Jam

I often use the unsqueezed pulp from jelly bag for this. Add as much sugar as pulp, and cook as you do strawberry. If a juicier jam is wanted, mash currants, add sugar and cook fast for 15 minutes.

For raspberry jam, proceed as for currant jam.

Blackberry Jam

Measure equal quantities of berries, chopped early apples and sugar. Proceed as for strawberry jam.

Cherry Jam

To one pint stoned cherries add one pint sugar. Mash well together and boil 15 minutes. Delicious.

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Los Angeles Markets

Los Angeles, June 18, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price 57 lb.; prices to retail merchants in 1-lb. squares, 57@58.

Dairy exchange prices last week on extras:

June	11	12	13	14	16	17
'19 ...	57	..	55	55	..	57

CHEESE

Brokers' prices.
California fresh, lb., 28½; price to retail merchants, 30½@31½.

EGGS

Fresh extras, Produce Exchange closing price, 48 doz.; price to retail merchants, 51 doz.; case count, Produce Exchange closing price, 47 doz.; price to retail merchants, 49 doz.; pullets, Produce Exchange closing price, 42 doz.; price to retail merchants, 44.

Dairy exchange prices last week on extras:

June	11	12	13	14	16	17
'19 ...	47	..	47	47	..	48

POULTRY

Prices to producers: Hens, 26@28; broilers, 23; fryers, 30; roasters, 35; old roosters, 14; capons, 42; ducks, 27; ducklings, 27@29; geese, 25; turkeys, 35@40; squabs, 45.
Belgian hares, 15.

LIVE STOCK

Hog producers and feeders of the lower San Joaquin Valley are of the opinion that the Los Angeles market is aways out of line with Eastern markets. They base their opinion on the prices being paid for hogs locally in comparison with those ruling in Chicago, Kansas City and Omaha. Prices received by them range from $16.50 to $17.30 f. o .b. Visalia and adjacent points, while the market for hogs in the Eastern cities ranges from $19.25 to $21.15 f. o. b. stock yards. Quite a number of reasons existing in the East for their high prices do not exist here. Export orders for not only hams and bacon but also mess pork and a large outlet at high prices for trimmings and offal in Eastern centers does not exist here. A large percentage of all hogs dressed in this city are sold in wholesale cuts. The loins, legs, bellies and butts find a ready outlet but all other cuts are disposed of at forced sale from 5 to 8 cents per pound under prices received by the Eastern wholesalers.

The local outlet is so limited that the live prices of hogs will have to go even lower than at present if it is desired to increase consumption. When prices reach their present level consumers curtail their purchases. The local market for beef cattle is very weak and is oversupplied.

Lambs of good quality are strong with a higher tendency. Sheep remain steady but the demand is very dull.

The following prices represent those paid by local killers f. o. b. Los Angeles. County point prices are usually $1.00 to $1.50 less than these figures, dependent upon the distance from the city:

Cattle:
Good steers .....10.00@11.00
Medium steers .....9.50@10.00
Common steers .....8.00@9.00
Good cows .....8.00@8.50
Medium cows .....7.00@8.00
Common cows .....5.00@6.50
Hogs No. 1, 175-225 lbs. .....18.50@19.00
Hogs No. 2, all other weights..17.00@17.50
Sheep:
Lambs No. 1, 55 to 75 lbs.....15.00@16.00
Lambs No. 2, 65 to 80 lbs ....12.50@13.00
Wethers .....9.00@9.50
Ewes No. 1 .....8.00@9.00

POTATOES AND ONIONS

These are the actual prices obtained June 17, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Potatoes: No carlot arrivals. Demand and movement moderate, market firm, no change in prices. Carlot sales to jobbers—closing prices Monday: California Burbanks, best, mostly 2.50. Sales to retailers: New stock, California lug boxes, White Rose 1.00@1.15.

Sweet potatoes: Lug, 1.00@1.10.

Onions: Demand and movement moderate: New crop, homegrown green onions, 35 doz., small bunches; Imperial Valley and Coachella Valley, Wax and Yellow Bermudas, standard crates, best 3.25@3.75; poorer 3.00 up. Stockton, Red Weathersfield, 4.50@5.00; Yellows, 5.00@6.00.

VEGETABLES

These are the actual prices obtained June 17, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Asparagus: Northern, green, local fancy, 14@15; fancy, 11@12.
Beans: Kentucky Wonder, best 9@9½.
Beets, doz. bunches, 25@30.
Carrots, doz., 50.
Cucumbers, Signal Hill, 14 pound box, 1.40@1.60; lug 2.00@2.50.
Celery, cr., 5.50.
Corn, sweet, doz., 1.25.
Eggplant, lb., 13@14.
Lettuce: Sales to retailers, best lettuce in cabbage crates, 75@85.
Parsley, doz., 15.
Peas: Local (San Pedro) best, 10@12.
Radishes: Round Red 20 per dozen bunches. Long White, 40 per dozen bunches. Long Red 20 per dozen bunches.
Rhubarb: Local Giant Cherry, 1.25@1.50 per packed box. Strawberry, fancy 1.00@1.35 apple box.
Spinach, doz., 20.
Squash: Local summer, lug 75.
Tomatoes: Quality and condition generally fair. Coachella and Imperial Valley, 4 basket crates, best 1.25@1.35; poorer 80 up.
Turnips, doz., 30@40.

FRUITS

These are the actual prices obtained June 17, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Apples: Yellow Newtons, fy. medium size, 4.50@5.00; loose, 9@11 lb. Oak Glen, Rome Beauties and Pearmains, 3.75@4.00.
Apricots: Bulk in lug boxes, 45.
Blackberries: Cr., 3.00@3.50.
Cantaloupes: Demand and movement good, market steady, little change in prices. Sales to jobbers—green meats, wrapped and unwrapped, standards 45s 1.75@2.00, ponys 45s and 54s 1.50@1.75, flats 12s and 15s 70@75. Considerable green, practically no demand, none being sold.
Brawley: Shipments continue heavy. Few sales—carloads f. o. b. cash track—green meats, wrapped and unwrapped, standards 45s, mostly 1.50@1.60, green meats, wrapped and unwrapped, flats 12s and 15s, special marks, 75@90, mostly 80. Practically all shipments consigned.
Cherries: Black Tartarians, 10@14; Royal Annes, 12@15.
Figs, per 10 lb bx, 1.75@2.00.
Gooseberries, 12@13 lb.
Loganberries, cr., 4.00@4.25.
Raspberries, cr., 3.00@3.50.
Peaches: Alexander, 10 lb.
Pineapple, lb., 18@20.
Plums: Climax, lb., 5@7.
Strawberries, cr., 3.50@4.50.
Watermelons: Imp., lb., 1½.
Brawley: Haulings increasing. Quality and condition good. Carloads f. o. b. usual terms. Excell, bulk per ton 19.00@20.00; Angelenos, 18.00@19.00.
Lemons: Fancy packed, 6.25@6.70; local pack, 4.00@4.50; loose, some tree ripe, 3.00@4.0.
Oranges: Valencias, medium fancy, 5.50; local pack, 4.00@4.50.
Grapefruit: Local fy., 3.50@4.00 bx.; poorer, 2.00@2.50.

BEANS

Demand and movement moderate, market firm, little change in prices. Carloads f. o. b. usual terms—pool prices, choice, recleaned basis, Limas 9.00, Henderson Bush 7.50. Warehouse cash to growers—choice, recleaned basis, Small Whites 6.40@6.50, Large White, mostly 6.25, Blackeye 3.75@4.00, Tepary 2.25@2.50.

HONEY

Few sales. Orange honey crop about 28 cars, alfalfa honey in Imperial, large crop as also sage and mountain honey in San Diego County. Small lots selling to retailers at 20@24 cents for prime white extracted, comb white 6.50@7.00 per case. The Exchange reports advance orders for several carloads.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....16.00@20.00
Barley .....14.00@18.00
Alfalfa .....14.00@18.00
Wheat or Barley straw .....6.00@8.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy 26.00
Standard alfalfa .....18.00@20.00
Stock alfalfa .....14.00@18.00
Standard dairy .....21.00@22.00

GRAIN

Prices on local Grain Exchange, carlots:
Egyptian corn, 3.20.
Feterita 3.10.
Milo maize, 2.82½@2.82¾.
Barley, 2.72½@2.76¼
Corn, Yellow 3.35@3.42½; White 3.35@3.40.
Wheat, 38.00@40.00.

San Francisco Markets

San Francisco, June 17, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped. ½c: 1-pound squares, parchment

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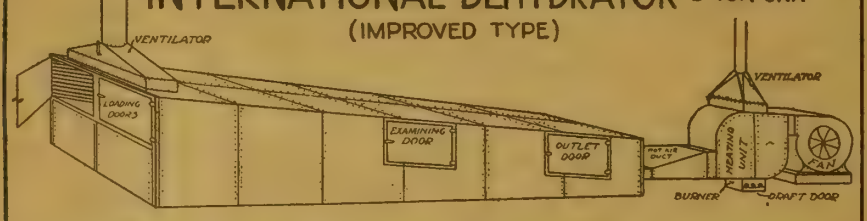
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wrapped, 1c; 2-pound squares in cartons, 1½ to 2½; 1-pound squares, in cartons, 2c to 3c.

Dairy Exchange quotations, lb.:
Extras 57½

Prices extras past week and year ago.

June	10	11	12	13	14	16
'19 ...	57	55½	55½	55½	56½	57½
'18 ...	..	45	45½	45½	45½	..

Rcts. wk. ending June 16, 2540 centals.

CHEESE

Dairy Exchange quotations:
Cal. Flats ..... 23@29½
Cal. Y. A. fy. 34
Ore. Triplets 38½
Jack, full cream ..... 25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 51
Firsts 39½
Extra Pullets 45

Prices extras past week and year ago:

June	10	11	12	13	14	16
'19 ...	53½	51	50	50	50	51
'18 ...	..	41	41½	42	42	..

Rcts. wk. ending June 16, 367,946 cases.

POULTRY

Hens, 36@38; roosters young, 45@50; old roosters, 20@23; broilers, 30@32; fryers, 35@45; squabs, 2.50@4.00 doz.; ducks and geese, 30.

Belgian hares, live, 13@15; Jackrabbits, doz., 2.50@3.50.

LIVE STOCK

Cattle—Grass fed steers, No. 1, weighing 1000 to 1200 pounds, 10¾@11; do, weighing 1200 to 1400 pounds, 10¾@11; do, second quality, 9@9½; do, thin, 5@7.

Cows and heifers—Grass fed, No. 1, 8½@9; do, second quality, 7@7½; do, common to thin, 3½@5½.

Calves — Light weight, per lb., 12½@13; medium, 11@12; heavy, 8½@10.

Lambs, yearlings, 10@11; milk, 13@13½; sheep, wethers, 10@10½; do, ewes, 8@8½.

Hogs—Hard, grain fed, 100 to 150 pounds 13¾; do. 150 to 250 pounds, 13½; do, 250 to 300 pounds, 17¾; do, 300 to 400 pounds, 17½.

Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco: Steers—Choice, 1000 to 1200 lbs., Cattle: Good grass steers, 1000 to 1200 pounds, 11@11½; medium to good grass steers, 950 and over, 9½@10; good heifers, 1000 and over, 10@10½; good cows, 1000 and over, 9½@10; medium to good cows, 900 and over, 8@9; canner cows, 5@6; good bulls, 6@7; calves, 9½@11.

Hogs — Today's market on top packer hogs, hard and well finished, weighed and delivered off cars at our plant, South San Francisco; 175 to 250 pounds, 18½; 150 to 175, 18; 250 to 300, 18; over 300, 18; under 150, 17½. Usual dock and price discounts for other weights and kinds.

VEGETABLES

Wholesale selling price:
Artichokes, doz., 15@50.
Asparagus, lb., 6@10.
Beans, String, 10@15; Wax, 12@14; Pole, 12@13; Limas, 20@22½.
Carrots, sack, 4.00@4.50.
Cucumbers: Large box, 3.50@4.00; small, 1.75@2.00; Los Angeles, lug, 3.00@3.25.
Corn, doz., 35@50.
Eggplant, southern, fy., 10@15.
Lettuce: Cr., 50@1.25.
Okra, green, lb., 20@25.
Peppers, Bell, lb., 20@30; Chili, 20@25.
Peas, lb., 9@9½.
Rhubarb, Strawberry, bx., 1.25@1.75; Mammoth, 2.00@2.50.
Spinach, 75@1.25.
Squash: Summer, 1.00@1.25; Italian, box, 1.00@1.25.
Tomatoes, Mexican, crate, 1.00@1.25; Imperial, 75@1.25: Merced, 75@1.00.

CITRUS

Per bx: Lemons, 5.00@7.00; lemonettes, 3.50; grapefruit, 3.00@5.00; oranges, 4.25 @5.50.

FRESH FRUITS

Wholesale selling price:
Apples: Newton Pippins, 2.50@3.25.
Apricots: Winters, 1.25@1.50; loose, 5@8; Royal, 5@8.
Bananas, 8@8½.
Blackberries: Southern, 2.00@2.50.
Cantaloupes: Demand and movement good, market steady, prices slightly higher. Street sales—green meats, wrapped and unwrapped, standards, mostly 2.25@2.50, few 2.75, ponys, mostly 2.00@2.25, few 2.50, flats 90@1.00.
Cherries, 1.25@1.50 per tray and drawer; bulls, black, 8@10; do, white, 8@10; Royal Anne, 11@12.
Currants, chest, 10.00@13.00.
Figs, 1.50@1.75 bx.; Brunswick, 1.25@1.40; whites, 1.00@1.25.
Gooseberries, ch., 9.00; lb., 6@8.
Loganberries, ch., 8.00@10.00; Black, 90@1.25.
Loquats, 6@8.
Peaches: Redbanks, 1.25@1.50; Sacramento, 1.25@1.75 cr., 1.25 bx.
Raspberries, cr., Los Angeles, 2.25@3.50.
Strawberries: Chests, 14.00@15.00.
Watermelons, lb., 2½@3.

GRAIN AND FEEDS

Barley, (1918 crop): Feed, 2.55@2.60 per cental; shipping, 2.65@2.70 f. o. b. Port Costa; new feed, 2.45@2.50.

Oats: Red feed, 2.20@2.40 per cental.

Corn: California yellow, 3.15@3.40 per cental. Egyptian, 2.75@3.25; Milo maize, 2.50@3.00.

Rye: 3.65@3.75.

Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.66 1-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 1-3

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran 43.00@44.00; mill run, 42.00@43.00; Rolled barley, 52.00 @54.00. Linseed oil cake meal, nominal; cocoanut cake or meal, 41.00@42.00 per ton.

HAY

Under date of June 14, Scott, Magner & Miller says:

Receipts past week 1203 tons; about the average maintained for some weeks. A good part of this has has been of the new crop, both first cutting alfalfa and volunteer oat containing more or less clover together with some good No. 1 wheat hay which has been arriving from the San Joaquin and Antioch sections. This latter grade of hay has found ready sale for the reason that it is good length and color and the bales are light. Alfalfa seems to be doing better than most other grades owing to the fact that a great deal of it is being ground into meal and milling companies have been buying their requirements to keep the machines going. As high as $12 in the stack has been paid for this purpose.

We quote today wholesale prices in carload lots for old hay as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat Hay (light 5 wire bales)	19.00@21.00
No. 1 Wheat or Wheat and Oat Hay	16.00@18.00
No. 2 Wheat or Wheat and Oat Hay	12.00@15.00
Choice Tame Oat Hay	17.00@19.00
Other Tame Oat Hay	12.00@15.00
Wild Oat Hay	11.00@14.00
Barley Hay	11.00@14.00
Alfalfa Hay	15.00@19.00
Stock Hay	11.00@13.00
New first cutting Alfalfa, in order	10.00@13.00
No. 1 Barley straw, bale	.50@80

Citrus Markets

Los Angeles, June 18, 1919.

The liberal shipping of a couple weeks ago tended to somewhat demoralize the market. There has been a slight recovery, however, some sales of Valencias reaching the $7.00 mark but a vast number going nearer the $3.00 mark. There has been great diversity in quality, poor keepers commanding extremely low prices.

Lemons are not meeting with the long prices of last week as the weather has materially modified. The market is, however, in fine condition.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California; oranges 25,221 cars, lemons 6580, total 31,801. To same date last season; oranges 11,105, lemons 3591, total 14,696. Central California this season; oranges 4394, lemons 354, total 4748. Last season to same date; oranges 2527, lemons 115, total 2642. Northern California; oranges 244, lemons 2; last year same date oranges 202.

WEATHER REPORT

San Francisco, California, June 14, 1919

Stations	Wk. Rainfall	Season. Rainfall	Temp. Max.	Temp. Min
Eureka	.14	39.80	60	46
Red Bluff	.00	26.19	92	52
Sacramento	.00	17.20	86	50
San Francisco	T	25.64	68	49
San Jose	.00	18.87	74	42
Fresno	.00	6.90	94	52
San Luis Obispo	.00	18.09	76	42
Los Angeles	.00	8.58	76	54
San Diego	.00	8.74	70	58

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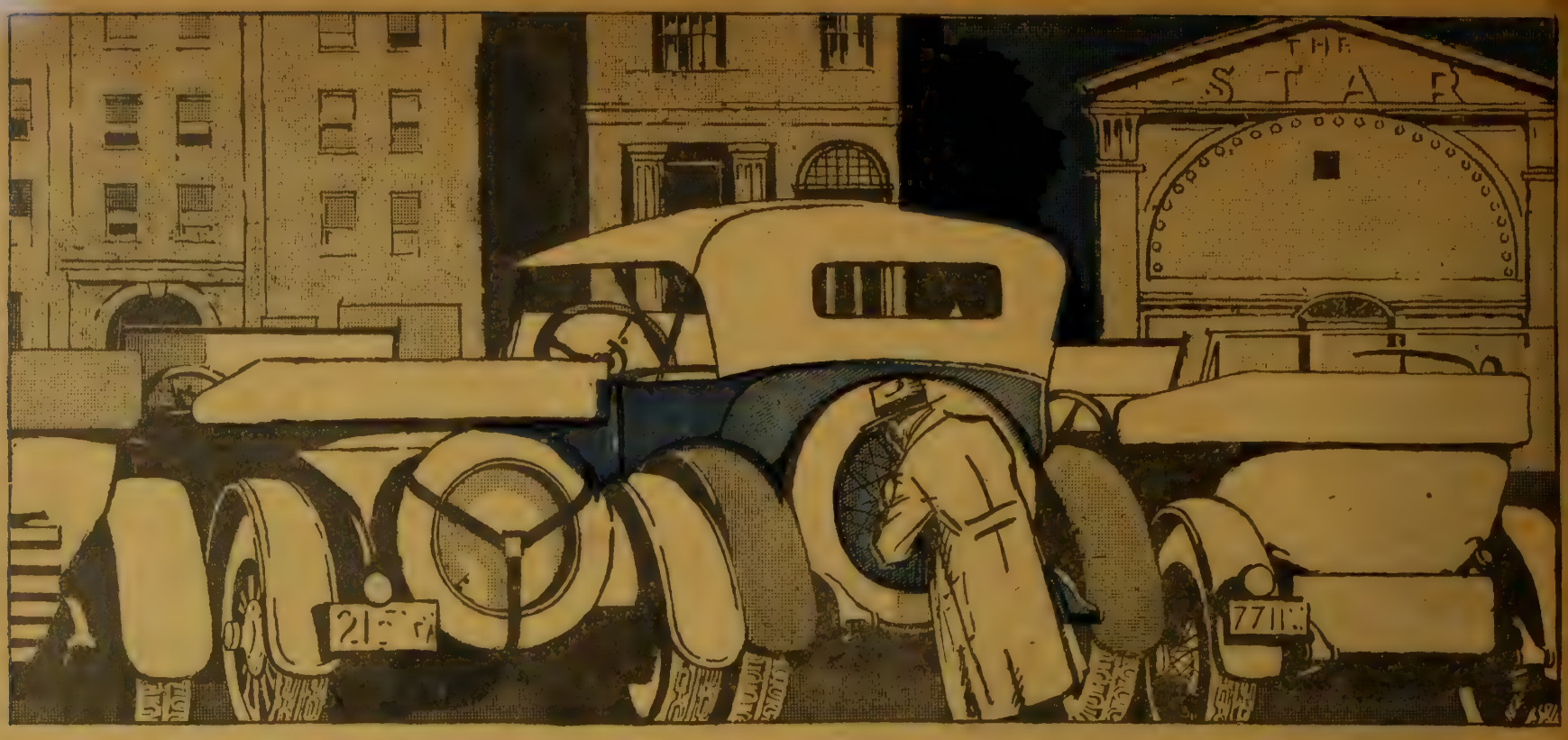
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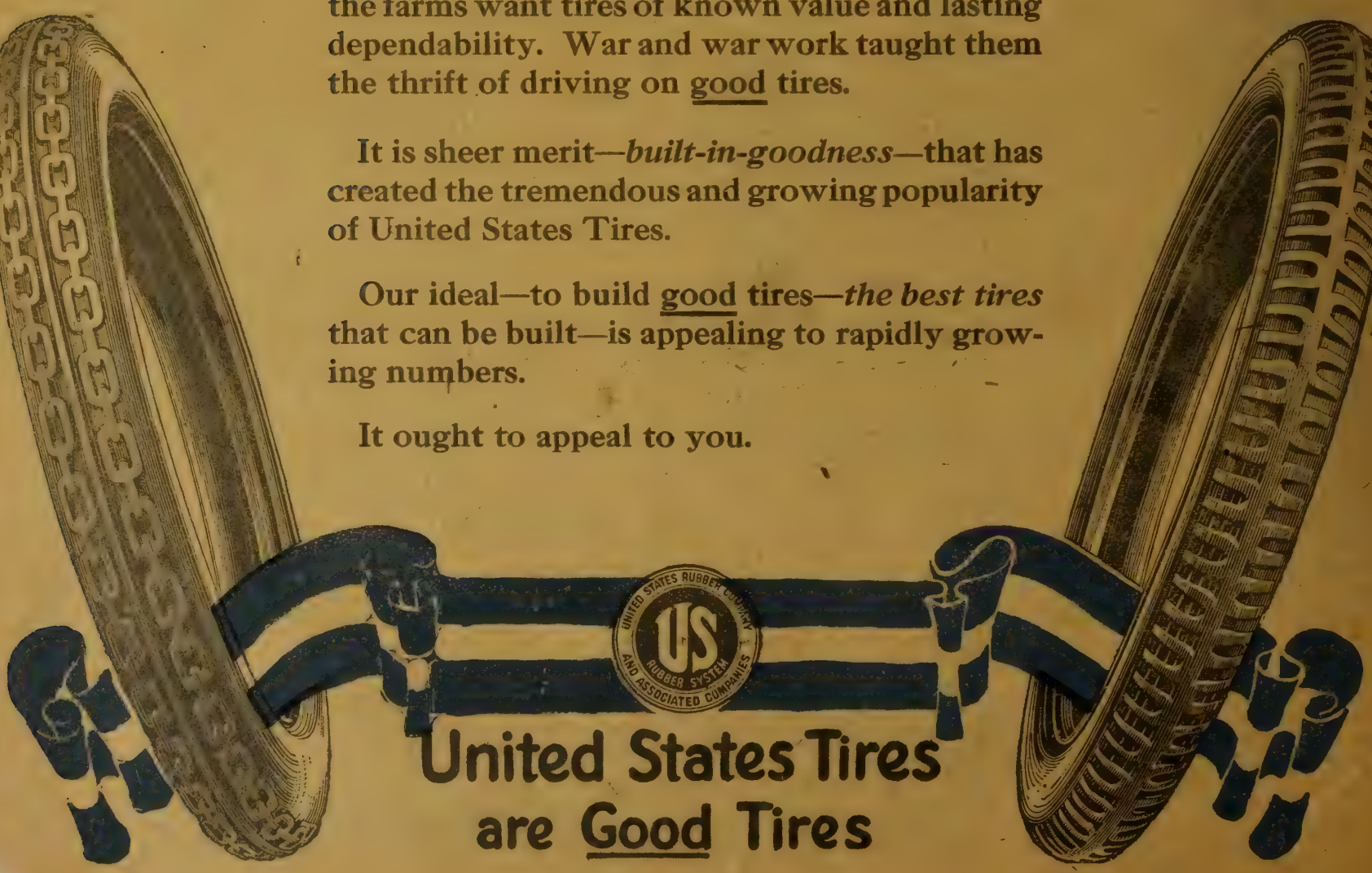
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United States Tires are Good Tires

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LII — June 28, 1919 — No. 26

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$26,000 Worth of Holsteins

Agricultural News Notes of the Pacific Coast

Northern California

Oroville, Butte County, is shipping liberally of plums.

Yolo County is contemplating the planting of ramie and other fiber plants.

Sacramento County shipped approximately 150,000 carloads of strawberries this season.

One sugar beet producer in West Sacramento averaged something over a ton of seed per acre.

The recent sale of the stock and implements of the Vina Ranch brought exceedingly low prices.

It is now estimated that California's output of fresh deciduous fruits will be about 25,000 carloads.

Redding, Shasta County, farm center voted unanimously in favor of repealing the daylight saving law.

One Butte County hog grower recently made a shipment of hogs netting him $4,000, an average of $74 per hog.

The Sacramento Valley's wheat crop is said to report a better average of condition than any other section of the state.

Oroville is planning to make a concerted fight on citrus blast, a serious disease of orange and lemon trees in that county.

The state land colony at Durham, Butte County, is planning for a fair and live stock sale to be held some time this fall.

"Fight the hoppers" is the slogan of grain grower, vineyardist, gardener, in fact almost every producer of the Sacramento Valley.

The poultry school recently held by the department of agriculture at Grass Valley, Nevada County, was attended by about 100 poultry people.

Nearly all farm bureaus in the Sacramento Valley have heartily endorsed the $40,000,000 good road bonds which will be voted upon July 1.

Colusa County Bartlett pear growers have contracted much of their coming output at $85 per ton. Best of canning apricots command around $110.

Chico chamber of commerce is working for an irrigation project covering a portion of the northern part of Butte and southern part of Tehama County.

The coming season's crop of Tokays in Lodi, San Joaquin County, will be handled through 22 great packing houses. The best prices yet obtained have been around $40.

Ranchers of Eldorado County are appealing for more water. It is said that about 6,000 acres have been signed up in an effort to form a Wright irrigation district.

The United States food administration through its grain corporation has granted an increased allowance to grain producers on sacks from three and one-half to four and one-half cents per bushel. It is stated that this will save California farmers $200,000.

California Fish and Game Commission has installed sets of compact nature study libraries at the Tahoe national forest. The libraries include books on birds, wild flowers, trees, and kindred subjects. The books were donated by the California Nature Study League.

Central California

Merced reports the grasshopper pest under control.

The bean crop of the valley is moving very rapidly.

1919 Muscat grapes are commanding around 10 cents.

Dried apricots have been quoted as high as 28 cents to the grower.

Merced County is making a fight against disease bearing mosquitoes.

The Tulare County citrus section reports transfer of many citrus groves.

Tulare is planning for one of the best equipped cooperative canneries of the state.

Lodi is overhauling Tokay packing houses and preparing for record crops and record prices.

Stanislaus County farm bureau holds fat lamb auction at Modesto Friday this week.

Paso Robles orchards are being defoliated by grasshoppers, and an organized fight is being put up.

Lodi grape growers are appealing for a supply of at least 75 cars a day during grape shipping season.

Growers of Oakdale, Stanislaus County, have harvested practically all their small fruits and cherries.

The weather has been so cool this season that apricot drying has not proceeded as satisfactorily as usual.

Tulare Lake bottom will grow fortunes for wheat growers this year. Some of the fields are averaging 20 sacks per acre.

The coming output of raisins will be the largest in the history of the industry. It is expected to reach at least 200,000 tons.

The San Jose Grange Patrons of Husbandry has decided against affiliating with the recently organized national farm movement.

Tulare County Cantaloupe Growers Association, with headquarters at Porterville, reports fruit maturing very rapidly despite low temperatures.

Merced County is having a fight between those who are working for an irrigation district and another faction endeavoring to block the advancement.

Oakdale, Stanislaus County, Almond Exchange has elected the following officers: C. C. Turner, president; William Minney, secretary, and W. A. Tucker, vice president.

Veterinarians have given warning to some cattle owners to be careful in pasturing stock on lush young Johnson grass, as it is claimed it sometimes contains a poison.

A recent election of the California Peach Growers resulted in the selection of the following directors: F. H. Wilson, Chris. Jorgensen, John Rordan, Warren A. Wood, C. A. Rice, W. J. Wilson, J. F. Niswander, Ward A. Minturn, H. P. Bowman.

San Francisco consumers and merchants have declared a boycott on strawberries because of the high price. One of the daily papers is egging the matter on and suggesting placards stating that fresh strawberries are not served. Perhaps the strawberry growers will be content to wear less of city-made clothing and some other things the profits from which are dear to the hearts of the urban folks.

Southern California

Orange County is growing beet seed.

Limas have not yet reached 10 cents, but it is promised.

The hot days around June 1 have caused a drop of many little oranges.

Farm bureaus of San Diego County are discussing the holding of a county fair.

Stock is now all subscribed for the date packing house to be erected at Indio.

Some walnut growers think the coming year's output will pass 25,000 tons.

Brawley, Imperial County, recently shipped a carload of cantaloupes to Havana, Cuba.

Experimental plantings of pineapples have been made in the Imperial Valley and very successful results secured.

The sorghum mill at Pomona is planning for a larger run than last year. A new two-ton press is being installed.

Riverside-San Bernardino Counties Cow Testing Association reports its banner cow for May as producing 69.70 pounds of fat.

The Automobile Club of Southern California is putting out signs giving warnings as to fire danger in grain fields as well as in forests.

Farmers at La Verne, Los Angeles County, are proposing the construction of a dam across Live Oak Canyon for storing flood waters.

Riverside County fire warden is again on the job. A great reduction in grain fires is reported as a result of the warden's work last year.

A Palo Verde Valley farmer is proud of an experimental acre of sugar beets which he maintains will show close to 30 tons per acre.

It is estimated that the "peak" of the Colorado flood will be reached about July 5. No trouble is expected by Imperial and Yuma farmers.

The farm bureaus are discussing as to possibilities of a state-wide postcard ballot to secure the wish of the members on various agricultural questions.

The San Bernardino County board of supervisors has recently ordered the road supervisor to clean and improve wells and springs along desert highways.

An effort is being made in Riverside, San Bernardino and Orange Counties to create a mosquito abatement district to cover the entire valley of the Santa Ana River.

Airplanes from March Field are now patrolling the mountains from Lake Hemet to Cahuilla twice daily. Machines from the San Diego field cover the mountain districts south and west of this section.

Citrus growers at Rialto, San Bernardino County, are making a campaign to protect themselves from automobile thieving parties; also against the citrus packing houses dumping culls in conspicuous "washes".

The California Walnut Growers Association is receiving hundreds of inquiries as to the terms of its contest for $10,000 offered for the perfection of a walnut branding device. All entries in this contest must be in hand by July 1.

The Coast and General

Canadian capitalists are making paper from banana leaves in Mexico.

Alfalfa hay is selling for $14 per ton, wheat $3.38 per hundred, barley $2.50.

Farmers at Salmon, Idaho, are raising a thousand acres of peas for canning.

A $5,000,000 beet sugar manufacturing company has been organized in Japan.

Oregon's promise of a big apple crop is inducing building of much larger storage facilities.

Missouri state poultry show is to be held at Sedalia, August 9-16 in connection with the state fair.

The Nevada Live Stock Association is favorable to government regulation of grazing and public ranges.

The wheat crop in Arizona is estimated to be 1,000,000 bushels, probably the heaviest yield for many years.

A new cotton oil mill is to be built this season at Phoenix. This will make three in the Salt River Valley, Arizona.

Lane County, Oregon, is producing a large quantity of rye. It is a favorite for pasturage with dairy people of that section.

Fire in a hay warehouse at Peoria, Arizona, on June 10 destroyed hay valued at $6000 and a carload of wheat valued at $3000.

One county in Oregon produces about 2,000,000 pounds of prunes which have been contracted for this year at around 16 cents.

New York apple growers are compelled to pay 65 cents per barrel for their cooperage. This, however, is 20 cents under last year's contract.

A strike of linemen on the Roosevelt power plant has temporarily curtailed power derived from the water from the Roosevelt Dam, Arizona.

The Oregon voters have indorsed an increased tax levy for good roads building and also contemplate a $10,000,000 good roads bond election.

An effort is being made in Oregon to merge all of the fruit growers county and state cooperative organizations into one state association.

Wenatchee Valley, Washington, production of apples this year will run about 8,700 carloads. This is about five per cent increase over last year.

Georgia has planted more largely to pecans this year than formerly. The growing of this nut is becoming a great business in some sections of the South.

The school census of Maricopa County, Arizona, shows an increase of more than 2000 over the census figures of 1918. The population of Phoenix, the capital city, has increased nearly three times since the census of 1910.

The new commission of agriculture and horticulture of Arizona, conforming to the law passed by the last legislature, is composed of A. Kimball of Graham County, who is a member of the old commission; E. W. Hudson of Maricopa County, who has done more to develop the long staple cotton probably than any other one man; and A. Y. Greer of Yuma County, an old time resident and cotton man. This commission will meet at Phoenix very shortly for organization and appointment of the officials of the commission for the ensuing year.

Information for the New Exhibitor

By R. P. Royce

FROM all parts of the state reports indicate that there is more interest being manifested in the fall shows and fairs by live stock breeders than ever before, and many men will exhibit for the first time. Such being the case it might be well to outline in a general way the usual classification adopted by shows and fairs and to offer some hints and suggestions to the beginners—and to remind some of the older exhibitors that they can save themselves much time and money and in some cases loss by paying careful attention to details.

The importance of live stock shows is too generally recognized to require any argument from the writer. Suffice it to say that exhibiting at county, state and district fairs is one of the most valuable methods of attracting the attention of the public to one's productions—it is a method of publicity that no breeder can afford to overlook. Not only will he derive much benefit from such publicity, but any breeder—even the oldest—can not fail to learn a great deal not only as regards the other fellow's stock but of his own as well. The man who does not make a practice of exhibiting or attending shows is very apt to get an entirely too high opinion of the value of his herd or flock. A real show with stiff competition is about as effective a cure for conceit as can be called to mind.

Practically all shows and fairs of importance have adopted the standard classification recommended by the American Association of Fairs and Expositions.

The basis of classification is the separation of breeds and competition within the breed divided on the basis of sex and age. Only in the group classes do males and females appear in the same ring. Inter-breed competition does not occur except at the most provincial shows and in the fat classes —steers, wethers, barrows, etc. — at the larger shows. Animals eligible to show in breeding classes do not come into competition with other breeds.

Animals eligible to compete in the various classes at a show of importance must of course be registered pure breds.

In making entries for showing the breeder should write to the secretary of the fair for a premium list and proper entry blanks. The premium list gives the classifications offered, the breeds recognized and the rules and regulations of the association holding the fair or show.

With these in hand, and a knowledge of the animals one intends to show proper entries can be made.

The standard classification for beef cattle is:

1. Aged bull.
2. Two year old bull.
3. Senior yearling bull.
4. Junior yearling bull.
5. Senior bull calf.
6. Junior bull calf.
7. Aged cow.
8. Two year old heifer.
9. Senior yearling heifer.
10. Junior yearling heifer.
11. Senior heifer calf.
12. Junior heifer calf.
13. Senior champion bull.
14. Junior champion bull.
15. Grand champion bull.
16. Senior champion female.
17. Junior champion female
18. Grand champion female.
19. Aged herd.
20. Young herd.
21. Calf herd.
22. Get of sire.
23. Produce of dam.

For dairy cattle the same classification is commonly used, although many fairs, our state fair included, add an additional class for cows "four years old or over."

For swine the classification is:

1. Aged boar.
2. Senior yearling boar.
3. Junior yearling boar.
4. Senior boar pig.
5. Junior boar pig.
6. Aged sow.
7. Senior yearling sow.
8. Junior yearling sow.
9. Senior sow pig.
10. Junior sow pig.
11. Senior champion boar.
12. Junior champion boar.
13. Grand champion boar.
14. Senior champion sow.
15. Junior champion sow.
16. Grand champion sow.
17. Aged herd.
18. Young herd.
19. Herd bred by exhibitor.
20. Get of sire.
21. Produce of dam.

For draft horses the usual classification is:

1. Aged stallion (five years old or over; this class used at large Eastern shows).
2. Stallion, four years old or over.
3. Stallion, three years old and under four.
4. Stallion, two years old and under three.
5. Stallion, one year old and under two.
6. Stallion foals.
7. Aged mare (same as number 1 above).
8. Mare, four years old or over.
9. Mare, three years old and under four.
10. Filly, two years old and under three.
11. Filly, one year old and under two.
12. Filly foal.
13. Senior champion stallion.
14. Junior champion stallion.
15. Grand champion stallion.
17. Senior champion mare.
18. Junior champion mare.
19. Grand champion mare.
20. Get of sire.
21. Produce of dam.

Sheep are classified as medium wool, long wool and fine wool, and the following classification is most common:

1. Aged ram.
2. Ram, one year old and under two.
3. Ram lamb.
4. Aged ewe.
5. Ewe, one year old and under two.
6. Ewe lamb.
7. Champion ram.
8. Champion ewe.
9. Pen of four lambs bred by exhibitor.
10. Pen of four lambs get of one sire.
11. Flock, one ram, any age; two ewes, one year old and under two; two ewes under one year.

As stated above the classifications are based on ages and for the purpose of computing ages certain "base dates" are used. The base dates for the beef breeds are January first for juniors and September first for seniors. In other words an aged bull or cow must be three years old or over on Setpember first of the year in which she is shown. A two year old bull or heifer must be two years old and under three on September first of the year shown. A senior yearling bull or heifer must have been dropped between September first two years before the show and January first of the year preceding the year of the show. In order to show as a senior yearling this year an animal must have been dropped between September first, 1917, and January first, 1918. A junior yearling bull or heifer to be eligible in class in 1919 must have been dropped between January first, 1918, and September first, 1918. A senior bull or heifer calf for 1919 must have been dropped between September first, 1918, and January first, 1919, and a junior bull or heifer calf must have been dropped since January first, 1919.

The best dates for dairy cattle are February 1 for junior classes and August 1 for senior classes.

For swine the base dates are March 1 for junior classes and September 1 for senior classes.

Horses, mules and sheep all have January 1 as the base date and ages are reckoned from that date.

The group classes for beef and dairy cattle are practically the same at all shows. The aged herd consists of one bull two years old or over, one cow three years old or over, one heifer two years old and under three, one junior yearling or senior yearling heifer and one junior or senior heifer calf. Most fairs require ownership of all at time of entry but do not require that all have been bred by the exhibitor.

The young herd consists of one bull under two years old—either a senior or junior yearling or a senior or junior calf, and two heifers of like ages. Only the heifers need to have been bred by the exhibitor, but both the bull and heifers must be owned by him.

The calf herd is composed of one bull and two heifers, all under one year old and all bred and owned by the exhibitor.

The get of sire class consists of four animals of either sex that are the get of the same sire. The different fairs have different rules regarding this class. Most fairs do not require the exhibitor to own the sire and even permit the owner of the sire to borrow four animals from the owners and compete.

The produce of dam class requires two animals of either sex the produce of the same dam. Various fairs make different rules as to the necessity for ownership by the exhibitor.

In the swine classification the show management may or may not require that the aged herds and young herds be bred and owned by the exhibitor. In any case an aged herd consists of one boar and three sows all of which must be one year old or over and a young herd consists of a boar and three sows all under one year of age.

The get of sire class consists of four animals of either sex the get of one boar. A fair management may or may not require that all be owned or bred by the exhibitor.

The produce of dam class requires four animals of either sex the produce of one sow. A fair may or may not require ownership of all by exhibitor.

The group classes for horses and sheep depend upon the requirements of the particular show.

In addition to the above classes there are many special classes introduced by various fairs and shows.

Most state fairs provide two classifications for the leading breeds: "open classes" and "state classes." Competition in the first is open to all and in the second is restricted to animals owned in the state. Many of the breed associations offer special prizes and a number of the leading associations sponsor "futurity shows."

Entries must be made in advance in all the "regular" classes and at the time of entry the name, registration number, age, name of sire and dam together with their registration numbers, and the address of the owner must be given.

The same animal can be shown in one individual class and in several of the group classes.

Entries are not required for championship classes as the winners in the individual classes automatically come before the judge for champion rating.

In cattle classes, the first prize aged and the first prize two year old bulls or females are eligible for senior champion. All others compete for junior champion. The grand champions are picked from the senior and junior champions. A fair may or may not give reserve championships — which really is a second to the champions.

In swine the senior champion boar and sow are picked from the winners in the junior yearling, senior yearling and aged classes; the junior champion from the first prize senior and junior boar and sow pig classes. The grand champion is selected from the senior and junior champions.

The championships in the other classes of live stock are arrived at in much the same way.

In addition to the above all fairs have various rules in regard to satisfactory evidence that animals are breeders.

Entries, together with requests for stalls and pens, and the necessary fees should be forwarded to the secretary of the fair or show as early as possible. By early attention to these maters, mistakes can be corrected, good locations and proper cataloging can be secured.

It is always advisable to make more entries than are needed as it very often happens that at the last minute some accident may prevent a particular animal getting to the show. Another point to remember—be sure to take all registration papers.

HOME GROWING OF SEED POTATOES

To hold the cost of potato production at a reasonable figure, department of agriculture officials advocate that greater attention be given by growers to the production of their seed stock. They believe that every grower would derive benefits from giving special attention to the removal of all plants not true to variety, as well as all diseased, weak or abnormal plants from a sufficient number of rows in his field to provide an ample supply from the remaining plants to plant the acreage desired the following year.

For example, the potato specialists say, if the custom is to plant 20 acres to potatoes, it would be necessary to obtain an ample seed stock, to weed undesirable plants from at least two acres. Time required for this work would be comparatively little.

If a large percentage of off type or diseased plants are found to exist in a field, tubers from it should not be retained for seed purposes unless a better source of seed supply is not available. In that case most careful and painstaking roguing to eliminate, so far as practicable, all mixtures and all diseased plants should be conducted. It will take a larger acreage to supply the necessary seed than will be the case where the stock is relatively pure and disease-free.

Established 1877 Forty-second Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Live Stock

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Combined with California Cultivator 1914

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Saturday, June 28, 1919

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

INDEX

Another milestone by the California Cultivator's roadside. Vol. LII is ended. Vol. LIII begins with next issue. Plans are laid for making it the most helpful of all.

A look over the index on pages 878, 879, shows the past volume to contain a vast fund of information on many subjects — mostly practical farmer-made stuff. The answers to queries alone make the volume worth preserving.

File the Cultivator and use the index to answer lots of farm questions.

GOODYEARS TO COAST

The announcement of the erection by the Goodyear Rubber Company of a twenty-five million dollar manufacturing plant at Los Angeles means much to the Pacific Coast. One feature of the plant is a cotton mill which will make use near home of a large quantity of California and Arizona grown cotton—the first in quality in the world.

Now give us more roads that we may "burn up" more good year tires.

GRASSHOPPERS

From nearly every section of the state come reports of raids of the grasshopper hordes. It may be a bit late to make the suggestion, but these pests should have been destroyed last October and November by plowing vacant lands which are usually their breeding places. However, organized fights are now being made in many of the counties of the state. The most successful methods of combating the pest are given on fifth page of this issue.

PEACE

The tearing to shreds of a solemn obligation and considering a treaty between nations a scrap of paper has been punished with awful cost to all the world, but now another treaty has been entered into. It proclaims a peace, the maintenance of which shall not be dependent upon a despot without honor, but one which is to be enforced by a League of Nations, and, in addition, let us all hope it will be a treaty which shall always be honored by all people.

OBSERVE NATION'S BIRTHDAY

The celebration of the birthday of our nation will have deeper meaning this year than any preceding year. A year ago its observation was almost an international affair, but the liberties of the world, for which our Independence Day was observed, have been safeguarded to a far greater extent than we dreamed a year ago. So all the world will this year, even more than last, celebrate with Americans the new liberties and the new peace which has been won.

TAX THE OLIVES

The Oroville chamber of commerce is wiring to olive interests of Southern California asking as to any steps that may be taken to increase the tariff on imported olives. California's olives have won a name for themselves and as a food proposition are so superior to imported olives that this quality alone means a measure of protection, but with the cheaper labor of southern Europe, the "pickles" imported are to an extent a menace to this great California industry. Let the olive growers get together—get busy. The rest of the country won't protect them if they don't want to be protected.

SAVING THE DAYLIGHT

For a little matter of only one hour of time the daylight saving enactment has stirred up a lot of contention. From all we have seen in Eastern papers we think California has, however, been getting off with a minimum of contention in this particular campaign. However, there are those who think California farmers should have put more energy into the fight. The fight, though, is won, so far as congress is concerned, or will be with the expiration of the present summer season, for congress has acted to make the date of the effectiveness of the new law or rather the repeal of the old one, October, next. But, criticizing our former editorial, Hon. George W. Ashley, president of the San Joaquin Table Grape Growers' Association, writes:

I notice your editorial on daylight saving. In it you say that California looks on with indifference. Possibly. I will say, however, that I do not of my personal knowledge know of a farmer in favor of it. On account of the dew it is a nuisance to the grain and bean thresher, and to the table grape grower in picking time it is worse than a nuisance. It costs thousands of dollars to the farmers of every locality.

APRICOTS

California's output of apricots will not reach into the "billions," but it sure will be some crop this season. The labor situation has been a bit strenuous, but with the high prices, prospective or actuallly guaranteed by contracts, the producers have offered wages which have secured liberal response in most sections. Fortunately the ripening season varies sufficiently in the different sections that it is possible to plan for a shifting of labor from one to the other. For instance, interior valleys, Hemet and others of the earliest sections, will soon finish. Orange and Ventura Counties, especially the later, will not begin drying until the 10th, or possibly the middle of July. These sections are asking for harvesters from the earlier ones to "come over and help us." The value of last year's crop was around $8,000,000 from 40,000 acres of bearing orchards. With a crop practically up to normal and prices the highest known, this year's output will exceed last year's many times.

DEMONSTRATE

The tractor is having a discussion with itself as to whether its efficiency may not be better shown by a still exhibit than in competitive or private demonstration. The state fair and, in fact, all the other fairs, are encouraging the still exhibit, and perhaps in those cases where the intense interest which is shown in a real tractor demonstration necessarily detracts from other features of the fair, this is most wise. Also space for satisfactory demonstration is impossible at a fair. There is something fascinating about action and in seeing modern equipment demonstrate its power to do things economically and the crowds follow the dust of demonstrators. Hence for the fair it appears the still exhibit is best.

On the other hand there is great advantage to the would-be purchaser of improved equipment in seeing the expert handling his machines and implements under certain difficulties, and it has been the custom of the tractor demonstrator to pass it up to the would-be purchaser to describe the particular job he has in mind and then to show him how the tractor and its accompanying implements can do that particular job.

Unfortunately, or perhaps more correctly, fortunately, the last two or three demonstrations have been held in fields with extremely intractable soil conditions. We well recall that when the Cultivator camera was endeavoring to get a photograph of a plowing scene in which two men were trying to force the point through adobe so hard that the point was fairly smoking, the dealer appealed to the photographer to "be reasonable and please never show that implement under those trying conditions."

Notwithstanding that and many other such instances these demonstrations have been wonderfully beneficial. Farmers have seen the methods of work and been inspired to perfect the equipment of their farms and dealers have sold many implements because of them. It is barely possible that some would-be buyer may have deferred his purchase until he could become better informed, possibly through private demonstration, but, admitting this, it is only proof of the advantage of these demonstrations.

GOOD ROADS FOR THE FARMER

One of the hardest workers for the success of the good roads bonds which will be voted upon next Tuesday has been the Automobile Club of Southern California. This organization has also had a powerful influence in advancing good roads interests in all parts of California for many years. In its endeavor to secure the best of information as to the value of good roads from every standpoint it has need to look with the eyes of the farmer. The club has asked George P. Clements of the agricultural department of the Los Angeles chamber of commerce to give his estimate of the value to California farmers of California good roads. Mr. Clements writes:

Rome built wonderful roads to expedite the movement of her legions and to make accessible the remote portions of her empire. Rome built for the future generations. Many of these roads are still serviceable. With us, likewise, accessibility seems to have been the prime reason for our first stride in this direction toward good road systems. but speed, comfort and economy, as well as convenience, have been the great contributing causes of our later undertakings which have made us known the world over as the road builders of the twentieth century.

The automobile has been the great plane which smoothed our high ways. The motor manufacturers have been successful in getting the farmer out of the rut, as well as aiding the soldier in the trenches. The economic value of the good roads system is beyond the power of the statistician to reckon. It has linked up agricultural districts with the cities, has reduced to a minimum time and expense in marketing the crop, has brought to the country all the city's glamour, comforts and social advantages, has given the farmer's children the same educational advantages as the city child, and under more healthy conditions; in fact, made him the envy of the less fortunate city brother; while it has taken the merchant, capitalist and business man into the agricultural districts, broadened his views agriculturally, shown him the full strength of the nation's collateral and given him business opportunities of which he never dreamed. It has opened up avenues for investments and put him in closer sympathy with the producer through the full realization not only of his needs, but his ability to fulfill his obligations.

THIS WEEK'S COVER

Early this month A. W. Morris & Sons of Woodland sold four head of Holsteins in the National Sale at Philadelphia for $26,000, an average of $6500 each. The yearling bull Sir Aaggie Mead De Kol brought $11,000; Tilly Alcartra 2d, a three year old daughter of the "Wonder Cow," sold for $11,200; the yearling heifer, Lady Marco Alcartra, sold for $2150, the second highest priced female in the sale, and was only topped by the world's record 51 pound cow. The two year old heifer, Lady Mead Salambo, sold for $1700. Aside from the fact that the four California entries made the highest average of the sale, as well as establishing several other records, they carried to the East added proof of the possibilities of this state from the standpoint of superior live stock production.

California breeders, as well as others, can gain an important lesson from the sale of those four Holsteins. The Morrises weren't "lucky"—they have simply applied a high order of intelligence to their breeding operations, and have had the courage and faith necessary to carry them through the vicissitudes that beset the paths of all. What the Morrises have accomplished can be equaled by others—but not with less hard work and persistency than the Woodland breeders have given their work.

The Harvest is Great and the Laborers Are---?

AS yet the labor situation seems to be more in anticipation than in realization. There is no surplus labor in sight. All are busy, but so far as definite statements have come immediate needs are met. There has been much of planning and organizing in preparing for the harvest period. As a rule, however, wages being paid are high, and with fruit prices of this year this is possible. Apricot growers feel that $100 a ton fruit justifies taking extreme care of every ounce of it.

Another feature of this season's effort to secure labor has been more general attention to housing, care and comfort for the laborers. Too often in the past the blanket man was expected to come and give satisfactory service without any attention being paid to his food or opportunity to rest or have enjoyment. In this particular the San Joaquin Valley has taken more advanced steps than other sections. As an indication of this we quote from a recent issue of the Fresno Republican:

Kingsburg farmers decided to prepare for better housing of farm labor, at a meeting held at the Kingsburg high school building last night. The meeting was called by the farm bureau, and presided over by Director C. E. Ericcson. Farm Adviser LeRoy B. Smith attended. O. V. Cobb, manager of the Valley Fruit Growers Association, spoke on housing problems, and the distribution of labor during the fruit picking season.

To meet the demands of the new state housing law, which goes into effect July 21, it was planned to invite a representative of the state commission of immigration and housing to attend a mass meeting which may be called in a few days. Director Ericcson will also name a farm bureau labor committee of three men to cooperate with the Valley Fruit Growers Association in supplying labor for the apricot harvest now beginning. Extensive drying operations are predicted in Selma and Kingsburg within the week.

W. H. Say, director of the Selma farm bureau center. was present and planned to bring the labor situation before the farmers of Selma. It appeared to the directors that the new housing law as applied to small farmers will work such hardships on individuals that community camps offer about the only solution. The state officers are to be asked to explain the law, and Byron W. McKeen of Kingsburg, a member of the assembly, will also be conferred with and asked for his interpretation. Numbers of families are coming into the country with camping outfits on their cars, and the small ranchers are anxious to know whether the state will require any more shelter than the campers are providing for themselves.

As noted in the letter from Mr. Cobb, quoted on last week's editorial page: "There should be no shortage of help during harvesting season, especially as we are perfecting a system of the proper distribution of labor, we shall then have at hand and avoid wastage of time, in securing new jobs for men and placing them at work which has been so common in the past."

Farm Adviser Smith of Fresno County Writes:

The Fruit Growers Association is the farmers farm labor employment bureau. This association working closely with the federal employment office handles the farm labor situation in such a way that it is not necessary for the farm adviser's office to serve as an employment agency. We do, however, cooperate in every way possible with the employment service mentioned.

During the current months at Farm Bureau Center meetings, we are discussing the farm labor situation. Representatives of the Valley Fruit Growers Association are present at the meetings to explain how the association is handling the farmers' calls for assistance and what they are doing to secure a labor supply. In these discussions at the farm bureau center meetings, farmers have been discussing hours of labor, wages, "cook time", camp conditions and all other conditions relating to farm labor. The discussions at these meetings are proving very helpful in that farmers here learn what is going on in different communities.

Geo. C. Roeding of Fresno.

Labor is rather scarce but as far as I have been able to learn, we are getting such help as we need, although wages are running very high. We are paying men where they are being boarded at the rate of $2.50 a day and when men are boarding themselves, $3.75 a day for the general run of work.

From the Lima bean country former Farm Adviser Essig, now manager of the bean growers pool writes:

E. O. Essig.

I wish to state that I am not conversant with the labor situation of this country now nearly as well as when I was farm adviser, and can only say that so far as my knowledge and experience goes at the present time, I have heard of no complaints as to a probable shortage of labor for the coming harvest. Neither do I know of any steps being taken to prevent such shortage, although it is perfectly possible that the farm bureau has done something along this line.

C. C. Teague, Santa Paula.

While there has been no surplus of labor in this locality this year, we have gotten through quite comfortably. The peak of the load is over so far as the spring and early summer work is concerned, and I am inclined to think that with the lemon and orange picking pretty well out of the way there will be enough labor to take care of the harvesting of the apricots and the fall work.

Despite these favorable reports there has been some loss because of real shortage. Near San Francisco the strawberry packers suffered quite serious losses. In addition we note in United Press dispatch quotation from a large raisin grower in the San Joaquin Valley:

"It takes from 15,000 to 18,000 persons to harvest the raisin grapes. We can provide all but between 7000 and 8000 of these at home. But we must import the 7000 or 8000 persons, and they must be brought here with the understanding that most of them will work only about two months."

The raisin production this year will aggregate approximately 200,000 tons.

The Women's Land Army is largely out of the work this year. However, we note in the Hemet News:

The farmerettes who came out from Los Angeles and helped in the Elsinore apricot orchards last summer, may come again during the coming season. Mrs. Janette Oswold, who chaperoned a party of 40 young women in the Elsinore district, was in that locality again on Wednesday and Thursday, seeking to find whether the services of the Los Angeles farmerettes will be welcomed the same as in 1918. She said that so many of the girls, who went up into the orchards last summer, have applied to her for similar work this season, that she is out getting information on the subject.

Also in the Lodi Sentinel:

The Woman's Land Army will arrive in Lodi today and take up summer quarters at the municipal park. There are 30 of these patriotic workers and they are ready to continue the great success of last year.

In Arizona and New Mexico.

J. O. Miller, farm help specialist serving Arizona and New Mexico for the United States department of agriculture, writes:

A careful survey of labor conditions in the Southwest shows that at the present time labor demand and supply are about equal. Here and there the demand is slightly in excess. The apparent supply, however, is about 15 per cent under normal.

When the peak loads come this summer and harvests are being cared for, there is likely to be quite a shortage. Unfortunately under the present practice among farmers, many laborers are on and off work, their employment being controlled by the farmer's emergency needs.

Because of the fact that the labor supply is below normal generally throughout the country, the "part-time" men are being recruited for fields where work is fairly permanent. More than 1,000 men have left New Mexico for the sugar beet fields of Colorado. More are going to Nebraska. The attractive proposition coming from the wheat fields of the Middle West will attract many more.

This situation should be brought to the attention of the farmers in every community. The farmer should be advised and encouraged to hold this labor for future use. The county agent, by virtue of his close connection with farmers of his community

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No Armistice---War to the Death

THE grasshoppers we have with us always; sometimes we have them a whole lot harder than others. This is one of hard years, and in addition this seems to be a year in which the high cost of living does not concern them and they have their appetites with them. The turkeys are getting fat, but everybody does not have a drove of turkeys to keep them down. The hopperdozer has been declared ineffective, or at least not so effective as other methods of handling. Next to fall plowing to completely break up the nests and destroy them, the most effective method today seems to be that of poisoning. Paris green or an arsenate are cheapest and usually thoroughly effective. Here is the formula and some notes by

R. de Ong:

The common formula calls for white arsenic or Paris green. Don't use lead arsenate instead; if so, the amount of arsenic in the bait is lowered to the point where the results will be disappointing. Lead arsenate paste contains from 12½ to 15 per cent of oxide of arsenic, while the article known as "white arsenic" contains from 95 to 98 per cent of oxide of arsenic. Grocery stores and general supply stores do not usually carry white arsenic, but only drug stores.

Where any quantity of bait is being used it is often more satisfactroy to dissolve the arsenic with sal soda and mix the poison into the bait as a liquid instead of a dust. When the latter form is used it is difficult to prevent breathing in more or less of the dust, this danger being overcome by using the liquid form.

The proportions are one part of white arsenic to two parts of sal soda (washing soda). Dissolve the soda in hot water and then add the arsenic, heating until all is dissolved. This should be done out of doors and considerable care taken not to breathe the fumes as they are very poisonous. The dissolved poison may be used in mixing up the bait in this way, giving a very uniform mixture. Or this poison solution may be used for succulent baits, such as alfalfa, which are simply dipped or sprinkled with the solution and then distributed, or the material may be sprayed over weeds where the grasshoppers are feeding. It should not be used on plants of any value for it is one of the most dangerous plant poisons we have, and also great care should be taken not to apply it anywhere that stock would have access to it in grazing.

Poisoned bait should be scattered very lightly, otherwise it dries out, is not eaten by the grasshoppers and becomes a menace to other animals, or, if left in quantities around the crown of trees may injure them. The broadcast grain seeder is one of the best means of distributing the bait, this giving a very uniform result capable of being regulated to any amount desired. The usual amount is five or six pounds per acre, repeating the application every few days where they are abundant or are coming in freely.

If the insects are feeding mostly on the trees and are seldom found on the ground, the amount of molasses should be increased to 1½ or 2 gallons per 25 pounds of bran. This makes it sticky enough so that it will readily adhere to the leaves and thus make it more available. Bait made in this way is too sticky to distribute with a seeder, but should be lightly sprinkled by hand through the tree top. Large lumps on the leaves or the crotches of the tree may cause

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A New Kerosene Engine

There is now no reason why every farmer in the U. S. should not be successfully using kerosene for engine fuel. This new 1½ H. P. size completes a *line* of

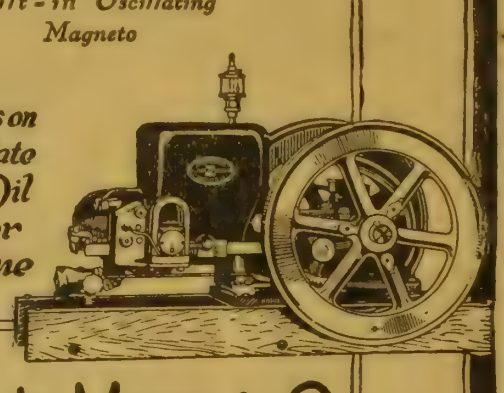
KEROSENE

engines—1½ to 15 H. P.—all of which deliver engine performance even in excess of your expectations. The local dealer who displays the "Z" sign—will show you the "Z" and explain why it is the best engine "buy" for you at these prices—1½ H. P. $61.00—3 H. P. $100.00—6 H. P. $179.00 F. O. B. Factory.

Throttling Governor—Built-in Oscillating Magneto

FAIRBANKS-MORSE Z FARM ENGINES
LOOK FOR THE DEALER WHO DISPLAYS THIS SIGN

Also runs on Distillate Coal Oil Tops or Gasoline



Fairbanks, Morse & Co.
MANUFACTURERS CHICAGO

run-STOP-Start

The trials of driving in the traffic prove the quality of Red Crown gasoline. Look for the Red Crown sign before you fill.

STANDARD OIL COMPANY
(California)

The Gasoline of Quality

RED CROWN GASOLINE

When writing advertisers, mention The Cultivator.

What New Varieties Shall We Grow, What Old Ones Discard?

Address by J. E. Bergtholdt Before Nurserymen at Riverside

THE nurseryman should be not alone a propagator of trees, but should qualify himself as an expert practical horticulturist; he should employ himself in trying out new varieties and variations from the true type of the standard varieties.

He should, however, under no circumstances catalogue or offer for sale any new variety or any variation from the true type of older varieties until he has absolutely demonstrated by every practical test, covering a reasonable period of years, that the fruit he is about to introduce is in both quality and productiveness superior to any similar variety ripening at the same time and that it is all that is claimed for it. No new varieties should be adopted for propagation by any nurseryman until this acid test has been conscientiously applied.

Old Varieties

It is a common practice of nurserymen to propagate a large number of varieties that should be discarded and others that are merely duplicates of other varieties of equal, or more, merit.

This method has caused untold loss to the planter who makes his selection from the promiscuous descriptions and recommendations of a nursery catalogue. It is of no benefit to the dealer, who prefers to handle only the best staple sorts instead of a conglomeration of varieties of the same kinds, and it has been a loss to nurserymen, who each year burn a lot of odds and ends of varieties for which there has been no demand and which cost just as much to produce as trees of the better sorts, and which, if better judgment had been exercised on the part of the nurseryman in making up his budding list would have shown a profit to his business instead of an addition to the brush pile.

Nurserymen should not catalogue and grow trees of every variety of fruit known to horticulture. A better plan is to thoroughly and reliably advise yourself as to the requirements of commercial fruit growing and catalogue only those varieties which are of the best standard proven commercial sorts and let your recommendations for the planting of each individual variety be a reliable compendium of practical information for the planter, instead of a lot of promiscuous misinformation that you have gleaned from some encyclopaedia.

Any assortment of nursery stock that comprises the best commercial sorts will answer to the same degree for the purpose of home orchard plantings.

To this end I would advocate, and in our own planting we follow, the elimination of varieties that are duplications of one another, choosing the better type, and the elimination of varieties that are not equal in merit of other varieties ripening at the same season and answering the same commercial purpose.

I give below a few suggestions in order to illustrate this principle:

Apples

What is the sense of cataloging 200 or more of the innumerable varieties of apples, when all requirements of the commercial and home orchard planters, of the dealer, and of the consumer, can be satisfied in the following selections of standard sorts, ripening approximately in the order named:

Liveland Raspberry, Red Astrachan, White Astrachan, Gravenstein, Alexander, Skinner's Seedling, Yellow Bellflower, Ortley, Jonathan, McIntosh Red, Grimes' Golden Pippin, Rome Beauty, Red Bietigheimer, Delicious, Spitzenberg, King David, Winter Banana, Rhode Island Greening, Winesap, Arkansas Black, Mammoth Black Twig, White Winter Pearmain, Yellow Newton Pippin.

Crab Apples

Hyslop, Red Siberian, Transcendant, Yellow Siberian.

Pears

There are a great many varieties, but all requirements for this fruit can be practically met in the selection of seven of these best standards:

Wilder, Bartlett, Beurre Clairgeau, Beurre Hardy, Beurre Bosc, Beurre d'Anjou, Winter Nelis.

Cherries

Early Burbank, Early Chapman, Black Tartarian, Giant, Royal Ann, Bing, Lambert, Llewellyn.

Yellow Clingstone Peaches

The requirements of the canner, for an early and late clingstone, are fully met by the Tuscan and Phillips. What is desired, however, is not more than two standard varieties of equal merit with the Phillips, ripening during the three weeks intermission between the Tuscan and Phillips.

In this the Hauss, known also as the Walton Cling and Johnson Cling—a seedling of Muir and of the same attributes as the Phillips—ripens immediately following the Tuscan and adequately fills that period of the intermission, and for the period of ripening immediately preceding the Phillips, or the last half of the intermission, the Libby, of equal quality, adequately answers the purpose.

To this end, for the present, we are cataloguing as follows:

Yellow Canning Clingstones

Tuscan, Hauss, Libby, Phillips, Levi.

White Canning Clingstones

McKevitt, White Heath.

Shipping Peaches

Mayflower, Alexander, June Elberta, Triumph, Hale's Early, St. John, Foster, Strawberry Free, Early Elberta, Elberta, J. H. Hale, Salway.

Drying Freestones

Elberta, Lovell, Muir.

Canning Freestones

Lovell, Muir.

Shipping Plums

Beauty, Tragedy, Climax, California Blue, Santa Rosa, Burbank, Wickson, Gaviota, Duarte, Kelsey, Satsuma, Diamond, Grand Duke, Hungarian, President.

Canning Plums

Greengage, Jefferson, Washington.

Drying Prunes

Sugar, Imperial, Robe de Sergeant, French.

Nectarines

New White, Stanwick.

Apricots

Newcastle Early, Royal, Blenheim, Tilton, Routier's Peach, Moorpark.

Almonds

Drake's Seedling, Nonpareil, I. X. L., Peerless, Texas Prolific, Ne Plus Ultra.

Quinces

Pineapple, Van Deman.

Persimmons

Hachiya, Tane-Nashi, Hyakume.

There are others of the dark meated sorts now being experimented with at the Chico Plant Gardens, those of which proving their adaptability to California conditions, and merit, may be added to the above three tried and proven varieties.

Olives

Manzanillo, Sevillano, Ascolano, Mission.

Eighty-five per cent of olive planting is to the Mission. Olive picklers, jobbers and dealers prefer the Mission on account of a combination of superior eating quality and, keeping quality not equalled by any other olive.

Walnuts

Franquette, Mayette, Eureka, Placentia Perfection, Concord, Wilson, Wonder.

Figs

White Adriatic, Calimyrna, Mission, White Endich.

Oranges

Oonshuii, Dancy's Tangerine, Washington Navel, Valencia Late.

Lemon

Eureka, Lisbon, Villa Franca.

Pomelo

Marsh Seedless.

I will not attempt to enter into details regarding the smaller fruits. Am offering what I have said as a suggestion for practical nurserymen. On the whole let us apply a greater degree of common business sence conscientiously exercised in our nursery business.

DRIED FRUITS AND VEGETABLES

Before we put our money into a drying plant let us be sure that there will be plenty of work for it to do. It will be wise for us to profit from the lessons furnished by the construction of local creameries and canning plants. Thousands of creameries have failed because there were not enough cows to support them and a good many canneries were built that learned to their sorrow that there were no vegetables to be canned.

Raisins, prunes, peaches, apples, etc., have always been in the market, but the war has taught us to develop new systems of dehydration, and now vegetables like the potato can be dried and preserved or made into potato flour. We may well be enthusiastic about the future industry of dehydrating fresh fruits and vegetables, preserving them thus for human food.

Community life being so complex, one thing depends upon another, and no matter what the growing conditions may be a system of roads which are passable at all times must be constructed in order to cut down the expense of transportation to and from the dehydrating plant or potato warehouse. A vinegar factory should be erected alongside of the dehydrating plant which can be equipped to distill crude alsohol for fuel, light and power on the farm.

1919 APPLES

The bureau of crop estimates says that the Watsonville district which shipped nearly 2,500,000 boxes of apples in 1918 has prospects for a ten per cent heavier crop this year. Newtowns, the principal variety, are about the same as last year, while Bellflowers are considerably heavier. The Sebastopol section is now estimated at about 750 carloads of which aproximately 500 will be Gravensteins. It is too early to forecast dried apple production although the Watsonville district is now forecasted at about 5,000 tons of dried apples, and Sebastopol at from 3,500 to 4,000 tons, which is almost equal to the very heavy production of 1918.

HOOD RIVER APPLES

The Hood River district of Oregon will ship from 2,000,000 to 2,250,000 boxes of apples in 1919 according to present prospects as compared with about 1,350,000 boxes last year. Hood River promises by far its largest crop. Other districts in Oregon are equally promising and promise bumper crops. The Rogue River is now estimated at 755 cars, the Mosier and Dufur section at 300 cars, and the Milton-Freewater section at 500 cars as compared to 250 last year. The state as a whole has prospects for nearly twice as many apples as in 1918.

BIG PEACH CROP

California's peach crop is now estimated at a 40 per cent increase over the crop of 1918 and ten per cent increase over the record crop of 1917. Ordinarily about ten per cent of the crop is shipped as fresh. If this proportion is maintained this year it will mean a fresh peach shipment of approximately 3,625 cars. Comparative prices for fresh, dried and canned fruits will, however, be the governing factor.

Book Review

VARIABILITY OF SOILS

"The Variability in Soils and its Significance to Past and Future Soil Investigations," is the title of Volume Four, Nnmber 5 of the University of California Publications in Agricultural Science. This is a purely technical and scientific publication written by D. D. Waynick and L. T. Sharp. It has to do with variation, magnitudes, statistical constants and a few other terms which make it of probable great interest and value to the scientific man and poor reading for the practical farmer.

GRAVENSTEIN CROP AT SEBASTOPOL

The Gravenstein output of the Sebastopol district of Sonoma County is estimated at 500 carloads as compared with 300 last year. This is the only highly specialized early apple district in the West.

PRODUCING NEW FRUITS

California has many a plant producer who is delving into questions of hybridizing and fruit selection to the end that a new and improved product shall be given to the world. These thinkers and observers are often responsible for great advancement in fruit growing or other producing interests. One of these men, J. M. Mack of Fallbrook, has done some experimenting and within the past few years has produced new grapes, peaches and other fruits. His latest is a new tomato, a solid meated fruit with but little cavity and but few seeds. The producer has greatly reduced the sharp acid taste so characteristic in most tomatoes.

THE GOLDEN WEST

One of the newest of California publications is the "Golden West," a semi-monthly magazine edited and published by Charles E. Stokes, 1428 Oak Circle, Los Angeles. It is an illustrated all around California magazine giving stress particularly to rural California and to beautiful California. The principal contributor is Carrie Lee Carter-Stokes, who has a way of writing of things Californian most interestingly.

HARD LUCK FOR SOMEONE

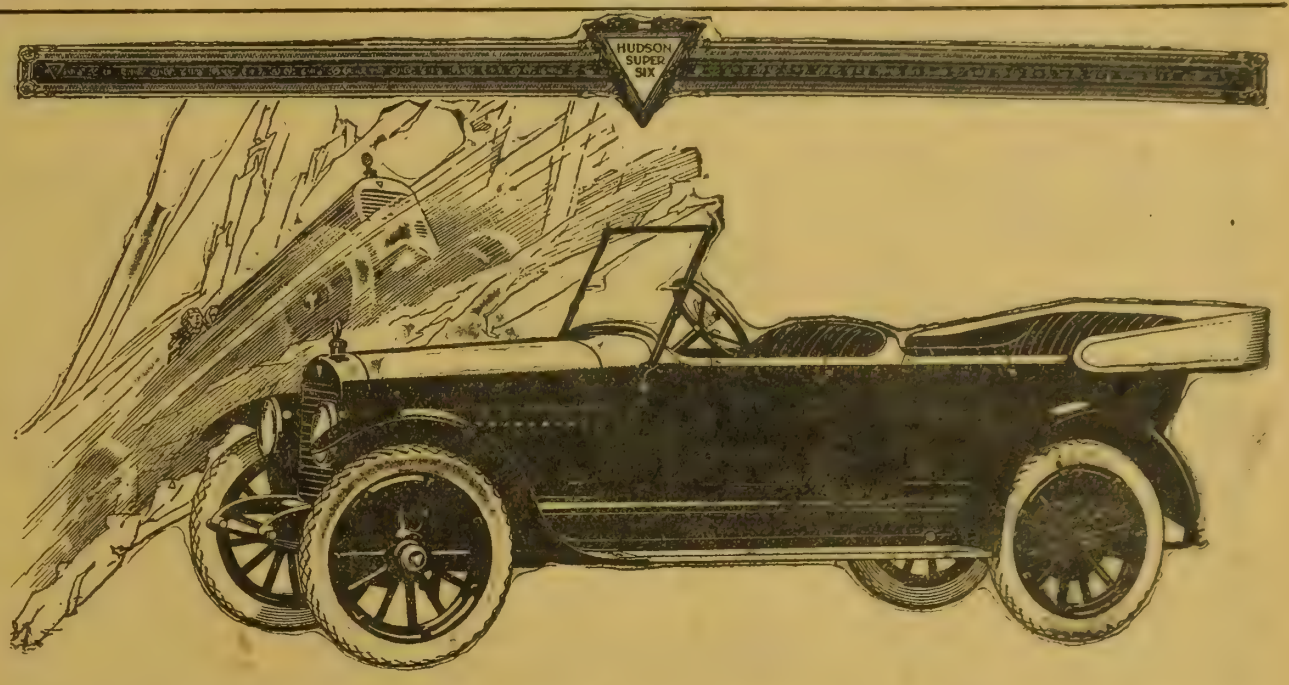
The monthly assizes were in progress at the mining camp of Howling Wolf, and the courthouse was crowded with a motley throng, who took a deep, if somewhat noisy, interest in all the proceedings.

The uproar got worse and worse, and at last the judge could bear it no longer.

An imposing figure, in a moth-eaten white wig, he rose to his feet and bellowed out:

"Gentlemen, and also prisoner, I must insist on order in the court house. Here I've tried four cases already, and haven't been able to hear a single word of the evidence."—Pearson's Weekly, London.

Good clothes do not always make the man, but they certainly help make an impression. A colored label on a box will not make high grade fruit, but it will help sell them.—Florida Grower.



$1975 Buys the New Hudson Super-Six

It Is Just Such a Quality Car As You Might Expect—Dealers Are Now Showing It

How often you must have heard users say the Super-Six is potentially the finest automobile that is built.

Four years with 60,000 cars in use have shown how to free it from many of the annoyances regarded as inevitable to all cars.

It expresses the attainment of an ideal long cherished but never before possible.

Experience Showed the Way

Hudsons have been leaders for ten years. The Super-Six was the result of six years' experience. It marked a new advance in motor cars, for it minimized vibration and added to endurance without sacrificing simplicity or increasing weight.

It gave 72% more power than other motors of equal size.

A new motoring pleasure resulted. There was power for any emergency. There were speed possibilities beyond the needs of any driver.

That was shown in its establishing speedway records that are known to everyone.

As a result the Super-Six became the largest selling fine car in the world.

Each year saw an advancement over previous models.

What was learned from cars delivered served to make subsequent cars finer and more durable.

The development in beauty kept pace with the improvement in mechanical detail.

Hudsons became pattern cars that the whole industry recognizes.

On That Experience A New Hudson Was Built

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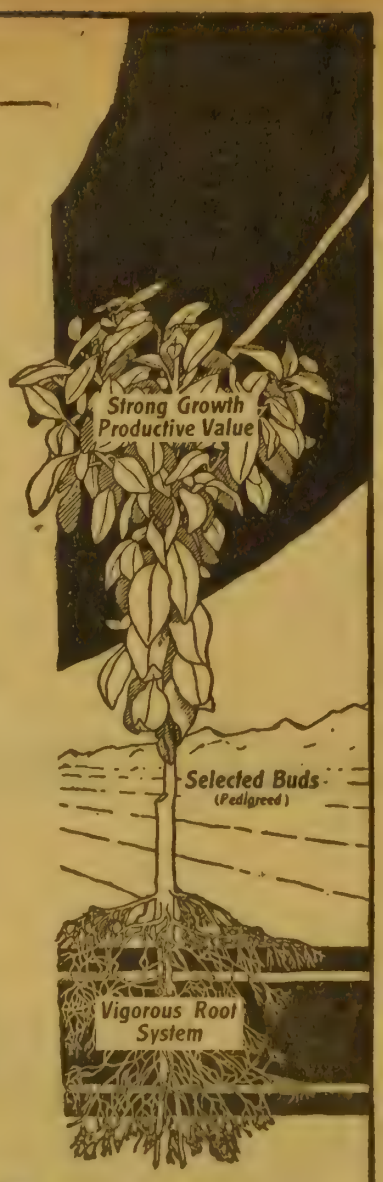
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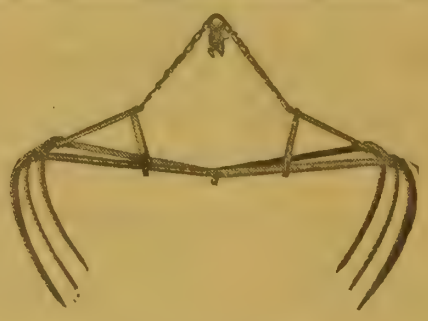


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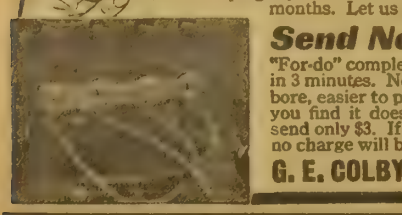


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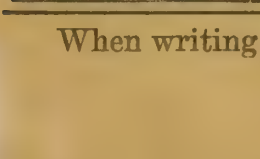
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NO ARMISTICE

Continued from Page 859

arsenical burning, hence the need of applying it lightly. Neither should it be used on trees with a crop of fruit upon them.

Trees which have been defoliated, but not badly barked, should be promptly whitewashed to prevent sunburning.

The state horticultural commissioner's office reports:

War on Grasshoppers

Plans for drastic action against grasshoppers and other pests were inaugurated June 6-7 at a meeting held in the offices of the state horticultural commissioner. In attendance were representatives of the various county farm bureaus, experts from the state horticultural commission, field workers of the United States department of agriculture, and many farmers from adjacent districts.

Commissioner Hecke outlined the general plan for demonstration work and read reports from the various sections showing the damage being caused throughout the state by grasshoppers. Visiting county horticultural commissioners from nearby affected counties reported conditions in their counties and were followed by Theodore D. Urbahns, assistant entomologist of the United State department of agriculture, who stated that at Paso Robles 20.000 young almond trees had been covered with cheesecloth as a measure intended to prevent destruction of foliage by grasshoppers. Urbahns said an actual survey of the different affected localities should be made in order to develop intelligent methods of control. Broadly, the two lines of activity resolved themselves to destroying the invading hordes on a given area and preventing the reinfestation of a cleaned-up area from the outside. Urbahns suggested a formula which those in a position to know asserted was a specific remedy in its results.

The grasshopper menace, to all appearances, will continue to be serious under certain weather conditions until about the middle of July. W. C. Jacobsen of the commission suggested arranging community drives against grasshoppers, after the fashion of campaigns conducted by the division against ground squirrels in the state.

It was the opinion of Prof. W. C. Woodworth of the University of California that the campaign should have been arranged far ahead of the outbreak. He expressed the opinion that the horticultural commission can operate under the law to abate the grasshopper nuisance.

Urbahns stated that sour prunes and apricots were not a complete success when substituted for lemon and orange. He stated further that corn syrup may be successfully substituted in the event blackstrap molasses is not available. He advised that alfalfa meal has been used successfully as a substitute for bran under certain conditions and that in the neighborhood of Gridley alfalfa meal has been invariably used in the poison mash against grasshoppers where the mash is to be scattered by hand.

In the afternoon a demonstration of grasshopper poison bait mixing was held at the Chase ranch, between Fairoaks and Orangevale. Large quantities of poison were mixed up and ten acres sowed. Talks were made at the ranch by Urbahns, Hecke and Prof. Woodworth. Urbahns said grasshoppers have in recent years caused such great destruction to the nation's food supply that the present necessity for increased food production makes it doubly hard for every farmer to acquaint himself with the most effective methods of destroying grasshoppers. "In some sections," said Urbahns, "the grasshopper is present year after year, causing a great aggregate loss, but hardly abundant enough to arouse the individual farmer to an active grasshopper campaign. It is this aggregate loss over hundreds and thousands of farms that must be lessened as well as the loss where the pests appear in such great numbers as to destroy the entire crop." A careful inspection of the Chase ranch revealed that grasshoppers in some sections were very numerous.

Following the demonstration committees were appointed to direct the campaign in the various parts of the state.

E. J. Branigan and P. A. Boncquet were selected to go to Butte County; Theodore Urbahns will start the campaign in Solano County; W. C. Jacobsen will direct the work in the coast counties; Carl Olsen and Prof. Van Dyke will direct the war against the grasshoppers in the northern counties, and E. M. Rust will open the campaign in the vicinity of Stockton.

Poison Formula

The following formula is said to have been found effective in destroying grasshoppers:

Paris green	1 pound
Molasses (cheap blackstrap)	2 quarts
Lemons	½ dozen
Water	4 gallons
Bran	25 pounds

Fire Warning!

In every case where it is deemed expedient to utilize burning against grasshoppers, due care must be taken (1) to safeguard contiguous orchards, grain fields and buildings; (2) to first secure the cooperation and assistance of nonresident owners by and with the consent of the local fire warden or other authorities, and (3) to utilize fire under the most propitious weather conditions regarding wind.

Supplies for Making Poison Bran Mash

The state purchasing department has received the following report on the cost of arsenic, Paris green, bran and molasses:

White arsenic—100 pounds, 14 cents a pound; 500 pounds, 13½; 50 pounds, 15; 25 pounds, 16; 10 pounds, 17; 5 pounds, 18.

Paris green—250 pounds, 46 cents a pound; 100 pounds, 47; 56 pounds, 49; 28 pounds, 50; 14 pounds, 51; 5 pounds, 53; 1 pound, 56.

Bran—One ton, $47.00.

Alfalfa meal—One ton, $32.00.

Molasses—One gallon (in 50-gallon barrels), 35c.

These materials can be purchased from all the large wholesale chemical produce and feed houses at approximately these same prices. If any difficulty is found in securing these supplies the state commission of horticulture will be glad to act as an auxiliary purchasing agent.

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Italian Pea

Enclosed please find sample of Italian pea. Will you please inform me if it is edible? It is a perennial; the peas are sweet and taste like table peas.—Subscriber, Redondo Beach.

This is undoubtedly a form of Lathyrus latiflorus, the most common perennial pea. Very little material is necessary to recognize a plant as a pea vine but very full material is necessary to make sure of the species and variety, of which there are so many. Very few peas are unhealthful as food, and these only in a wild state. Cultivated forms are all believed to be good for human consumption. Animals eat all without harm, though the loco weeds belong to the same family.—E. B.

Inflammation of Crop

My hens have water in the crop. What will cure it?—Subscriber, Los Angeles.

This is not a very complete description of symptoms but, as a suggestion, this trouble may be due to catarrh or inflammation of the crop, which may have been caused by irregular feeding or feeding very heavily. More probably, however, it is from eating partially decomposed food of some kind which has poisoned the fowls. Dr. Salmon recommends a clean, dry pen for the affected bird or birds where proper attention can be given to the treatment and where the food can be regulated. The first step in treatment is to empty the crop of its irritating and decomposing contents by careful pressure and manipulation while the bird is held with its head downward. When the crop appears to be entirely freed of its contents, give two grains of subnitrate of bismuth and one-half grain of bicarbonate of soda in a teaspoon of water. This will relieve the irritation and correct the acidity. Some authors recommend salicylic acid to be given immediately after the crop is emptied. It may be conveniently administered by dissolving one grain in an ounce of water and giving two to three teaspoons as a dose. The bird should be kept without food for 18 or 20 hours, and then fed sparingly upon soft, easily digested material. If one-half grain of quinine is given morning and night for two or three days the recovery is hastened. If treatment is commenced in time most of the birds will recover.

Millet

Would like some information as to millet. What kind of soil, how much seed to the acre, how much does it produce per acre, does it require irrigation, what is best time to seed for head maturing and ripening, does it make good feed for chicks after they are three months old?—Subscriber, Odessa.

Millet has not been produced in any of the southern San Joaquin counties to any extent because it does not compete favorably with milo, feterita, or durra, for either grain or forage production. Of the few instances that we have record of in these counties it has, however, done well, but since it is adapted to the same soil and seasonal conditions as the sorghums it has been found more advantageous to depend upon these than to plant millet. It will, however, mature in a shorter season than the sorghums and consequently may be planted as late as the first of August provided the soil is abundantly moist for its germination and early growth. Planted in the late spring and early summer, as it must be, irrigation must be available in the counties mentioned. It does not stand early planting because it does not do well under conditions of cool nights.

Millet is not particular as to type of soil except that the soil should not be too heavy to prevent its being reduced to a fine seed bed. In order to be successful with millet a well prepared seed bed is essential because the seeds are relatively small and satisfactory results cannot be expected when the seed is planted on rough ground. The soil should also not be too light or sandy, for in such case the water requirements for the germination and early growth cannot be made uniform and satisfactory.

Millet may be planted at any time so far as season is concerned between

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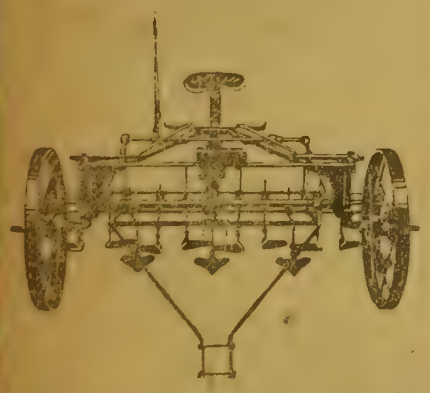
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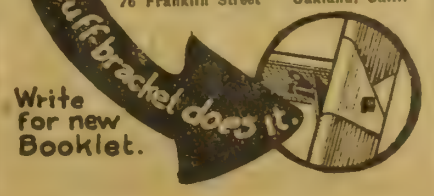
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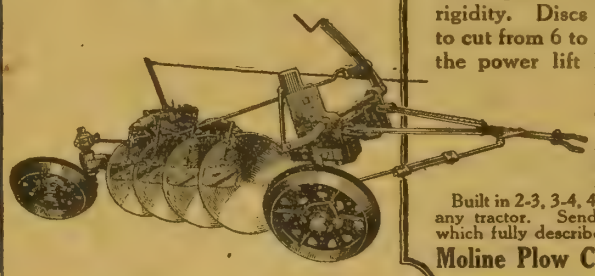
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the middle of May and the first of August. Probably the June plantings however, will on the whole be most successful. It may be harvested either for hay or for grain. If harvested for hay it should be cut as soon as it has completed its bloom. If harvested for grain it may be left until it reaches the hard dough stage, but should be harvested immediately after that stage is reached if it is intended to make any use of the forage. For hay it is mowed and cured in the usual way; for grain it is best cut at the stage mentioned with a binder, stacked and threshed from the stack. If it is allowed to get ripe in the field before cutting much loss may be occasioned by shattering.

Millet hay ranks high in feed quality for ruminants, but for horses it must be fed sparingly and its effects watched carefully, for it is likely to produce diuretic ailments and may cause compaction unless oil meal or other laxative is fed with it. The grain is fed profitably to ruminants unground, but for all animals except poultry it is desirable to make it into meal, and this is especially desirable for feed for swine. Its feed value is about 20 per cent below corn and 15 per cent below barley. From my own observation I know of no reason why millet should not be a good poultry feed, but do not believe it would be as desirable as the grain sorghums. I am asking Prof. Woll to write you on this point.

As to the market for millet, I find that it is not quoted under specific headings in the market quotations, and my impression would be that in general it would not have a wide market, though a limited one might be found for it.

Blood in Goat's Milk

About ten days ago we purchased a milk goat giving one gallon per day. For a week I have noticed a reddish-brown color in the milk at the bottom of the pan after standing about 12 hours, and I think the milk does not taste quite right. She worried after changing locations and I think we overfed her on Milo Maize, as she would not touch any kind of grain or bran for three or four days, but ate a little green stuff all the time. Now she has a good appetite and we are feeding whole oats, rolled oats, beet pulp, bran, carrots, cured hay and a little green alfalfa at noon. She is giving about three quarts a day now and is seemingly all right, except for the dark coloration. The milk foams nicely. Can you tell me what this is? Is there any cure? Is the milk fit to use?—Subscriber, Ontario.

It would be best to milk this doe out three times a day; never allow her udder to become distended. The reddish deposit is caused by the rupture of small blood vessels in the milk glands or ducts and comes from a strain or blow or some other injury to the udder. The overfeeding on Milo Maize may be at the bottom of the trouble. You do not state whether you are keeping the doe alone or if she has companionship. Fretting from being alone or new surroundings might have caused the sediment. If such is the case make her contented with another doe or kid. And give her a grain ration of one pint of whole rolled oats, one pint of bran and one pint of beet pulp, by measure, mixed all together in two feeds, night and morning. Also continue the carrots and green alfalfa and all the dry hay she will eat, being sure it is sweet and free from mold. Also give a teaspoon of Epsom salts syrup once a day in her mash, for a week or so. The Epsom syrup is made by taking one cup of Epsom salts, one cup sugar, one cup of water and heating all together until thoroughly dissolved. Cool and put in screw top Mason jar or bottle and keep tight corked. In this way the valuable properties of the salts are preserved.—Martha W. Howland.

Roadside Trees

By Ernest Braunton

ARE the roadsides in front of your property planted? If not, they should be, and at once. Nothing you can do will add more of value to property than uniform lines of suitable trees. Many cases are known, in every state, where acreage so enclosed commanded higher prices than land of equal soil value, but unplanted with highway trees. Where such trees have been destroyed courts have awarded heavy damages. In the case of grand old roadside trees that were in place hundreds of years preceding settlement of the land an award for the destruction of a single tree was in one case, $2,000; and several cases are known where the value was estimated at $1,000. So that the legal value of roadside trees has been established and at a higher value than many of us would admit as just.

In the older days of dirt roads some sections could not well be planted with evergreens, for the winter's shade prevented the roads from drying. But in these days of perfect roads this consideration is no longer a factor. On the other hand, shade preserves oiled and paved roads and adds to their life, keeping the costs of repair down to a minimum. The reflected heat from an oiled or paved road in midsummer is considerable and unpleasant, and so evergreen trees add much to the comfort and pleasure of travellers. In storms of all kinds, whether rain, dust, or simply wind, the evergreen tree proves a great protection to all who travel in such weather. The argument is all on the affirmative side. Let every roadside be planted at once, and if possible with evergreen trees.

Best Roadside Trees

Many will have a deciduous tree, and to these refractory friends we advise planting Platanus orientalis, the oriental plane or sycamore. There is also a hybrid, equally good, a cross between the oriental plane and the one common in the Mississippi Valley, known as the London plane. In damp, sandy soils the soft or silver maple is an excellent tree and, again, some elms are splendid. Few evergreen trees have the beauty of the deciduous tree during summer, but in this climate we should have shade and beauty throughout the year. When all our land is green and crops and wildflowers are in bloom, a bare, leafless tree is a bleak, inhospitable, almost uncanny sight.

Among the evergreen trees none shine so brightly as the liveoaks; none are more appropriate to California landscapes. There may be sections where they do not thrive, but these parts are unknown to me. A close rival, yet a less handsome tree, is the cork oak and it is also hardier, enduring more degrees of cold. In the south nothing surpasses in effective beauty the grand old pepper trees and they will always hold first place in the hearts of many. Were they not troubled with black scale, the south end of the state would now be a network of them and also be the most beautiful country on earth. For if every roadside were planted with large pepper trees the world would not hold a rival for landscape beauty. Some of the eucalypts will do where the robbing of soil in adjacent fields is not a serious consideration, but the most beautiful of all eucalypts, E. calophylla, is seldom used. Many of the acacias are excellent, and among them none so much please me as A. dealbata, the silver wattle. I feel confident Ceratonia siliqua, the carob or St. John's bread, will each year become more popular, but it does not make a large tree except with extreme age.

Resolve to Plan

If your yard about the house is not well planned, well planted, or planted at all, resolve to do it as soon as you can. Leave one or more open lawn spaces and plant only in the borders. Do not spoil the open space or spaces with trees or shrubs. Place one or more trees where needed for use. Place a deciduous tree where its shade will fall upon the kitchen or other rooms in summer. In winter the leaves are gone, and light, air and sunshine are freely admitted. If space permits, place a few trees back of the house so it will appear protected and

be part of a picture. There may also be room for some along the sides without being close enough to make the house dark and damp during winter. The object of this planting is to frame the picture. The house, lawn, and spaces on all sides of the house form the picture. Frame it, but do not let the frame of trees and shrubs too closely crowd on the picture. In other words, do not have all frame and no picture.

Many times I have heard a garden owner say: "Mine is such an ugly old garden." And there is but one answer: "Why don't you change it?" For if you know it is ugly you must know how to make a change. You will at least know how to make it better, even if you cannot make a beautiful picture of it. Yet continual striving for the best will bring splendid results. So do not content yourself with a confession that your garden is ugly, for ugliness is a reproach, a liability, while beauty is an asset, something to be proud of, something you will be commended for possessing. There are many reasons why your garden should be beautiful, but none why it should be ugly. Then be within reason. Beauty is art, and we all admit to being artistic, yet few can prove it. Let us do our best to have a beautiful garden; we will then at least be conscious of commendable effort.

Matters of Taste

Robinson, in his "English Flower Garden," makes some strong points on "matters of taste." Salesmen offering wares will state that it is a matter of taste as to which is the better, but this is not true. It is a serious matter of fact that one is better than the other, whether it be a carpet, a painting, a horse or a house. Good or bad in garden design or aught else is not a mere matter of taste, but a matter of fact, truth and observation. Individual likes and dislikes are wholly separate from the problem of what is best in garden design and planting. Therefore in your garden work aim to plan and plant as study and observation have led you to believe it should be. If you have admired some garden or part of a garden it was because it was good; even the poorest and worst of us have some natural powers of discernment. Individual taste can find liberty and easement in the plants and other material used.

Oranges in Swamps

It is known that oranges are very sensitive to alkali or salts of any sort. But there is a small tree belonging to the family, known as Aeglopsis Chevalier, that is said to be native to salt swamps near the sea in tropical West Africa. Some of these trees are in the greenhouses at Washington, and the department of agriculture will test their adaptability for stocks upon which to bud orange and lemon. If the experiment prove successful we will plant our saline swamps with oranges and harvest the crop from boats.

Nothing now remains but to discover some member of the citrus tribe that is a true epiphyte or living upon air. Then we may grow oranges on the sides and roofs of buildings and plant no more orchards. Meanwhile we shall watch with interest this alkali-resistant orange tree.

Garden Begonias

There are more than 500 species of begonia growing wild in the tropic belt of the world, and several hundred hybrids have been bred by horticulturists; yet in gardens begonias still are scarce. Of all common plants none more enrich the garden than begonias. They thrive best in partial or complete shade, in a soil rich in humus and therefore holding moisture well. Begonias will never grow in a dry or coarse soil and the more finely pulverized the soil the better will they thrive. The roots should be cool and moist and if these conditions be present the tops will stand full sunshine in nearly all species and varieties. When well cared for the better class of flowering begonias produce marvelous crops of beautiful flowers of wax-like texture.

Orchid Tree

This name has been applied to the bauhinias, tropical trees with showy flowers, native to various parts of the world. The trees are not rare in the south and central parts of California and are among the showiest of all flowering trees. Three species are growing in gardens of Los Angeles, Pasadena, Redlands and up to Santa Barbara. B. alba is white; variegata is pink, red, and yellow; and purpea, as its name implies, is a rich purple. One shrubby species, with brick-red flowers, Bauhinia Galpinii, has been sparingly grown and is the showiest of all, but for some reason it is now a very rare plant, few being able to grow the plants to large size. Yet one in Santa Barbara that I saw was 10 feet high, 20 feet across, and almost a solid mass of flowers.



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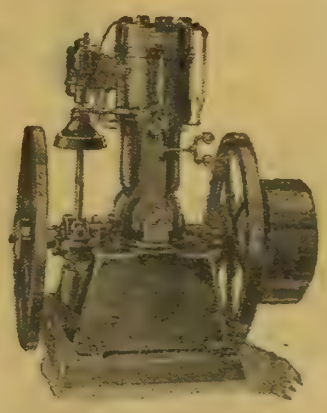
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LOS ANGELES

Animal Parasites

By E. R. de Ong

THIS is the second article by Mr. de Ong on Animal Parasites. The first, which appeared in the Cultivator of June 7, dealt with house flies, stable flies, horn flies and horse flies.

Flesh Flies (Blow Flies)

Eggs are deposited on decaying flesh or living larvae may be deposited. The larvae feed for a few days on the decaying flesh, then crawl down into the ground to pupate and emerge as adult flies. When carrion is abundant these flies increase very rapidly and if there is no suitable place for depositing their eggs or young, they frequently turn to wounds on living animals. With sheep "fly blowing" usually occurs on the soiled wool although they also are subject to attack in wounds. In regions subject to fly attack, all operations, such as castration, branding or dehorning should be done early in the spring. A wound infected with maggots should be cleaned thoroughly and then a two per cent carbolic acid or creolin solution should be injected by means of an oil can. Another mixture for injection is chloroform, one part, to sweet milk, four parts. The best preventive of fly injury is prompt burning or deep burial of all animals dying on the range. Shallow burial, particularly if the ground is dry, will not prevent fly breeding, for the carcass will be located by the odor and the eggs laid on top of the ground. The larvae from these eggs burrow down through the loose ground, feed and then pupate near the surface where the adult fly may easily escape. Blow flies have become very serious pests of the sheep range in Australia on account of the great number of rabbits that are killed and left to decay.

Mosquitoes

This insect breeds in shallow, stagnant water, as is well known. Drainage of shallow pools and deepening of channels in large bodies of water are the best preventives. Covering the surface of the water with a film of oil will kill the wrigglers and pupae, but the application must be repeated every eight or ten days. Small fish or even water dogs have been reported as good destroyers of mosquito larvae.

Fleas

The litter in the stable, hog shed and in the chicken yard furnishes ideal breeding ground for these insects, while in the house the permanent carpet, undisturbed for months, furnishes the proper medium. The eggs are laid in the hair of cats and dogs where the flea is feeding, but drop on the bedding where the animal sleeps. The larvae feed on dry flecks of undigested blood which the adult passes when they are feeding, together with organic material and dry manure. To rid infested places of fleas, sprinkle them freely with crude oil or distillate. Spray the bedding and chicken house floor with any light oil, such as kerosene or distillate.

Pyrethrum or buhach may also be sprinkled freely over the sleeping quarters of animals and then swept up and burned. Dogs may be bathed in a two per cent creolin mixture. Spray hogs with a mixture of kerosene, one part, and water, four parts, using about half pound of dissolved soap per gallon of oil to make the oil and water mix. In the house remove carpets and rugs to the ya and give them a thorough beatin Dust the floor with pyrethrum a then sweep up the powder carefull and burn it as it stupefies but seldo kills the insect. Or the floor may b scrubbed with boiling hot lye wat or mopped with kerosene.

Bot Flies

Different species of this fly attac cattle, horses and sheep. With th horse and cow, the egg, a conspicuou yellow object, is glued to the hair o the legs or chest. In a few days th larvae are ready to emerge and th horse in licking itself takes them u on its tongue, whence they pass to th stomach and there attach themselve to the stomach wall. Here they re main through the winter, absorbing the food of the horse. In the spring they are mature, pass out with the feces to the ground and crawl beneath the surface to pupate, emergin in a few weeks as adult flies ready t lay eggs. During the summer they may often be seen hovering about horses, darting in occasionally to de posit their eggs.

Horses kept in dark stables through the day are less subject to attack than are those running out through the day. Touching the eggs with kerosene will kill them or clipping done very soon after the eggs are deposited will lessen the infestation. This is a common pest of horses and unless very abundant seldom causes serious trouble.

Cattle Bots or Warble Flies have a life history similar to the Horse Bot, except that the larvae lodge in the back just beneath the skin instead of going to the stomach. The first sign is a small tumor-like swelling usually along the spine, and as the larvae grows these become quite noticeable when the hand is rubbed over the back. When mature the larvae work their way out through the skin, drop to the ground and pupate. When several are present they are a distinct hindrance to the thrift of the animal and reduce the flow of milk. They also reduce the value of the hide for tanning purposes.

The egg of this fly hatches soon after being deposited, so that it is difficult to kill them, but as with horses, cattle feeding through the day are most subject to attack. The larvae may be killed in the back of the animal by rubbing in oil, but when killed while in the back they make a serious wound so that it is better to press them out with the thumb when almost mature and then kill them. If dropped to the ground they may pupate and emerge as flies.

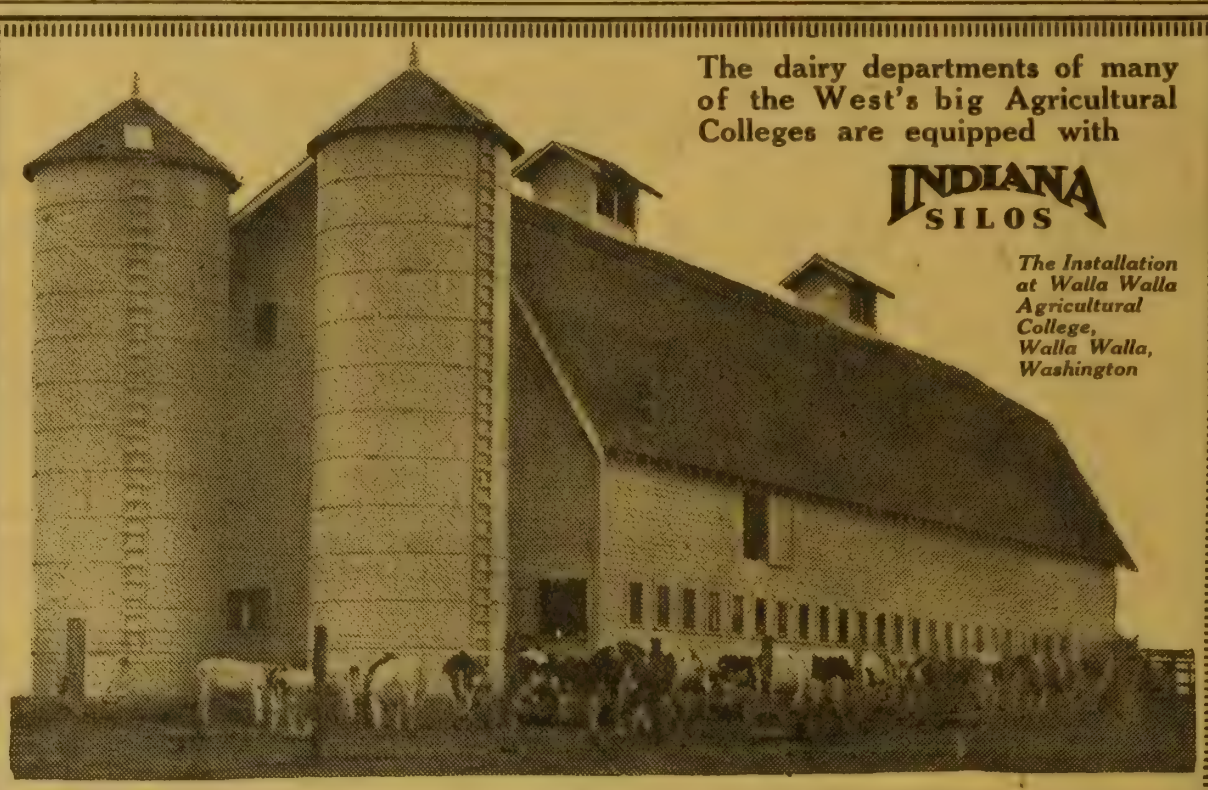
The sheep bot lays the living larvae in the nostril, whence they migrate upwards and lodge in the hollow chambers of the nasal passages. Their presence is shown by a discharge from the nostrils and as the larvae approach maturity an occasional violent fit of sneezing will force them out on the ground where they soon burrow under cover. Smearing the nostril with pine tar as a repellant against the fly is of some value.

Lice

There are two distinct kinds of lice, biting and sucking, the latter are found on mammals, the former on both birds and mammals. The biting lice have broad heads about as wide as the body, while the sucking lice have very narrow heads. The food of the biting lice is barbs from the feathers, when on birds, or dried flakes of the skin. The principal injury which they cause is the irritation from their claws. The sucking lice, as the name indicates, feed by sucking blood from the host.

Poultry lice are controlled with insect powders, sodium flouride or a mixture of gasoline, three parts, and carbolic acid, one part, stirred into plaster of Paris. When dry the mixture may be stored in tight cans and used as needed. Lice powders are dusted into the feathers of the fowls and allowed to remain. A lump of blue ointment the size of a pea may be placed in the feathers near the vent, this being a very satisfactory remedy for chicken lice.

Lice on animals are usually controlled by dipping or washing, using nicotine solutions, coal tar preparations, or creolin. Directions for using these will be found on the package in which they are sold. A 10 per cent kerosene emulsion may also be used for hogs, that is, one part of kerosene to nine parts of water with enough



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45 Royal Shorthorns 45

at Public Auction

State Fair Grounds, Sacramento, Calif.

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Hallwood Villager 495521

Mr. W. M. Carruthers, owner of Carruthers Farms, Live Oak, California, will without question offer to the public on this occasion the highest class lot of registered Shorthorns that he has bred and assembled during his twenty years of activity in the breed's affairs on the Pacific Coast.

It is an opportunity for the purchase of high class individuals, nearly all of straight Scotch breeding, that may well claim the earnest attention of every person in the west who either wants to strengthen an established herd or found a new herd upon animals of correct breeding and type.

The offering is happily balanced to meet almost any requirement, containing as it does a considerable number of splendid Shorthorn matrons with calves at foot by great sires, richly bred heifers in calf to famous bulls, and an extra good selection of open heifers, a total of 42 females. The bull offering, though small in number, contains the star attraction of the sale in

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Conceded to be one of the very greatest bulls in the west. He has every essential qualification of a great sire, breeding type that has been proven in the show ring, and perhaps best of all, the living proof in the form of his young sons and daughters that he will hand down his rich inheritance of form and quality.

Every Shorthorn breeder and prospective Shorthorn breeder in the west should find pleasure and profit in seeing this excellent group of breeding Shorthorns change ownership on sale day, and it promises to be a history making event for the breed on the Pacific Coast.

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Sale Starts Promptly at 1 P.M., Thursday, July 10

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Calif.
Auctioneers: Reppert, Milne

NOTE—The accompanying illustrations are all from untouched photographs of animals in the sale.



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We recently purchased a car of excellent Duroc-Jerseys selected from some of the East's leading herds.

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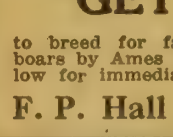
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Two superb sires—Young Jumbo 800 pounds in breeding condition. Lendorris Liberty Bond 345 pounds at seven months. Two such splendid sires are rarely found on one breeding farm.

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soap in the material to cause the two to unite when agitated. Crude oil is sometimes placed in the hog wallows or a rubbing post well covered with oil should be in each corral. The latter do not, however, kill the lice around the flanks and shoulder pits. These parts of the body should be occasionally washed with oil emulsions.

Lice are becoming numerous on sheep in recent years, especially in the mountains.

Sheep Tick (louse fly)

This is not a true tick such as found on cattle, but a wingless fly which spends its entire life on the host. Lime-sulphur solutions are not effective as a dip for this insect and dependence should be placed on the regular "sheep dip" or some of the coal tar preparations.

Sheep Scab

This is the work of a tiny mite which burrows into the skin and causes the formation of a scab which results in the dropping out of the wool. Similar infestations are also found in cattle and occasionally on horses and cows. These are usually controlled by dipping in lime-sulphur solutions, nicotine preparations or the coal-tar-creosote dips. The dip is heated to a temperature of 95 degrees to 105 degrees Fahrenheit. For rams the water should never be more than 95 degrees Fahrenheit. In the process of dipping the animals should be held in the vat by means of a gate for at least one minute and from that up to three minutes for animals with heavy fleeces. Sheep will remove about half a gallon of dip per animal so that allowance must be made for keeping up the supply and also for heating the new stock. Dipping is usually done with commercial preparations which have directions on the package for use.

For cattle and hogs crude oil emulsions are frequently used, but the asphalt in these dips prevents their use for sheep.

Scab on dogs can be controlled by an application of equal parts sulphur and lard or nicotine preparations.

Ticks.

Cattle are freed from ticks by the use of the same preparations as for scab mites, except that oil emulsions and arsenic compounds are also used commonly.

Poultry ticks and mites are best controlled by the use of oil on the roosts and floors of the hen houses. If the house has a dirt floor a liberal application of crude oil worked into the soil will do much toward preventing these pests, as well as fleas, from harboring there.

Worms

Besides insect larvae, such as bots and flesh fly larvae, all animals are subject to attack by round worms, tape worms and in some instances by liver flukes. Generally speaking round worms, such as stomach worms of the sheep and cow, are not as troublesome in California as in Eastern states where a more humid climate prevails, for in most instances the egg of the worm is passed out through the feces of the affected animal, falls to the ground and hatches and the young larva is taken into the mouth of grazing animals on grass. With many species the eggs or larvae are easily killed in dry, hot situations so that our California ranges are not suitable for their increase. However, swampy pastures, or those containing marshy places, or the north coast regions are all favorable for the development of such pests, and care should be taken to prevent their spread. Drinking troughs filled from wells or deep streams are safer than to allow stock to drink from mud holes or shallow streams. Draining marshy places in the pasture and, if the infestation is severe, placing the stock on dry pastures, are all of value. Infestation of hogs may be prevented to some extent by feeding from troughs or concrete floors which are occasionally washed off. Where chickens are affected they should, if possible, be put on new ranges.

Liver flukes attack cattle and sheep, especially in the northern coast counties. These differ from round worms in that they spend part of their life in the body of a snail. After partial development in the snail they leave this host, crawl up a blade of grass and there cover themselves with a little sheath and wait until a cow or sheep in grazing eats the grass. When taken into the stomach they migrate to the liver and there complete their life cycle.

Prevention is the only remedy, that is, keeping stock off of snail infested pastures when flukes are causing trouble. For only in the presence of this first host is infection possible.

Tapeworms

Tapeworms also have two different hosts, the first stage being spent in a grazing animal, such as sheep or cattle, where their presence is known as bladder worm or measly beef, and the second stage in a carnivorous animal such as a dog, hog or man. Here it is in the form commonly known to us as tapeworm or flatworm. This worm consists of a head, more or less firmly attached to the intestinal walls and a great number of mature flattened segments attached end to end. Each segment contains male and female organs and ovaries, so that when mature it is practically an egg sac. These segments are passed out in the feces, the walls rupture and the eggs are carried about by the rain or running water. They finally lodge on grass and are eaten by grazing animals. This egg when taken into the stomach hatches and gives rise to the larval or immature forms of tapeworm. These lodge in the muscles of the animal either singly or in the bladder form, in the latter a number of embryo heads of tapeworms may be seen as white specks in a large transparent body resembling a fish bladder. When an animal containing one of these forms of infection is eaten by a dog or cat, then the heads of the tapeworm lodge in its intestine and give rise to the mature tapeworms. The larval form of tapeworm is found in mature rodents, such as rabbits and possibly gophers as well as sheep and cattle, hence the danger of feeding uncooked carcasses or the intestines of such animals to dogs or cats. Man is also subjected to

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Jersey Queen Farm, San Jose, Cal.

such dangers when partaking of underdone or uncooked meat. It is in this way that we contract tapeworm and also trichina (a round worm) from eating underdone pork.

Treatment for intestinal worms in animals is really the field for the veterinarian, however a few suggestions will be given.

Vermifuge for dogs. Pelletierine tannate—5 to 15 grs. Male Fern (Oleorsin of aspidium) 15-40 minims. Kamola—15-30 grs. Areca nut (freshly ground) 35-40 grs. 30-40 pound dog—2 No. 00 capsules of pelletierine tannate or two capsules of male fern or 2½ capsules Kamala, or 6-7 capsules of areca nut. Push the capsule down the throat with the hand while the mouth is held open with a board, or the capsules may be fed in meat or in pills of molasses and meal. Feed the dog nothing but milk the evening before or give no food. Calomel one or two grains may be given at this time. The feces and worms should be burned. In infested ranges treatment should be given four times a year.

CALIFORNIA LAMBS MOVING EAST

C. M. P., writing in the June National Wool Grower, says that during the past month more than 10,000 sheep and spring lambs arrived on the Kansas City market from the Imperial Valley in California. The movement will continue. The lambs sold at $17.25 to $19, and the sheep, mostly clipped ewes and wethers sold at $9.50 to $12.25. Some clipped yearlings sold as high as $14.50. The principal loading points were Heber, Brawley, and El Centro. Richard Kinnaird, one of the largest shippers from the valley, who accompanied one of his shipments to Kansas City, stated that about 100,000 lambs are raised annually in the Imperial Valley. The lambs are run with the ewes on alfalfa and barley pasture, he says, and at the age of four months weigh 80 pounds or more. Those that sold here weighed 65 to 75 pounds. Some of the sheep weighed 112 pounds.

ARE YOU AWAKE?

Harry McNair, of Ellsworth & McNair, Chicago, a firm which has sold over a quarter of a million horses within the past five years, is an acknowledged authority on horse markets. He says:

"The farmers who breed their good mares, weighing 1400 pounds or over, to sound draft stallions of ton type, and who feed the colts so that they will make good, sound drafters, weighing 1700 pounds or over at maturity, will get big prices for all such horses before they are five years old. Prices on big, sound drafters will reach record-breaking prices before a half decade rolls by, and the men who fail to grasp the present opportunity will have only regrets to harvest in the future."

Breed your good draft mares and hold fast to the young drafters you have. Don't let the clamor of the thoughtless disturb you. The draft horse has been relegated to oblivion at least three different times in the last century alone, but there is more need for good drafters today than at any time in history.

Professor Handschin of the Illinois experiment station has but recently made public the results of seven years' cost studies on Illinois farms. His conclusions briefly are that on farms under 260 acres draft horses furnish the most efficient and most profitable source of farm power, and that on farms over that size 75 per cent of the work will still be most efficiently done by horses. Ninety per cent of all farms in the United States are under 260 acres in size. A hint to the wise is sufficient.—Wayne Dinsmore.

Book Review

FEEDS AND FEEDING

"Feeds and Feeding Abridged" essentials of feeding, care and management of farm animals, including poultry, by W. A. Henry, professor of agriculture, University of Wisconsin; and F. B. Morrison, assistant director agricultural experiment station, Wisconsin, published by Henry-Morrison Company, Madison, Wisconsin, at $2 net.

Many a live stock feeder has considered Henry-Morrison's "Feeds and Feedings," an essential to intelligent feeding of farm animals. Its recognition as a standard is almost universal. Now comes this new book, "Feeds and Feeding Abridged," based chiefly on the sixteenth edition of the original "Feeds and Feeding," but the subjects are materially condensed, omitting topics of purely scientific interest and expressing in simplest terms the most essential facts concerning animal nutrition and practical feeding and care of farm animals. In fact it is intended as a text book for schools and colleges.

The book is made up of three parts and a valuable appendix. Part one represents general principles governing feeding and care, with discussion of various feeding standards, and one chapter especially valuable is "Economy in Feeding Live Stock."

Part two discusses all important feeding stuffs used in this country and even gives an extended chapter to "Manurial Value of Feeding Stuffs," and points out the vital relation of animal husbandry to maintenance of soil fertility.

Part three takes up practical care, feeding, and management of each class of farm animals, giving two chapters to each type of animal, for instance, one chapter to feeding and care of horses and another to feeds for horses. In this division two chapters are given to feeding and to feeds of poultry, which is somewhat different from the regular "Feeds and Feeding" edition.

The appendix is largely made up of tables on composition of feeding stuffs, digestibility, variety feeding standards, energy values, weight of various concentrates, etc.

A system of sheep farming that is to be continuously successful can not ignore either wool or mutton. In many cases the two products will be worthy of equal consideration. In others either one may be emphasized according to the peculiarities of conditions, management, and marketing.

Young pigs should be given their feed in such a manner that each individual pig gets its share. The simplest way to accomplish this is to allow the pigs to eat from a properly constructed trough, one that will keep the pigs out of the feed and will lessen the possibility of crowding.

60 Head Duroc-Jerseys 60

Bred Sows *and* Gilts

Rich in the Best Blood of the breed
All Bred for Fall Litters

At Public
AUCTION

Wednesday, July 16, 1919
New Sale Pavilion
Tulare, Calif.



To the Breeder If you are interested in adding to your herd animals of extreme merit — animals rich in the blood of the greatest *Duroc-Jerseys,* we say *Come,* you will find them in this sale.

To the Farmer who wants to make more money from his hogs, who desires to increase his bank balance, who desires to secure some pure bred, registered swine, we invite you to attend this sale.

We want more breeders, we want more farmers raising the greatest of all hogs, the Duroc-Jerseys.

SPECIAL IMPORTANT FEATURE

The Tulare County Duroc-Jersey breeders are determined to make their sales of the highest standard and every animal entered in the sales must conform to this rule. A committee was appointed that has visited each herd and selected the animals in this sale. The animals consigned are from the well known and established herds of Allen Thompson, Tulare; Henry Cummins, Goshen; R. E. Clifford, Strathmore; Joe N. Chenowth, Visalia; W. J. Fulgham & Sons, Visalia; S. A. Williamson, Visalia; W. J. Stewart, Visalia; C. E. Ellis, Tulare; W. J. Higdon, Tulare; Alex. Whaley, Tulare; J. P. Walker, Visalia; R. C. Sturgeon, Tulare.

Remember, this sale will consist of *sixty bred sows* and *gilts,* all bred to high-class boars and bred for early fall farrow. They have all been reserved for this sale, although their owners have had many opportunities to sell them.

The animals in this sale are rich in the blood of the Crimson Wonders, Critics, Orion Cherry King, Golden Model, Defender, the Duroc-Jerseys that have been instrumental in building up this great breed to its present high standard.

MAKE A NOTE of the day and date of this great sale—Make your arrangements NOW to attend. —You will not be disappointed in the offering

Write immediately to R. C. Sturgeon, secretary, Tulare, Calif., and get your copy of the catalog. It fully describes each animal and will assist you in making your selections.

This is your opportunity to get on the Duroc-Jersey map. Do it quickly and at your own price.

Free lunch and cold drinks at noon.

Sale will start promptly at 10 a.m. **Tell all your friends and neighbors**

Col. Geo. W. Bell, Auctioneer **Allen Thompson, Pres.**

Tulare County Duroc-Jersey Breeders Association
Tulare, California

Live Stock News Notes

SALE CALENDAR

Shorthorn Cattle

July 10, W. M. Carruthers, Sacramento.
August 2, Butte City Ranch, Butte City.
October 16, Dr. H. M. Elberg, Woodland.

Poland-China Swine

September 17, John M. Bernstein and W. L. Haag & Son, Hanford.
October 7, Bassett, Ross and Crawshaw, Hanford.
October 18, Trewhitt, Vaughan and Nehls, Hanford.
October 29, Tulare County Poland-China Breeders' Association, Tulare.

Berkshire Swine

August 2, Butte City Ranch, Butte City.

Shropshire Sheep

August 2, Butte City Ranch, Butte City.

Duroc-Jersey Swine

July 16, Tulare County Duroc-Jersey Breeders' Association, Tulare.

Hampshire Swine

August 6, Francis T. Underhill, Santa Barbara.

Morrises Have High Average.

Frank L. Morris of the firm, A. W. Morris and Sons, Woodland, has returned from the East and reports that the four Holsteins his firm consigned to the National Sale at Philadelphia made the highest average of any individual consignment. The four head, three females and a bull, averaged $6,500.

Morris states that there was manifested a growing interest on the part of Eastern breeders in yearly records. He states that many seven-day advocates are seriously planning to place their herds on the more stable basis of yearly tests.

Morris and Sons were among the first to recognize the fundamental value of long distance performance and they are gratified to see their judgment vindicated.

Butte City Ranch Buys Shorthorns and Shropshires.

W. S. Guilford of the Butte City Ranch has recently purchased the entire flock of Shropshires formerly maintained by the Blackhawk Ranch, Diablo. Included in the purchase was a Bishop-bred ram that is regarded as one of the best sires in California. The Butte City Ranch has also purchased a number of well bred Shorthorn cows in Colorado.

Guilford says that the demand for improved live stock, especially in the Sacramento Valley, is such that it has been found necessary to increase the herds and flocks maintained at the ranch.

The annual fall sale of Shorthorns, Shropshires, Berkshires and ponies will be held at the ranch August 2.

Carey Jerseys Established Coast Record.

E. H. Roten, who managed the Ed Carey Jersey Sale held at Carlton, Oregon, July 16, reports that several records were established at the vendue and claims the world's record for Jerseys bred by one breeder. Thirty head sold for an average of $1150 which places this sale at the top for any breed on the Pacific Coast.

It was the blood of St. Mawes that proved to be the magnet. St. Mawes is one of the few gold medal bulls and has to his credit 20 Register of Merit daughters, four of which are the highest record full sisters. The story back of St. Mawes, is especially interesting in the light of the recent sale. He was purchased by Carey for $200 and after using him a comparatively short time he was sold for $75. In the meantime his sons had been disposed of at most any price that could be gotten—some were practically given away. When his daughters were put on test his ability as a sire was at once made plain, but by that time he had again been sold and was slaughtered. Had he been permitted to have lived his value to the breed could not be estimated.

The top of the sale was St. Mawes Rosaire purchased by F. A. Dorflei of Oregon for $5100. A ten-day-old bull calf was purchased by Frank Laughary of Oregon for $2100. The top price for a cow, $1550, was paid by an Oregon breeder.

Dr. H. W. Hand of Orland, president of the California Jersey Cattle Club, secured a cow and heifer to add to his herd. Dr. Hand was the heavy buyer at the recent Reid dispersal sale held at Sacramento, and secured the two-times world champion, Goldie's Nehalem Beauty.

New Boar at Anchorage Farm.

Anchorage Farm, Orland, has just received a new herd boar purchased in the recent E. J. Barker sale in Indiana. He is a son of Duke's Champion 12th, and was one of the two boars that topped the sale.

Anchorage Farm has one of the leading Berkshire herds of the country and is noted as the home of Star Leader, one of the top boars of the breed.

Great Jersey Deal

One of the biggest transfers of pure bred Jerseys on the coast was recently made when the Arden Certified Dairy near Los Angeles purchased the pure bred Jersey herd of Houston & Son, Imperial; 143 head of pure breds were transferred. Of this number there are a few bulls which the Arden people are now offering to those who wish to build up along Jersey lines.

Famous University Duroc Dies

Professor J. I. Thompson of the animal husbandry division of the University of California reports the death of the famous Duroc-Jersey boar, Model Colonel, owned by that institution.

Model Col. can safely be rated as one of the greatest Duroc boars of the West. He was not only a splendid individual of extreme size and quality but was a sire of rare merit. He was farrowed September 26, 1914. His sire was the noted Nebraska boar, Col. Protection and his dam was Model Queen 2d.

In the death of this great boar the Duroc interests of California have been materially set back.

Fred D. Ross' New Purchase

Fred D. Ross of Hanford, who sustained quite a loss in the death of his Poland-China boar, Big Bob, has just received the boar Big Timm, by Giant Timm, from Robinson Bros., of Illinois.

Robinson Bros, in a letter to Mr. Ross state that sows bred to this boar sold for good prices in their last bred sow sale and that some of the best spring pigs ever on their farm are sired by him. Mr. Ross has joined with Mr. Bassett and Dr. J. A. Crawshaw in holding a bred sow sale October 7, and part of the sows he will consign are daughters of his former boar, Big Bob. All will be bred to Big Timm. It might also be mentioned that Big Timm is a half brother of Tolono Timm, one of the sires in the famous Poland-China herd of J. E. Meharry.

New Herd Boar

H. C. Shinn, formerly of Stratford, but now located near Tulare, has recently secured a new sire for his big type herd of Poland-Chinas. He comes from the herd of L. A. McClarnon, in Iowa, and is by Mc's Big Orange by Big Orange and out of Smooth Jumbo by Big Wonder Jumbo.

As he is by the same sire as Williams Bros.' famous boar, The Yankee, he has been named The Californian, and will be seen as a junior yearling at the fall shows.

Poland-China Sale.

Some of Kings County's Poland-China breeders are planning for a sale of 75 bred sows and a few out-standing bulls. The date chosen is October 7, 1919, at Kings County Fair Grounds, Hanford. Secretary Ross writes; This will be one of the best lots of Polands ever offered. The consigners are: M. and A. L. Bassett, J. A. Crawshaw and F. D. Ross.

Hereford Breeders to Sell in November

John A. Bunting, secretary of the Pacific Coast Hereford Breeders' Association, writes that at the recent meeting of the executive committee of that organization, held in San Francisco, it was decided that the association would sponsor a sale of 40 carefully selected Hereford bulls and females to be held at San Francisco in November during the week of the live stock show.

This will be the third sale held under the auspices of the association, and every effort is to be made to assemble an offering that will be superior to either of the former sales.

The sale will be conducted by the California Breeders' Sales and Pedigree Company, Sacramento, of which C. L. Hughes is manager.

Will Show and Sell Polands

Early in October Hale I. Marsh of Modesto, together with Les McCracken, Ripon, will offer at public sale about 50 head of bred sows and gilts. The sows and gilts from the Marsh herd will be daughters of Blue Valley Tecumseh, Model Major and I. B. A. Wonder and will be bred to Big Model, Major Hadley Wonder 2nd and Blue Valley Big Bone, while those from the McCracken herd will mostly be bred to the grand champion boar King's Big Bone Leader. Marsh says he will have his show herd at the state fair and also at San Francisco.

Lendorris Liberty Bond

W. L. Haag & Son, Hanford, write that their young boar, Lendorris Liberty Bond, by Liberty Bond, is making a rapid growth, weighing when just seven months old, 315 pounds. In their public sale to be held in Hanford, September 17, a number of sows and gilts bred to him will be offered, as well as those bred to their senior herd sire, Young Jumbo, by Jumbo Bob.

Lendorris Liberty Bond is regarded as one of the best young boars of the breed owned in California. He was sired by Liberty Bond, one of the popular Eastern boars, and the forthcoming sale will afford the first opportunity for California breeders to secure this blood.

A Combination Fall Poland Sale

W. D. Trewhitt, C. A. Vaughn and Geo. Nehls announce that they will hold a joint public sale of Poland-China bred sows and gilts. The sale will be held at Hanford, October 18.

The above breeders are among the leaders of the Hanford Poland colony and the offering they propose will be in keeping with the Kings County standard.

FROST VISITING CALIFORNIA BREEDERS

L. E. Frost of Chicago, editor and publisher of the Berkshire World, and one of the best known live stock men of this country, is now in California visiting the leading breeders. Frost says that he has never seen more rapid live stock development than has occurred in California since his last visit in February, 1918, and predicts that during the next ten years that California will come to take a high place among the great live stock states. Frost stated that California-bred Berkshires that have been sold to Eastern breeders have invariably made good and that many Eastern men are looking to this state to supply breeding stock to strengthen their herds.

While in California Frost plans to establish a number of Berkshire community units along the plans adopted by the Pure Bred Swine Extension Society and sanctioned by the leading swine record associations and the National Swine Growers' Association. The plan is an effort to establish

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Rosamaines Pontiac Netherland

Sired by our senior herd sire King Pontiac Netherland Segis 3rd, a proven sire, three of his daughters making better than 21 pounds butter at the average age of two years, two months.

Why Experiment?

Experimenting with poor sires is **extremely expensive.** IT is no experiment when you secure your herd bull from **Rosamaines** Ranch. When you secure one of our young bulls you know just what you are getting—just what you can expect.

REMEMBER—You are not experimenting by securing your herd sire from

His Dam



Stanislaus Princess Cleopatra

By Prince Alviso Juliana and the dam of our junior herd sire. Her seven day record 525.8 pounds milk, 32,072 pounds butter, test 4.88 per cent. Her 30 day record, 1994.5 pounds milk, 124,442 pounds butter, test 4.99 per cent.

Rosamaines Ranch *Stalder Bros., Owners* **Riverside, Calif.**

swine production as a community project and the aim is to encourage the handling of one breed of hogs in a community. It is proposed that established breeders sell bred sows to beginners at a certain price and agree to buy back acceptable progeny to the amount paid for the sow. The basis for establishing values is a price per pound that represents a satisfactory margin over market quotations.

The seller also agrees to permit the buyers access to his herd boars, thus making it possible for the man with but few sows to breed them without the bother and expense of owning a boar. The society expects to maintain an office in Chicago and to establish a service department for the purpose of assisting the members of the local clubs on problems of feeding, management and selling.

Several units have been established in the Middle West and are said to be in successful operation.

TULARE COUNTY FOR DUROC-JERSEYS

Regarding the sale referred to below we may say that there was a serious error in the advertisement appearing on Page 841 of the last issue, giving the date as Wednesday, July 12. It should have been Wednesday, July 16.

Last January the Tulare County Duroc-Jersey breeders held their first public sale. At that time the number of breeders was limited and it was only by the sacrifice by a number of these men of animals that they really desired to retain in their herds that it was possible to hold the sale.

The results of the first sale were so satisfactory and, since a number of new herds have been started, it will be easier to secure the 60 animals listed in their forthcoming sale on July 16 than the 30 head comprising the first offering.

In arranging for this sale a committee was appointed whose duty was to visit the various herds and select only such animals as they considered of sufficient quality for a high class sale. Out of some 100 head 60 were found and these will make up the sale offering July 16.

It is believed that the animals listed in this sale have sufficient breeding and quality to attract buyers from all parts of the state and that both the breeder and farmer will find stock that will meet their approval.

It is the ambition to make Tulare County famous for Duroc-Jerseys and make it the Duroc-Jersey center of the state, and if good breeders, high class stock and a generous amount of publicity will accomplish it the hopes will be realized. Every Duroc-Jersey breeder and all those interested in the breed are invited to attend the sale, which will be held in the new sale pavilion. Col. George Bell is to be the auctioneer.

CALIFORNIA HAS GREAT FUTURE WITH HOGS

By E. C. Stone, Secretary American Hampshire Swine Record Association

I LEFT my home in Peoria, Illinois, on the 10th of April for the purpose of looking over the conditions of livestock in California, and to investigate the future prospects of the Hampshire breed of hogs in the Golden State.

I have traveled through every state in the Union in my work, except New Mexico and the New England states. I have been closely connected with the development of swine husbandry throughout all the Southern and Southeastern states, and these fields have been very fertile in supplying the world with fats.

In my travels through California the latter part of April, and up to the 20th of May, I had the pleasure of traveling about 4000 miles in the cars of Hampshire swine growers and growers of other breeds of hogs in California. While I have been connected with swine husbandry in a national way for the past number of years, I have never seen any state in all my travels more adapted to pork production than California. The natural conditions of California are very inviting, especially to the Hampshire breed as they are natural born foragers. It has been said by his owners that he is a hog able to go into fields and gather his feed, make his bed, grind his feed and after he has developed he is always able to carry his carcass to market.

I visited ranches ranging from 80 acres to 30,000 acres, and more, where very large numbers of hogs were feeding. The natural forage on these large ranches consists of natural grasses, burr clover and wild oats. To the two latter feeds may be added all the natural grasses native to the foothills, mountains and valleys where the ranches are located, but the most succulent of all these feeds during its period of growing is burr clover, next wild oats. Inasmuch as alfalfa grows so easily under California conditions, the Corn Belt hog grower would be inclined to call it a natural grass of California, but I rather like to call it a cultivated grass, and it is the greatest grass in California.

The future holds the richest prospects in swine husbandry for the California ranchman if he just wills to take hold now and enter into the hog business as a business, or as a developer for a ranch, regardless of the location of the ranch.

In my travels through the Sacramento Valley it looked like the garden spot of the United States for meat production, and since I have returned to the central West I have leaarned more about the possibilities of immediately building packing houses and furnishing a big market for all the pork that may be supplied from California ranches. Just as fast as these ranches develop in pork production, the packing houses will develop to take care of the product.

The future of swine husbandry in California is just what the individual ranch owner wants to make it, or the collective lot of owners will make it.

A meeting of all Hampshire breeders is being called at the public sale of Hampshire hogs on the Francis T. Underhill ranch at Santa Barbara, at 10 o'clock a. m., on August 6, for the purpose of organizing a California Hampshire Breeders 'Association. We wish to predict that this will be one of the big organizations of America and that the future will bear good fruits for all who engage in this particular class of swine husbandry.

The San Luis Obispo County Live Stock Association is planning for its annual farmers' picnic and live stock show at the Polytechnic school Friday and Saturday of this week. Friday is to be given over largely to stock judging, a concert by the Polytechnic band, tractor display, and the afternoon will be devoted by the young people to baseball and other games and contests. Saturday's principal features will be a barbecue at noon, exhibition of school work, live stock parade, and an auction sale of live stock, closing with graduation exercises. Secretary Warren C. Day writes that the association is expecting to have 10,000 people present at this event.



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"OLD FAITHFUL" is all that its name implies—built to serve every man. Cut generously throughout to permit great freedom of action—triple stitched on all strain seams — reinforced — two unusually large pockets with buttoned-down flaps, just where you can reach them easily. Go to your dealer today and order one or more of these good work shirts. You will find that they are of unequaled value—shirts that assure you unlimited comfort and splendid service.

"OLD FAITHFUL" is one of the family of

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made famous by the senior member, the MILTON F. GOODMAN. "OLD FAITHFUL" comes in blue and grey chambray, black sateen and other standard fabrics—fits well and will outwear three ordinary shirts. Other familiar Reliance brands are "Black Beauty" — "Army" and "Honor Bright" for boys. The best dealers carry these good work shirts.

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WESTERN MADE WORK SHIRTS
CHICAGO



The Yankee Jr.

A son of The Yankee, Williams Bros. famous boar, has been secured as a fitting mate for my already famous sire, The President. These two boars will be mated with the sows and gilts I will offer at public sale September 17.

JOHN BERNSTEIN Hanford, Calif.

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Registered Herefords
Herd and range bulls reasonable. Largest Hereford herd in California.
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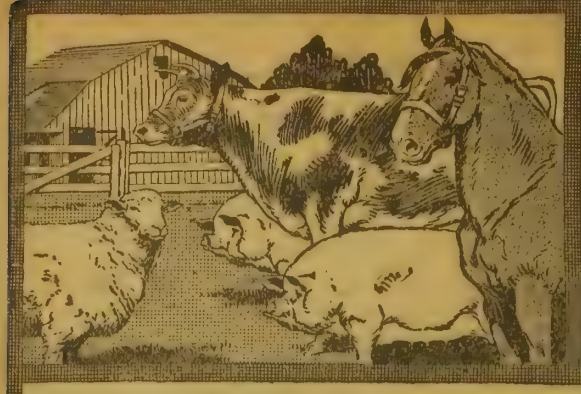
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A Conditioner and Worm Expeller

Don't allow your stock to "get off feed" and in a rundown condition. Dr. Hess Stock Tonic eliminates waste and gives appetite, good health and good digestion. It enables animals to get the most benefit out of their feed.

Buy Stock Tonic according to the size of your herd. *Here's a suggestion for your guidance:* Get from your dealer 2 pounds for each average hog, 5 pounds for each horse, cow or steer, to start with, feed as directed and then watch results.

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You buy Dr. Hess Stock Tonic at an honest price from a responsible dealer in your own town who guarantees it, and who refunds your money if it does not do as claimed.

25-lb. Pail, $2.50 100-lb. Drum, $8.00

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Patterson, Cal.

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Shorthorn Sale Attracting Wide Interest

It is doubtful if any Western sale of beef cattle has attracted more attention than is being manifested over the sale of Shorthorns to be held at the state fair ground July 10 by W. M. Carruthers. That the interest is not confined to California alone is indicated by the fact that a number of national figures in Shorthorn affairs have signified their intention of attending the sale. Among those who are expected are John Tomson, president, W. A. Cochel, western representative, and Frank Brown, western fieldman, of the American Shorthorn Breeders' Association; Dean C. F. Curtis of the Iowa state agricultural college, and Edward Patterson, manager of the famous Ravenswood herd, the oldest herd of Shorthorns in existence. Col. Fred Reppert of Indiana and "Scotty" Milne of Missouri will serve as auctioneer and ring man. Milne is counted one of the leading authorities on Shorthorn pedigrees.

In keeping with the character of the event a rare collection of bulls and females has been catalogued. Aside from the well known bull, Hallwood Villager, two other bulls will be sold. One, a red junior yearling, was sired by Maxwalton, Rosedale, one of the good breeding sons of Avondale. His dam is a Victoria sired by a son of Scottish Signet. He is a highly pleasing type. The third bull is the four year old Majestic Viscount 2d by Wood Dale Stamp, a grandson of Choice Goods, used successfully by the veteran breeder N. H. Gentry. His dam is a Fancy of Ardmore, sired by Rosedale's Choice. He is a red, attractive fronted, very level and smooth with wonderful mellowness.

It is not possible to mention all the good females but a suggestion of the quality offered can be gained by reference to a few. The three year old Broadhook's Sultana 2d is a rare roan daughter of Augusta Baron and a Broadhooks dam sired by Whitehall Sultan. Not many granddaughters of Whitehall Sultan are offered for sale. She can be regarded as one of the valuable cows to sell this year. She sells with a heifer calf sired by Count Glory. The white Lady Ruberta, shown successfully at the state fair, was sired by Ruberta's Goods. Ruberta's Goods, it will be recalled, was one of the greatests grandsons of the famous Choice Goods and his dam was the noted Ruberta. The dam of Lady Ruberta was Lady Anne sired by Diamond Rex by Bapton Diamond whose dam was Bapton Pearl, the dam of Whitehall Sultan. She sells safe to the service of Count Glory.

Two particularly attractive red heifers are Mayfield Hurst 2nd and Mayfield Victoria 2d. Both are two year olds. The former was sired by Hallwood Sultan, a grandson of Whitehall Sultan, and out of a good Scotch cow. The latter is a daughter of Count Glory and is out of a Victoria dam. Red Queen 4th, selling with an April bull calf by Lavender Stamp 2d, is an especially desirable two year old daughter of Viscount's Stamp and from a Queen of Beauty dam. Ravenswood Lady 3d, a red senior yearling by Majestic Vicpunt and out of Lady Ardmore, is a half sister to Lady's Choice, the heifer that topped the Central Missouri breeders' sale and show and sold for $1550, and her full sistser sold a year later for $1250 and another sister was champion at the same show and topped the sale. She sells safe in calf to Lord Julian, the crack son of Lord Avondale.

Among the cows to sell are some of the best breeding matrons from the Carruthers herd. Lady Grace, a daughter of Ringmaster, sells with corking good bull calf, and Maggie Murphy, by the same sire, sells with a heifer calf.

Space does not permit more detailed mention, but enough has been written to indicate the character of the offering, practically all of which is of Scotch breeding and includes some of the most highly esteemed tribes. Forty-two females, including cows with calves at foot, and bred and unbred heifers and three bulls are listed. The sale is being managed by C. L. Hughes of the California Breeders' Sales and Pedigree Co.

Twenty Self-Feeder Rules

Prof. John Evaard has laid down the following rules for self-feeders:

1. An efficient method for full feeding of hogs is to self-feed.
2. If you wish to "grow your pigs along slowly," do not self-feed.
3. The hog does not like hash any better than you do.
4. The self-feeder will not save all of the work; only part of it.
5. Better have a little too much self-feeder trough space than too little.
6. The self-feeder works excellently with swine, but that is not saying that the same is true of horses, cattle, sheep, poultry and goats.
7. To self-feed pregnant sows mix bulky feeds with the grain, such as alfalfa. Regulate the grains by increasing or decreasing the hay meal.
8. The hog is a physiologist, not an economist; he eats to suit himself; and corn at three cents and corn at $3 looks all the same to him. In other words, "the hog looks out for himself, not you."
9. Human ingenuity must be exercised in learning what and which feed to place before swine in separate self-feeders to secure optimum results. In case of doubt use corn meal and meat meal tankage.
10. The hog can not always economically balance his ration; much depends upon the opportunities that you afford him. Choose the right feeds.
11. The self-feeder in the summer had best be in the shade, and in the winter away from the cold winds, preferably under warm shelter, well floored.
12. Rats, chickens, birds and other animals enjoy the self-feeder, as do the hogs; govern your operations accordingly.
13. The careless, unreliable human feeder can be displaced with the self-feeder to great advantage ofttimes in the full feeding of swine.
14. Self-watering is a part of the self-feeding system; therefore keep plenty of drinking water before the hogs always.
15. Self-fed pigs are liable to eat most any hour of the day or night, hence it is well to have the self-feeders easily accessible all of the time.
16. It is well not to "rush" the hog when he is eating; the self-feeder allows him plenty of time to eat without creating that impulse to hurry for fear that the other hogs get all of the feed (as in the hand-feeding scheme).
17. Do not neglect those pigs; give them a few self-feeders in which are corn, meat, tankage products, middlings and salt. Try the scheme, enjoy the results, and tell your neighbors.
18. There are scarcely any runts to cause downheartedness in the free-choice system fed bunches, because they get all they want to eat and of whatever feed; and it is the lack of suitable feed (and shelter) mostly that produces the "winter runts."
19. Lest we forget: The suckling pig that follows his "mammy" is self-fed all of the time; why not continue the practice after he is weaned?
20. Do not mix slop if you can do better. Save the time and the labor; use the self-feeder when full feeding.

THE BEST LINIMENT
OR PAIN KILLER FOR THE HUMAN BODY
Gombault's
Caustic Balsam
IT HAS NO EQUAL

For the Human Body — It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Boils, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

A Perfectly Safe and Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Strains, Lumbago, Sore Lungs, Rheumatism and all Stiff Joints

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. BEYER.

Price $1.75 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R.

The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

JERSEYS

Jersey Bull
For Sale
A fine straight one, bred right, priced right
S. F. Williams
Orland, Cal.
Member Orland Jersey Cattle Club

Venadera Herd
Registered Jerseys
Young bulls from proven dams in Register of Merit
Guy. H. Miller
Modesto, Cal.

All My Records
Are made under ordinary dairy conditions
The Farmers Cow is
The Jersey
Young Bulls For Sale
C. D. Hayworth
Modesto Cal.

Young Jersey Bulls
For Sale
One at the head of your herd will pay big dividends on his cost. Write to
W. J. Hackett
Modesto Cal.

Get One of My Jersey Bulls
to increase the production of your herd. They are rich in the blood of the great cow, Gertie of Glynllyn.
Visitors Welcome Correspondence Invited
A. A. Jenkins
R.R. Box 46 Tulare, Cal.

TheKeepOnHerd
Register of Merit Jerseys
Young Animals for Sale
Dr. H. W. Hand, Orland, Cal

10 Jersey Bulls

We have recently purchased the entire pure bred Jersey herd of Houston & Son, Imperial, — 143 head, and offering young bulls from $50 up. These are bred in the purple. Write for particulars.

Arden Dairy, Certified
El Monte, Cal.

"What is it that we hold most dear? Our own liberty and prosperity." (Lincoln.) Buy W. S. S.

KLAMATH COWS ON TEST

During the month of May 660 cows were tested by the Klamath River Cow Testing Association, and the report just issued shows that 71 cows made over 50 pounds butter fat during the month. All were grade Jerseys. The highest cow, owned by V. M. Del Ponte, produced 71.1 pounds fat. J. R. McMillan had the second highest cow with monthly production of 65.9 pounds. Eight other cows produced above 59 pounds. The owners and records follow:

J. W. Weber, 65.2 pounds; Paul Bravo, 65.1 pounds; C. P. McBeth, 62.6 pounds; Victor McFarlane, 62.5 pounds; P. F. Peine, 61.9 pounds; V. M. Del Ponte, 61.0 pounds and 60.0 pounds; J. R. McMillan, 59.7 pounds.

The above records were made on pasture only. E. C. Lockwood, secretary of the association, writing to Professor E. C. Voorhies, remarks: "This report is not a bad showing but we hope to have a better report for June. The result of weeding out boarder cows is beginning to show and members are becoming interested in securing better bulls. One registered Jersey bull was purchased this week."

MUST TEST CATTLE FOR TUBERCULOSIS

Animals in interstate commerce after July 1 must be shown free from disease. The enforcement of this new regulation will, it is believed, be of great assistance in preventing the further spread of tuberculosis among live stock, and having the work practically under state and federal supervision at all times will serve to bring about uniformity.

The department of agriculture, through its bureau of animal industry, is now actively cooperating with the state live stock sanitary officials and cattle owners of 42 states in the eradication of tuberculosis from live stock.

Recent legislation in several of the states has made it possible to proceed with the work where heretofore it has been impossible to do so. Federal funds available for the work are insufficient to meet present demands, and now that the cattle owners are finding the work to be of such advantage and importance the demands will increase rapidly.

Most activities are in the "accredited-herd" work with the owners and breeders of pure-bred herds of cattle who wish to free their herds from tuberculosis and have them placed on the list as "accredited."

HEMORRHAGIC SEPTICEMIA

Through the efforts of the farm adviser and the extension veterinarian of the United States bureau of animal industry, an outbreak of hemorrhagic septicemia in Tehama County has been successfully controlled. The outbreak occured in a herd of about 800 head and, though the losses had not been rapid, about 75 head had been lost before the farm adviser was called in .

At the request of the farm adviser, Dr. J. W. Logan of the United States bureau of animal industry was called in. He pronounced the case hemorrhagic septicemia and vaccination was recommended. This recommendation was carried out and the entire herd vaccinated at once with the mixed infection of bacterin. About 400 head received a second dose of bacterin in three days and five days after the second dose, 225 were given a third dose.

Improvement in the herd began to show almost immediately and between the first and second vaccinations there was a loss of only five pigs. Between the second and third doses only three were lost. This is in contrast to losses of four or five per day. There was also a very decided change in the general appearance of the herd, appetites picking up and the whole herd looking more thrifty.

DEL NORTE DAIRYMEN ORGANIZE

Professor E. C. Voorhies of the animal husbandry department of the University of California reports that the dairymen of Del Norte County have organized the Del Norte County Dairymen's Association. Rawley Scott is president and Clarence Westbrook of Smith River is secretary.

Prince Walker Cornucopia
The Highest Record Son of Prince Gelsche Walker



His dam: ALBA SADIE CORNUCOPIA CRESTA has just completed official records of 36.26 pounds butter from 516.7 pounds milk in seven days. Her previous records were as follows:
At seven years—
Milk 338 days.....18,849.40
Butter 266.28
At six years—
Butter seven days 34.13
Milk 532.40
At five years—
Butter seven days 28.85
She is a daughter of Sir Sadie Cornucopia, son of the first 30 pound cow, Sadie Vale Concordia.

Over 60 of our best females are bred to PRINCE WALKER CORNUCOPIA, and he will be given the fullest opportunity in this herd. Put one of his young sons at the head of your herd.

Santa Anita Rancho
Anoakia Breeding Farm
Santa Anita, California
Anita M. Baldwin, Owner W. H. Taylor, Supt.

His Calves Are Beauties



Every one who is fortunate enough to own a son or daughter of KING KORNDYKE PONTIAC 20TH our $6500 herd sire, is enthusiastic about the splendid type and beautiful marking of his calves. While they are only babies his daughters show great promise of developing into exceptional dairy cows.

King Korndyke Pontiac 20th

His young sons are moving fast, and it will pay you well to see us now about one for your herd, for we are not going to be able to fully supply the demand for some time to come.

Our Entire Herd is Tuberculin Tested
Tulare Holstein Farm
W. J. Higdon, Owner TULARE, CAL. H L. Redd, Herdsman

Sir Aaggie De Kol Acme 2nd



Five of his seven nearest dams average:
Milk one year....24,089.88 pounds
Butter ..... 1,105.07 pounds
This butter average is equalled by only one other bull of service age in the world. Buy your next full from

Eldorado Herd
Alex. Whaley, Owner Tulare, Cal.

The Real Reason WHY!

We have more than doubled the milk production on Burr Farm the past year due to good cows by good sires. Our senior herd sire, Sir Veeman Korndyke Pontiac, is a son of Sir Veeman Hengerveld, the sire of more 30-pound cows than any living sire.

We can supply you a young bull, priced reasonable, bred for increased milk production. Address:

BURR FARM Los Angeles, Calif.



GOING FAST, SO ACT QUICKLY

Five young Holstein bulls have left Sunnyside Farm past month to head other herds. We have for sale a few select sons of Sir Veeman Korndyke Pontiac by Sir Veeman Hengerveld, the sire of more 30 pound cows than any other living sire. Full description and price on request.

R. F. Guerin Breeder of Holsteins Visalia, Calif.

Holstein-Friesian Cattle

Registered young bulls from best families.

Registered Berkshire Pigs

Masterpiece, Longfellow, Robin Belle, Rookwood, Duchess and Rival's Champion's Best Strains. Fine individuals of both sexes—we pay registration fee.

Careful attention given to mail orders.

Whittier State School
Whittier, California

Attention Buyers

For Sale, 35 head high-grade Holstein cows, fresh and close springers. See classified advertisement.

Hannon Bros.
Care Geo. Irwin
Third St. Lankershim

California Breeders

have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

CALIFORNIA BREEDERS SALES & PEDIGREE CO.,
C. L. HUGHES, Sales Mgr. Sacramento, Cal.

HOLMES STOCK FARM
Registered Holsteins of best breeding. Young bulls for sale.
R. L. Holmes Modesto, Cal.

Brighton Farm Herds
Registered Shorthorns
and
Berkshires—Both Sexes
H. L. & E. H. Murphy
Perkins, Cal.

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Liner rates: Single insertion 8c per word; 35c per issue minimum charge.

TREES

For Sale — Budding Cloth 50c yard; also leading varieties citrus nursery stock. Selected and pedigreed buds. Order quick for early delivery. Cyrus W. Wilhite, Citrus Nurseries, Glendora, California, Box 154.

Florida Sour and California Sweet Seedling Orange Seed-Bed Stock. The time to plant is propitious; order now. SOUTHLAND NURSERIES, 1941 E. Colo. St., Pasadena, California.

For Sale or Exchange for auto—400 seedless grapefruit, 400 Eureka lemons, 2 and 3 years old. R. B. Tapper, R. F. D. No. 1, Box 205, Pasadena, California.

For Sale—3000 select orange trees. Also 3000 lemon trees; first class trees; 20,000 seed bed stock. A. R. Rideout, Whittier.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

BUDDED AVOCADOS
MATHER'S AVOCADO NURSERY, 137 N. Fair Oaks Ave., Pasadena, California.

MISCELLANEOUS

Before Selling or Buying land procure a soil analysis from a competent expert. If the report is good you can sell for better prices; if bad the buyer can save and pass it up. One party, after getting my report sold his grove for $6000 more than he had asked for it and could not sell. R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles. Phone Pico 843.

Made of Redwood, Hawley's Perforated wooden well casing, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 816 Washington Building, Los Angeles, California.

For Sale—Lot on High Street, Oakland. Price $350. Would exchange as part pay on 2 acres good land, balance cash. Address R. A., Box 245A, Acampo, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 816 Washington Building, Los Angeles, California.

WANTED

Want to Buy 10 to 40 Acres Near the mountains; running water and cheap commercial electricity. Price of land must be reasonable. DR. McHUGH, 311½ S. Main street, Aberdeen, S. D.

Agricultural Efficiency Expert desires to manage ranch on efficiency basis. Experience in all branches of farming. P. O. Box 750, Chico, California.

Wanted—Tenant for mountain fruit and berry farm. Ideal climate, water and market. Cash or share. Dr. Harvey, Paradise, California.

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

Feeder Hogs Wanted. R. B. & N. Ranch, Waukena, Tulare Co., California.

SEEDS AND PLANTS

The Garden Beautiful in California by Ernest Braunton, a 200 page book fully illustrated tells you how to beautify your home grounds and the proper trees and shrubs to plant, also best methods of gardening. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 No. Broadway, Los Angeles.

One Row Pays the Extra Cost, Garden Grove, Kansas, variety real Dwarf Milo maize, 6100 pounds threshed corn to the acre grown here last year. 15c per pound. 100 pounds or over 12½c; express paid. D. M. K. Co., distributors, Holtville, California.

For Sale—Fancy Recleaned amber Sorghum and Sudan grass. Also hand-picked Seed beans; any quantity. Stock pumpkin seed 20c per pound. Aurora Seed Mill, Stockton, California.

Box 501, Fowler, California. Write for circular, prices on seed and plants, Sudan, Dwarf Milo Maize, Honey Sorghum, Amber Cane.

For Sale—Yellow Sweet Potato plants, $1.50 per thousand. W. L. Lutz, Route 3, Santa Ana.

RABBITS

Raise Rabbits for us. We supply the breeding stock. Send stamp for particulars. H. E. Gibson Co., Arcadia, California.

For Sale — Rabbits, New Zealand and Flemish Giants, young stock. Paul Kruger, Watsonville, California.

FERTILIZER

EARL A. HOLCOMB
SOIL LIFE
Fertilizer and materials mixed to balance every soil. Bureau of testing and advice free on all horticultural and agricultural subjects. 1022 Washington Bldg., Los Angeles. Phone 62907; res. 16116.

For Sale—Chicken manure in carloads. Cheapest and best fertilizer. MacDonald Sons. Phone 101, Watsonville.

FARM LOANS

PAY OFF THAT MORTGAGE.
PLENTY OF MONEY WITHOUT COMMISSION.
Loans made for 5 years at 6½ per cent. Pay off all or part at any time—will loan to build, house, put down well, or take up present encumbrance—make new arrangements while available. Write today for details. James Brown, 423 Hollingsworth Bldg., Los Angeles.

MACHINERY

SPECIAL BARGAINS
GALV. SURFACE IRRIGATING PIPE
4-in., $16.50; 6-in., $24.50; 7-in., $31.90; 9-in., $38; 10-in., $43. 6 hp. Lambert gas engine, $115; fine 8-in. double acting cylinder new, $150; 4-in. hor. cent. pump, $69; 5-in., $88; 6-in., $125; No. 3 Ames double acting plunger pump, $275; pipe and rods extra.
WINDMILLS-TANKS-STEEL TOWERS
8-ft. mills $29 up; 10-ft., $39 up; 12-ft., $65 up; 16-ft., $135.
New, Used Redwood Tanks Guaranteed.
1000 gal., $19.50; 2000, $28.50; 3000, $35; 5000, $48; 25,000, $125; 15,000, $95.
NEW, USED GALVANIZED TANKS.
Used 1000 gal., $28; 3000, $55; new 1000 galv., $42.50; 2000, $56.
SHALLOW SQUARE & OBLONG TANKS
COMPLETE PUMPING PLANT
4 H. P. Fairbanks engine; fine large Bulldozer pump, 4-in. pipe, cylinder rods, belt and all fittings like new $250.
RANCH MACHINERY.
10-ft. Hoosier grain drill, $95; 4 row beet drills, $35 to $45; 3 and 4 gang disc plows, $95 to $125; bean, beet cultivators, $35; potato planters, $75; cider mill, $17.50; cable. Nearly new Bean spray outfit cost $75 for $35. Many other bargains. Trade tools you don't need for material you do or pay with Liberty Bonds. Also want to buy. Material guaranteed as represented or money refunded. DEMMITT CO., 120 N. Main, upstairs, Los Angeles.

Corn Harvester — One man, one horse one-row, self-gathering. Equal to a corn binder. Sold to farmers for twenty-three years. Only $25, with fodder binder. Free catalogue showing pictures of harvester. PROCESS CORN HARVESTER CO., Salina, Kansas.

3-inch Deep Well centrifugal pump, and 6 horse distillate engine, just used short time. J. M. Nelson, Fillmore, California. Phone No. 239J2.

CATTLE

50 REGISTERED SHORTHORN CATTLE
125 REGISTERED SHROPSHIRE SHEEP
45 REGISTERED BERKSHIRE HOGS.
10 SHETLAND PONIES.

AT PUBLIC AUCTION
SATURDAY, AUGUST 2, 1919

BUTTE CITY RANCH
Butte City, Glenn Co., California

This is a splendid offering from the herds and flocks of the noted Butte City Ranch, and buyers will find an extra good selection of registered animals of most approved breeding, excellent type, and good physical condition. Just the sort of animals to use for foundation stock. Catalog free on request to sale management—CALIFORNIA BREEDERS' SALES AND PEDIGREE CO., 211-212 Ochsner Bldg., Sacramento, California.

BUTTE CITY RANCH
SHORTHORN CATTLE, SHROPSHIRE SHEEP, BERKSHIRE HOGS, SHETLAND PONIES. Stock for sale at all times. Second Farm Sale—all breeds—August 2, 1919. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

Guernseys—We will sell stock from our prize winning, high producing herd, at reasonable prices, valued according to individuality and breeding. Our supply is limited but if the buyer wants a number of animals and will write us we will furnish him with particulars. Revada Guernsey Farm, Yountville, Napa Co., California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show Herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Elkhorn Farm Ayrshires — Choice registered young bulls at reasonable prices. J. H. Meyer, 440 Montgomery Street, San Francisco, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Ayrshires (registered) — A few young bulls, heifers and cows in milk at a bargain for quick sale. A. MacMinn, Phoenix, Arizona.

Breeders of Registered Shorthorns—Milk Strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Ayshires—Registered Yearling Rob Roy bull. Farmer's price. Redwoods Ayrshire Farm, La Honda.

Sunshine Farm Jerseys—Tuberculin tested. "Production counts." E. E. Greenough, Merced, California.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Jersey Bulls—Type and production, easy terms. N. H. Locke Co., Lockeford, California.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

TURKEYS

Eggs From Mammoth Bronze Turkey utility stock, 25c and 50c; show stock, $1, $2, and $3 each. White King Pigeons, $3 a pair. Paradise Valley Poultry Ranch, National City, California.

For Sale—Bronze Also Mammoth Bronze turkey eggs—Robinson Turkey Ranch, San Dimas, Covina Phone 902.

AGRICULTURAL IMPLEMENTS

IMPLEMENTS AND RANCH SUPPLIES. Samples and slightly used. Four floors. Large stock. Liberal credit. Save 50 per cent on some. No branches.
ARNOTT & COMPANY, INC.
The Yellow Front. Established 1892
112-118 S. Los Angeles St. Los Angeles.

HOGS

300 HOGS 300

At the Italian Vineyard Co.'s Ranch, 3 miles east of

ONTARIO

WEDNESDAY, JULY 2, AT 10 A. M.
Including about 120 head of fine bred and open gilts. Nearly all Berkshires, a few Poland-China and Durocs. The best lot of grade gilts ever offered in Southern California. Also
180 FAT HOGS 180
average weight 190 pounds
Write for full information. Italian Vineyard Co., Owners.

COL. BEN A. RHOADES,
HAROLD B. RHOADES
1501-3-5 South Main St., Los Angeles, California
AUCTIONEERS

CASTLEVIEW

Giant Type Berkshires.

We are booking orders for spring pigs from Grand Champion sows and sired by Mayfield Rockwood, sire of Champion barrow at 1919 Western Berkshire Congress.

Castleview Ranch, Santa Rosa, Calif.

POLAND-CHINA BARGAINS

BRED SOWS GILTS BOARS
In order to reduce our herd and to make room for young stuff we find it necessary to offer for immediate sale a choice lot of Poland-China sows, gilts, and boars. The offering represents as good blood lines as we could buy and has been nicely grown out. All are cholera immune. Prospective buyers should not overlook this opportunity. You will be surprised at the ertremely reasonable prices we are quoting. Scrub hogs are not profitable. Our registered hogs are money makers. Write now for prices. Act quick. These hogs must be sold. AMERICAN HOG CO., 920-922 CROCKER BLDG., SAN FRANCISCO.

BERKSHIRES BERKSHIRES

ANCHORAGE QUALITY

We always have a limited number of specially selected pigs for sale sired by Star Leader, now Grand Champion of the World, or by his son, Anchorage Leader II. All pigs are well developed and are excellent value for the price asked. All are cholera immune and the Anchorage Farm guarantee is behind each pig. Write today for full information to Anchorage Farm, Orland, Cal.

TWO SOWS AND A BOAR
$100 the trio.
Two sow pigs from ten raised, sired by Baron Duke 201st, 780-pound $1100 Grand National Champion, from Rival B. Princess, a prize winner at San Francisco, Sacramento, Oregon, and Omaha National Swine Show, and a boar sired by the Grand Laurel Champion Boar from Symboleer Belle, and of Superbus blood lines; a boar from a litter of ten raised, big, long typy, stretchy pigs. Sandercock Land Co., in charge of Natomas Land Sales, 23 Montgomery Street, San Francisco, California.

Billiken Chester Whites. Not many left now; one 1917 fall boar; one 1918 fall boar; both cholera immune. All pigs farrowed to date are booked for sale excepting 10 boar pigs. Have 10 sows yet to farrow during May, June and July; will book orders from these litters, delivery to be made when weaned. C. B. Cunningham, Mills, California.

Grape Wild Farm Berkshires—Guernseys—spring pigs sired by Big Leader and Grape Wild Farm Leader. Guernsey bull up to 8 months old. A. B. Humphrey, Prop., Escalon, California.

For Sale—Registered Duroc-Jersey pigs, McKee Bros., Pilot Defender blood, owned by C. T. Thompson, Bishop, farrowed April 3rd, 1919. Very fine. For particulars and breeding, write: W. E. Detrick, Bishop, California.

Rancho Del Sur Durocs—A few good growthy fall boars sired by Orion's King Gano and California Orion Cherry King. Satisfaction guaranteed. Donald H. Graham, Box 569, Lancaster, California.

The Best in the West—California Gertsdale and Presidents Equal are my herd sires. Fall and spring boars now ready to move; each one a corker. Dr. J. A. Crawshaw, Hanford, California.

Pathfinder and King's Col. Stock, immune. Weanlings $25 each. Bred gilts and service boars. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Have Sold All the Pigs advertised recently. Will have fine pigs from spring litters for sale in June. Fine Shropshire ram lambs, pure bred, for sale. J. J. Prendergast, Redlands, California.

Big Type Durocs—Herd headed by California Orion King. Am offering some excellent boar pigs of spring farrow. Inquiries solicited. Prices reasonable. Harvey M. Berglund, Dixon, California.

For Sale—Registered Duroc-Jersey Weanlings every month in the year, $15 each; 3 for $40. Satisfaction guaranteed. Red Rock Ranch, Glen Ellen, California.

SWEETWATER DUROCS
The most popular herd in the West. Winsor Ranch, Bonita, San Diego Co., Address: R. K. Walker.

Duroc-Jersey Swine For Sale, best blood lines. Bred sows and gilts, service boars. Jersey Queen Farm, San Jose, California.

HOGS

Duroc-Jerseys — We won more money on Durocs at the State Fair than any other exhibitor. Why not get some of this winning stock? June Acres Stock Farm, Davis, California.

For Real Good Berkshires, cholera immune, write Frank B. Anderson. Box 724, Sacramento, California.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, California.

Poland-Chinas — A few good breeding boars. S. F. Williams, Orland, California.

REGISTERED BERKSHIRES. FAIR OAKS RANCH, WILLETS, CALIF.

BIG TYPE POLANDS
W. H. BROWNING, WOODLAND, CAL.

POULTRY

Baby Chicks For Sale—250,000 S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock. 25, $3.50; 50, $7.00; 100, $12.50. Special prices, 500 and 1000 lots. Safe delivery guaranteed. You pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Shipped safely anywhere West of Rockies. Finest hatchery in the world. Established 1898. Must Hatch Incubator Company, 438 Seventh Street, Petaluma, California.

White Leghorns are the most profitable breed of poultry. If you are in the business for profit you will eventually have them. Early broilers; early payers; early PROFITS. We sell only WHITE LEGHORN BABY CHIX from heavy laying HOGAINZED hens. Safe delivery of full count live chix guaranteed. Prices per 100: February, $15; March, $14; April, $12.50. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

It's like groping in the dark to attempt raising poultry successfully without some knowledge of the business. Poultry for Profit tells you how to house, feed and raise chickens, ducks and, turkeys successfully in California. It contains 225 pages with 13 pages of illustrations and bound in cloth $1.00 postpaid. Cultivator Publishing Co., 115 N. Broadway, Los Angeles, California.

OUR SPECIALTY
GUARANTEED TRAP NESTED
S. C. WHITE LEGHORNS
It's our business to improve egg production for you. We have the stock planned for your success. ENGLAND'S EGG RANCH, the home of "ACTUALLY" trapnested S. C. White Leghorns every day in the year since 1912. Box E 337, Inglewood, California.

Barred Plymouth Rocks—Champion prize winners and wonderful layers. Choice cockerels, hens and pullets for sale. Eggs for hatching from grand matings. I have made a specialty of Barred Rocks for 20 years. That's why our birds win at all the leading shows. "Nothing better in poultry" than Vodden's Barred Rocks. Catalog free. Charles H. Vodden, Los Gatos, California.

Thoroughbred Barred P. Rocks, egg record 1917, 190 eggs per hen; 1918, 210 eggs per hen. Hatching eggs, $2.50 per 15 eggs. Chicks 30c each; 7 pullets May hatch, laid 12 dozen December, 10 dozen January. Call mornings or phone 5599. Warren Poultry Yards, 36 Little Delmas Ave., San Jose, California.

Rush Orders—Bargain Prices. Can ship next Tuesday or Wednesday, Brown Leghorn chicks, $13 hundred. Black Minorcas, R. I. Reds, Barred Rocks, $16. Large or small lots. Also booking orders summer and fall delivery. Mission Hatchery, Box 27, Campbell, California.

Poultry for Profit—A 225 page book, with 18 pages of illustrations, tells you how to successfully house, feed and raise chickens, ducks and turkeys in California. Cloth binding $1.00 postpaid. Cultivator Publishing Company, 115 N. Broadway, Los Angeles.

S. C. White Leghorn Chicks by the 100 or 1000 from Hoganized and trapnested stock, winners of 1st, 2nd and special for pullet, 1st cockerel at Pacific Coast Land Show. Order your chicks for June 10th delivery. A. O. & P. M. Forster, 2916 Otis Street, Berkeley, California.

Baby Chicks From My Thoroughbred, heavy-laying strain of S. C. White Leghorns. Am booking orders now for July delivery at $12.00 per 100, $110.00 per 1000. Prices for August and September delivery on application. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Get Baby Chicks Now—Write for free booklet on fall chicks. See why they pay. Several varieties every week. Only good strong youngsters shipped. Stubbe Poultry Ranch and Hatchery. Box 67, Palo Alto, California.

Baby Chicks, Special Prices—Reds, Rocks, Anconas, $15.00 per 100. McFarland strain White Leghorns, $12.00 per 100. Hatchings Saturday and Wednesday. A. G. Rowe, Inglewood, California.

Black Orpingtons Lay, Weigh and Pay—Prize winners at leading shows. Write for mating list. IVEYMOOR FARMS, San Leandro, California.

Baby Chicks—Our large, bred to lay S. C. White Leghorn hens will produce the pullets that will bring in the dollars this winter. Tupman Poultry Farm, Ceres, California.

"Eastman's Bred-to-lay" Hoganized and trapnested Barred Plymouth Rocks. SEPTEMBER CHICKS. Fairmead Poultry Farm, Fairmead, California.

Rhode Island Red Eggs for hatching. Phone 5R4. Mrs. Garden, Route 4, Box 235, Stockton, California.

Baby Chicks, White and Brown Leghorns, R. I. Reds, Barred Rocks. E. W. Ohlen, Campbell, California.

Buff Orpingtons, Buff Ducks, Bourbon Red turkeys. The Ferris Ranch, S. Reservoir, Pomona, California.

Exchange 1 60-egg incubator new, for 2 young laying hens. No. 27 Shawmut, California.

PIPE

"TESTED" and "GUARANTEED"
Screw pipe, casing, valves and fittings. Riveted slip joint pipe; all sizes. New and used. "Pacific" pipe for all purposes.
PACIFIC PIPE CO.,
Established 1906.
Main and Howard Sts., San Francisco

FARM LANDS FOR SALE

$35,000—61 acres located a short distance from Mountain View in a good location. There are 41 acres in alfalfa and 20 acres in tomatoes with a small family orchard. Improvements consist of a fine modern residence of 7 rooms, barn and a complete set of outbuildings. There is a first-class pumping plant on the property which furnishes an abundance of water for irrigation the year round. The place is fenced and cross fenced and divided off into several fields. Can be bought on terms.

$500 Per Acre—40 acres all in bearing alfalfa located in the rich Mountain View district, and divided into two fields, irrigation from pumping plant and artesian well. No buildings. Terms of payment can be arranged.

DAIRY AND ALFALFA LAND

$205 Per Acre, for 113 acres rich vegetable, dairy or alfalfa land; located near Mountain View, in a very good district; improvements consist of a 5-room ranch house, 3 barns, pumping plant and two flowing artesian wells. The property is fenced and cross fenced and divided off into six different fields; a remarkably cheap place; one-third cash required.

WILLIAM P. WRIGHT
Mountain View, Santa Clara Co., California.

For Sale—20 Acres Tulare County 10 acres 4-year-old late Valencias; 8 acres 1-year-old Washington navels; 2 acres left for building site and garden. Over 2000 feet cement pipe line with turnout at each tree row; 6 h.p. gas engine, 3-inch pump, making an up-to-date irrigation system. Small house, large garage and workshop, blacksmith outfit and all tools necessary for farm; tractor, plow and implements all go with ranch at $12,000.00. This place lies against the foothills, overlooking the entire valley. One of the beauty spots of California. Terms. ½ cash, balance to suit. H. H. ESHELMAN, Owner, P. O. Box 45, Soldier's Home, California.

176-ACRE MONEY-MAKER WITH 10 COWS, 3 HORSES

and manure spreader, reaper, drill, potato digger, mowing machine, rakes, sulky and walking plows, roller, long list implements, in heart high-grade farming section, short walk school, 1¾ miles RR. town. Loam tillage for good crops, wire fenced, spring watered pasture for 30 cows, home-use wood, fruit, 10-room house, 110 ft. stock barn, horse barn, corn house, etc. Owner retiring makes quick sale price. $5500, easy terms, gets all. Details page 35 Catalog Bargains 19 States, copy free. STROUT FARM AGENCY, 831 A. G., N. Y. Life Bldg., Kansas City.

400 Acres, run down ranch but a good one if developed. Price will astonish you. All fenced, 125 acres farming land, balance pasture, and timber land, old house, old barn, good water, well at house, and good spring at upper end of ranch, running sufficient water for all stock purposes. Quantities of wood. This a pick up in the way of ranches. S. P. R. R. Co. drilling oil well within 10 miles of this property. C. P. Gould, Southerland Apts., 334 East Ocean Ave., Long Beach, California.

For Sale—A 15 Acre 5 to 7 Year Old Orchard of apples, peaches, plums and pears, 2 miles from Escondido, Cal., on main road. Worlds of irrigation water by electric power; good house, well, 4-room house, good barn; will yield about $1000 fruit crop in next 90 days. Price $7500; equity $6000. Come and see it. Address G. W. WISDOM, Escondido, California.

For Sale—Ranch of 37 Acres, good buildings; modern conveniences. A good orchard or vineyard proposition. Close to school, store and church. Five miles from Escondido. Might consider some exchange. $2500 cash will handle this property, balance can be arranged to suit. Inquire Cultivator, Box B. A. J.

Mountain Ranch—334 Acres, 90 acres under cultivation, 30 acres Bearing Orchard, balance in Timber, Oak and Pine. Free Water, deep, rich soil, eight-room house, 100 tons hay, barn and out buildings. Will subdivide. Price $7500. Terms. Address, Paradise Ranchita, P. O. Box 123, Paradise, Butte County, California.

For Sale—Forty Acres bearing apricots and peaches, adjoining city of Hemet. This is first class stuff, highly improved, piped and water stocked. Present crop estimated over $10,000. Price, including crop, implements, trays, etc., $1100 per acre. Easy terms. H. M. King, Anaheim, California. Phone 324W.

To Be Sold at Once—This 14-acre grove of full bearing Valencias, located right at Anaheim city limits, with 6-room bungalow; private pumping plant, piping, gas, etc., $2300.00 per acre, easy terms. Is certainly a bargain, having every advantage, and underpriced. Apply to H. M. King, Anaheim.

880 Acres mountain stock ranch, well watered and partially fenced—government land adjoining which can be homesteaded. C. P. Gould, Southerland Apts., 334 East Ocean Avenue, Long Beach, California.

$10 to $25 An Acre, Good Land, 160 acres and up, some improved, oak timber, watered by streams and springs, fine climate. W. W. Baldy, Raymond, California, Madera County.

Bargain—100 Acres Land; dairy stock, horses, farm implements, house and outbuildings; good income. Write for full particulars. G. D. Flesher, Valley Springs, California.

For Sale — Imperial Valley's finest fruit and alfalfa farm for sale at a bargain, 160 acres. Earliest grapes and apricots in the United States. C. A. Myers, 1119 Haas Building, Los Angeles.

MULES

For Sale — Twenty-five young mules, one and two years old. Chas. Hubbard, Riverdale, California.

BEES

For Sale—250 colonies of bees. Price $1200. Alois Katzer, Placentia, California.

DOGS

Collie Dogs For Herding, cattle, sheep and turkeys. John G. Mee, breeder of Bronze turkeys and Embden geese. St. Helena, California.

ENGINES

Gasoline Engines, the largest stock of Used gas engines in California from 2 h. p. to 100. Thoroughly overhauled. Machinery Exchange, 733 North Spring St., Los Angeles.

For Sale—20 Horse Gasoline Engine (Olds), perfect condition, with belt and pump; cheap for cash. H. M. King, Anaheim.

Several New and Slightly Used Engines. ARNOTT & CO., Implements, 112 South Los Angeles Street, Los Angeles.

PATENT ATTORNEYS

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Send For Free Booklet—"All About Patents and Their Cost." Shepherd & Campbell, Patent Attorneys, 734 L 8th St., Washington, D. C.

EDUCATIONAL

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Los Angeles Markets

Los Angeles, June 25, 1919.

BUTTER

Butter, creamery extras, Produce Exchange price, 55 lb.; prices to retail merchants in 1-lb. squares, 55@56.

Dairy Exchange prices last week on extras:

June	18	19	20	21	23	24
'19 ...	57	57	..	57	55	55

CHEESE

Brokers' prices.
California fresh, lb., 29½; price to retail merchants, 31½@32½.

EGGS

Fresh extras, Produce Exchange closing price 51 doz., price to retail merchants, 54 doz.; case count, Produce Exchange closing price, 49 doz.; price to retail merchants, 51 doz.; pullets, Produce Exchange closing price, 45 doz.; price to retail merchants, 47.

Dairy Exchange prices last week on extras:

June	18	19	20	21	23	24
'19 ...	48	49	..	49	50	51

POULTRY

Prices to producers: Hens, 23@32; broilers, 24½@29; fryers, 32; roasters, 35; old roosters, 14; capons, 42; ducks, 23; ducklings, 25@27; geese, 25; turkeys, 35@40; squabs, 45.
Belgian hares, 15.

LIVE STOCK

Although the hog market in Chicago, Kansas City and Omaha has shown violent fluctuations throughout the month of June, prices have kept within a spread of $1.50 cwt. in comparison to the prices ruling June 2, which were $20.00 to $20.40. While the situation in the East has an indirect bearing on this market at most times, our market at present is in a much more settled condition. A gradual decline from the extreme top of $18.85, which price ruled a month ago, to the present quotations of $16.50 to $17.30 country shipping point or $18.00 to $18.50 f. o. b. here, has been devoid of sharp declines. The demand for hogs at present is light.

Beef cattle are very weak owing to the fact that the market is oversupplied with all classes and grades. Published quotations indicate a top for good steers at $10.50 f. o. b. Los Angeles, but cattle must be very good to command that figure. The bulk of buys center around $10.00 here for the average run.

Choice lambs are very scarce and a strong market rules. All other grades are weak as the supply of common lambs exceeds the fair demand.

In sympathy with lambs, ewes and wethers are also weak.

The following prices represent those paid by local killers f. o. b. Los Angeles. County point prices are usually $1.00 to $1.50 less than these figures, dependent upon the distance from the city:

Cattle:
Good steers .....10.00@11.00
Medium steers .....9.50@10.00
Common steers .....8.00@9.00
Good cows .....8.00@8.50
Medium cows .....7.00@8.00
Common cows .....5.00@6.50
Hogs No. 1, 175-225 lbs. .....18.50@19.00
Hogs No. 2, all other weights..17.00@17.50
Sheep:
Lambs No. 1, 55 to 75 lbs.....15.00@16.00
Lambs No. 2, 65 to 80 lbs ....12.50@13.00
Wethers .....9.00@9.50
Ewes No. 1 .....8.00@9.00

VEGETABLES

These are the actual prices obtained June 24, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Asparagus: Northern, green, local fancy, 14@15; fancy, 10@11.
Beans: Kentucky Wonder, best 9½@11.
Beets, doz. bunches, 25@30.
Carrots, doz., 35@40.
Cucumbers, Signal Hill, 14 pound box, 1.25@1.35; lug 2.25@2.50.
Celery, local doz., 85@1.25.
Corn, sweet, doz., 1.25.
Eggplant, lb., 10@12.
Lettuce: Sales to retailers, best lettuce in cabbage crates, 75@85.
Parsley, doz., 15.
Radishes: Round Red 15 per dozen bunches. Long White, 30@35 per dozen bunches. Long Red 20 per dozen bunches.
Rhubarb: Local Giant Cherry, 1.25@1.50 per packed box. Strawberry, fancy 1.00@1.35 apple box.
Spinach, doz., 20.
Squash: Local summer, lug 60@75.
Tomatoes: Quality and condition generally fair. Coachella and Imperial Valley, 4 basket crates, best 1.35@1.50.
Turnips, doz., 25@30.

FRUITS

These are the actual prices obtained June 24, by Los Angeles wholesalers in restaurants, cafeterias, etc. Terms. Cash on the walk.

Apples. Yellow Newtons, fy. medium their sales to retailers, peddlers, hotels, size, 4.50@5.00; loose, 9@11 lb. Oak Glen, Rome Beauties and Pearmains, 3.75@4.00.
Apricots: Bulk, 5@6.
Blackberries: Cr., 2.75@3.00.
Cantaloupes: Demand and movement good, market steady, little change in prices. Sales to jobbers—green meats, wrapped and unwrapped, standards 45s best 1.90@2.00, some over ripe 1.50@1.75, ponys 45s and 54s, wrapped and unwrapped, best 1.60@1.75, flats 12s and 15s, wrapped and unwrapped 70@85, Honey Dew, standard crates 10s and 12s, mostly 2.75, specials, crates, quality poor, mostly 1.50.
Brawley. Demand good, movement limited. Market firm, little change in prices. Carloads f. o. b. cash track—few sales. Green meats, wrapped and unwrapped, standards 45s, best 7.75@1.90, poorer low as 1.25, best, ponys 54s 1.25@1.40, flats 12s and 15s 60@70, mostly shipments rolled unsold, many consigned.
Cherries: Black Tartarians, 15@16; Royal Annes, 10@17; Black Republican, 16@18.
Figs, per 10 lb bx, 1.75@2.00.
Gooseberries, .11@12 lb.
Loganberries, cr., 2.50@4.50.
Raspberries, cr., 3.00@3.50.
Peaches: Homegrown 6@8 lb.; bulk per lug box, 1.75@2.00.
Pineapple, lb., 18@20.
Plums: Climax, best large sizes, 8@9 per pound. American Beauties, 7@8; Santa Rosa, 10@11 per pound.
Strawberries, cr., 3.50@4.50.
Watermelons; Imp., lb., 2.
Brawley: Haulings increasing. Quality and condition good. Carloads f. o. b. usual terms. Excell, bulk per ton 19.00 @20.00; Angelenos, 18.00@19.00.
Lemons: Fancy packed, 6.25@6.70; local pack, 4.00@5.00; loose, some tree ripe, 3.00@4.00.
Oranges: Valencias, medium fancy, 5.00@5.50; local pack, 2.50@4.00.
Grapefruit: Local fy., 3.50@4.00 bx.; poorer, 1.65.

BEANS

Demand and movement slow, market unsettled, little change in prices. Carloads f. o. b. usual terms — pool prices, choice, recleaned, Limas 9.00, Henderson Bush 8.00. Warehouse cash to growers, choice, recleaned, Small Whites 6.40@6.50, Large Whites 6.10@6.25, Blackeyes 3.60@3.70, Tepary 2.25@2.50.

HAY

Quotations by Nichols - Loomis Company. Following are prices to growers, f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices:

Tame Oat .....16.00@20.00
Barley .....14.00@18.00
Alfalfa .....14.00@18.00
Wheat or Barley straw .....6.00@8.00

The Alfalfa Growers of California, Inc., 525 Central Bldg., Los Angeles, furnishes the following quotations on alfalfa hay. Below are its selling prices to carload purchasers f. o. b. cars Los Angeles on the new 1919 crop:

No. 1 dairy .....24.00@25.00
Standard alfalfa .....18.00@19.00
Stock alfalfa .....14.00@16.00
Standard dairy .....21.00@22.00

GRAIN

Prices on local Grain Exchange, carlots:

Egyptian corn, 3.20.
Feterita 3.10.
Milo maize, 2.90@2.92½.
Barley, 2.85@2.87½.
Corn, Yellow No. 2, 3.30.
Wheat, 40.00.

San Francisco Markets

San Francisco, June 24, 1919.

BUTTER

Quotations made daily by the San Francisco wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by wholesalers to producers are eight per cent less.

The quotations on butter are on the basis of solid packed cubes. To ascertain the market price of butter in squares, add to the cubes basis price per pound as follows:

Two-pound squares, parchment wrapped, ½ cent; 1-pound squares, parchment wrapped, 1 cent; 2-pound squares in cartons, 1½ to 2½; 1-pound squares in cartons, 2 to 3.

Dairy Exchange quotations, lb..
Extras 55½

Prices extras past week and year ago

June	17	18	19	20	21	23
'19 ...	..	57	57	57	57½	55½
'18 ...	44½	47½	47½	47½	..	..

Rcts. wk. ending June 23, 2293 centals.

CHEESE

Dairy Exchange quotations:
Cal. Flats 31
Cal. Y. A. fy. 35½
Ore. Triplets 38
Jack, full cream .....25@27

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras 54½
Firsts .....Nominal
Extra Pullets 46½

Prices extras past week and year ago:

June	17	18	19	20	21	23
'19 ...	52	52½	53½	53½	53½	54½
'18 ...	44	45	44	43	..	..

Rcts. wk. ending June 23, 272,380 cases.

POULTRY

Hens, 30@35; roosters young, 38@45; ers, 30@35; squabs, 2.50@4.00 doz.; ducks and geese, 25@28.
Belgian hares, live, 13@15; Jackrabbits, doz., 2.50@3.50.

LIVE STOCK

Cattle—Grass fed steers, No. 1, weighing 1000 to 1200 pounds, 10¾@11; do, weighing 1200 to 1400 pounds, 10¾@11; do, second quality, 9@9½; do, thin, 5@7.
Cows and heifers—Grass fed, No. 1, 8½@9; do, second quality, 7@7½; do, common to thin, 3½@6½.
Calves — Light weight, per lb., 12½@13; medium, 11@12; heavy, 8½@10.
Lambs, yearlings, 10@11; milk, 13@13½; sheep, wethers, 10@10½; do, ewes, 8@8½.
Hogs—Hard, grain fed, 100 to 150 pounds 17¾; do, 150 to 250 pounds, 18¼; do, 250 to 300 pounds, 17¾; do, 300 to 400 pounds, 17½.
Moran & Co. quote the following prices for live stock delivered and weighed off cars at their plant in South San Francisco. Steers—Choice, 1000 to 1200 lbs., 11@11½; medium to good grass steers, 950 and over, 9½@10; good heifers, 1000 and over, 9@9½; good cows, 1000 and over, 8½@9; medium to good cows, 900 and over 8½@9; canner cows, 4@5; good bulls, 5@6½; calves, 9@10.
Hogs — Today's market on top packer hogs, hard and well finished, weighed and delivered off cars at our plant, South San Francisco; 175 to 250 pounds, 18½; 150 to 175, 18; 250 to 300, 18; over 300, 18; under 150, 17½. Usual dock and price discounts for other weights and kinds.

ONIONS

Onions: Per ctl: Reds, 3.50@4.00, at dock; yellow, 3.25@3.50; Bermudas, Crystal wax, 3.75@4.00; yellow, 3.50@3.75; green, 2.00 box.

VEGETABLES

Wholesale selling price:
Artichokes, doz., 15@50.
Asparagus, lb., 6@12½.
Beans, String, 10@15; Wax, 12@14; Pole, 15; Limas, 10@12.
Cabbage, doz., 75.
Carrots, sack, 4.00@4.50.
Celery, 5@6.
Cucumbers: Large box, 3.50@4.00; small, 1.75@2.00; Los Angeles, lug, 3.00@4.00.
Corn, doz., 30@40.
Eggplant, southern, fy., 12½@15.
Lettuce: Cr., 50@1.25.
Okra, green, lb., 8@10.
Peppers, Bell, lb., 10@15; Chili, 12½@15.
Peas, lb., 9.
Rhubarb. Strawberry, bx., 1.25@1.75; Mammoth, 1.75@2.25.
Spinach, 75@1.25.
Squash: Summer, 1.00@1.25; Italian, box, 1.25@1.50.
Tomatoes, Mexican, crate, 1.50@2.00; Imperial, 75@1.25: Merced, 75@1.00.

CITRUS

Per bx: Lemons, 5.00@7.00; lemonettes, 3.50; grapefruit, 2.50@5.00; oranges, 3.50 @5.00.

FRESH FRUITS

Wholesale selling price:
Apples; Newton Pippins, 2.50@3.00.
Apricots: Winters, 1.00@1.25; loose, 5@6; Royal, 6.
Bananas, 8@8½.
Blackberries, chest, 12.00.
Cantaloupes: Per crate, 2.00@2.50; pony crate, 1.75@2.00; flats, 90@1.00.
Cherries, 1.25@1.50 per tray and drawer; bulk, black, 7@10; do, white, 6@8; Royal Anne, 10@12.
Currants, chest, 10.00@13.00.
Figs, 75@1.00 bx.; Brunswick, 75@1.25; whites, 75@1.00.
Gooseberries, ch., 12.00; lb., 6@8.
Loganberries, ch., 8.00@10.50; Black, 10.00@12.00.
Loquats, 6@8.
Peaches: Redbanks, 1.00@1.25; Sacramento, 65@1.25 cr.; bx., 85@1.00.
Plums: Cherry, 85@1.00; Clyman, 1.00 @1.50; Simoni, 1.00@1.50; Santa Rosa, 2.00@2.25.
Pineapples, doz., 3.50@4.00.
Raspberries, cr., Los Angeles, 2.00@2.50; chest, 12.00@15.00.
Strawberries: Chests, 12.00@15.00.
Watermelons, lb., 2¼@2½.

DRIED FRUITS

Price to growers:
Apples: 14@16.
Apricots: Opening prices on 1919 dried apricots to the trade:
Sunsweet Quality: Ch., 25; extra ch., 26; fy., 27; extra fy., 29; fy. Moorparks, 29; extra fy., Moorparks, 32.
Growers Brand Quality: Ch., 24½; extra ch., 25½; fy., 26½.
First Quality: Standards, 19; slabs, 21.
Other grades on sample.
Peaches: Packers' quotations, basis price: Standard yellow, 16; Muir, 16¼; ch. yellow, 16½; Muir, 16¾; extra fy. yellow, 17, Muir 17½; fy. yellow, 18¼; Muir, 18¾; extra fy. yellow, 19½; Muir, 20½.
Pears, 16@18.
Figs: Calimyrnas, 18@20; Mission, 11@13; Adriatic, 12@15.
Prunes: Packers' quotations basis price: 30-40s, 19; 40-50s, 17; 50-60s, 14½; 60-70s, 13½; 70-80s, 13; 80-90s, 12¾; 90-100s, 12½; 100-120s, and 120s up, no price quoted.

BEANS

Demand and movement slow, market dull. Carload f. o. b. usual terms—choice, recleaned, season's average basis, Small Whites 6.75@6.90, Large Whites 5.90@6.25, Pinks 5.75@5.90, Red Mexican 5.00@5.25, Cranberry 5.75@6.00, Blackeye 3.75@4.00.

GRAIN AND FEEDS

Barley, (1918 crop): Feed, 2.55@2.60 per cental; shipping, 2.65@2.70 f. o. b. Port Costa; new feed, 2.45@2.55.
Oats: Red feed, 2.20@2.40 per cental.
Corn: California yellow, 3.15@3.40 per cental. Egyptian, 2.75@3.25; Milo maize, 2.50@3.00.
Rye: 3.65@3.75.
Wheat—Following are net weight prices for bulk grain, based on federal standards and grades at San Francisco Bay and Los Angeles terminals:

Hard Wheat—	Per Bushel	Per Central
No. 1	2.20	3.66 1-3
No. 2	2.17	3.61 2-3
No. 3	2.13	3.55
Soft White—		
No. 1	2.18	3.63 1-3
No. 2	2.15	3.58 1-3
No. 3	2.11	3.51 2-3
Club and Sonora—		
No. 1	2.16	3.60
No. 2	2.13	3.55
No. 3	2.00	3.48 1-3

For sacked grain add nine cents per bushel of 60 pounds to above price. Deduction of three-fourths of a pound is

Continued on Page 879



The cost of getting common tea from the tea-plant to you is twice the tea-garden cost of the tea. Is it worth your while to pay this heavy cost and get poor weak tea-flavor and a lot of tannin?

Don't you see now why Schilling Tea costs less per cup than common tea? It costs no more to get it to you than common tea, and it has an abundance of fine tea-flavor.

There are four flavors of Schilling Tea—Japan, Ceylon-India, Oolong, English Breakfast. All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

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Household Department

RUN UP OLD GIORY

Run up Old Glory!
Let it blaze
In red and white against the sky
And tell the story of the days
When hearts were stout and hopes were high.
Forget the daily fights of greed;
Forget the struggles, the dismay
Of facing cruelty and need—
Run up Old Glory for the day!

Run up Old Glory!
Think of all
The old flag means to you and me,
Of how the blast of freedom's call
Shook out its folds from sea to sea;
Red with the blood that it has cost,
White with the souls of them that died—
Today by laughing breezes tossed
It whispers of a nation's pride.

Run up Old Glory!
Fling it forth
And feel anew the country call
That thrills east, west and south and north
And has its word for one and all.
Run up Old Glory—fling it far
Across the blue of heaven's dome
And feel that every stripe and star
Is warder of your hearth and home.

—W. D. Nesbit.

THE REPUBLIC OF POLAND

Continued from last week.

Ninety years after this great victory that ended the dreams of the Turks, the powerful neighbors of Poland joined together to rob and plunder that republic. This was done under the inspiration of that great Robber King, Frederick the Great, and under his leadership. Poland was divided and nearly one-third of her territory was taken by the three robbers, Russia, Prussia and Austria. It was then that Prussia entered into a solemn covenant with Poland, that Poland should not be robbed again of her territory, and if any attempt was made in that direction, that Prussia would to the extent of her power, defend Poland. So 20 years afterward, when Russia was again making preparations to rob her, Poland appealed to Prussia to keep her promise. Prussia marched her army to the border of Poland and was received as a deliverer, but instead, the Prussians joined with the armies of Russia and Austria to again strip her of her territory. A more base act of treachery in the world's history was never recorded. Within two years, after a brave defense by Kosciusko, they completed the devilish work by wiping the republic of Poland from the map of the world and for 130 years those powers have ruled Poland without justice or mercy. Again and again the sons of Poland have attempted to regain their lost liberties only to fail against the overwhelming forces that she had to contend with.

Thousands of brave Poles have died in Siberia and perished in loathsome prisons. The most cruel and oppressive laws enacted by Prussia; in short all of the brutality that has characterized the Prussians, Austrians and Russians during the world war in France and Belgium and now in Russia, has been inflicted upon unfortunate Poland. But the earthquake came in 1914, when Austria and Prussia, aided by the Turks, were seeking to perpetrate upon the rest of the world what they had done in Poland, and the world was compelled to act.

The day of retribution has come and Russia, Prussia and Austria are in the dust. The monarchy of Russia has ceased to exist and her royal family was forced to go over the same road to exile in Siberia that so many of their victims had traveled, and at last to die the most brutal death that ever came to any royal family. And the whole empire is now covered with famine, blood and death. Germany, defeated in battle, her royal house in exile; her emperor with the punishment he has earned and will surely receive, awaiting him; the German empire covered with civil war and blood and devastation on every hand. Austria, the house of Hapsburg, is no more. The emperor in exile and the proud empire of Austria torn to tatters and what is left of it begging to be attached to what is left of Germany to save it from oblivion. So those three great and powerful empires dying, covered with shame and humiliation, while Poland, which they robbed and ruled for more than one hundred years, is again restored and is taking her place proudly among the free, independent and glorious republics.

But Poland has a great problem before her. Probably in the world's history never has a nation had a more difficult one. More than half of the country has been utterly devastated. More than 20,000 towns and villages have been burned. More than two-thirds of her man power has either been killed or disabled. Her wealth has been largely dissipated and practically all of her resources destroyed. With no source of revenue whatsoever, everything must be created and a standing army must be organized; for unless a League of Nations is formed to protect her, she will be subject to attacks by powerful nations.

Now the question is, has Poland creative genius among her men to bring this to pass? I believe she has, and that she will call into service men who will do all this and her problems will be solved. That which gives me most hope for Poland is the man whom she has called to be her first premier, Ignace Jan Paderewski. That election was so wise that it seems to me like inspiration. It is not too much to say that he is the best known Pole throughout the world. He is not only the most widely known and the most beloved, but his devoted patriotism was shown when the war broke out and he at once laid aside a profession that was bringing him nearly a half million a year, and devoted himself to Poland and her people.

Paderewski showed his organizing ability by raising the standard of Poland at once and appealing to his countrymen who were capable of bearing arms. He organized great armies, supplied them with every need and enthused them with his own indomitable spirit, without any compensation whatever—only to serve Poland. And they did this so gloriously that they fully sustained the illustrious past of Poland's armies. Paderewski is already showing himself to be a first class diplomat. When he went to Warsaw he found Poland almost on the brink of civil war, but he appealed to the patriotism of the people and quieted their factional fights. So I predict that in spite of all the handicaps, with such a leader as Paderewski, Poland's future will be even more glorious than was her past.

A WORD FOR INDEPENDENCE DAY

In addition to fearing God, it is necessary that we should be able and ready to take our own part. The man who cannot take his own part is a nuisance in the community, a source of weakness, an encouragement to wrongdoers and an added burden to the men who wish to do what is right.

If he cannot take his own part, then somebody else has to take it for him; and this means that his weakness and cowardice and inefficiency place an added burden on some other man, and make that man's strength by just so much of less avail to the community as a whole.

—Theodore Roosevelt.

THE FIRST CELEBRATION OF INDEPENDENCE DAY

July 4, 1776, was the day on which the Declaration of Independence was passed by the Continental Congress, and that date we celebrate as Independence Day. Last year the Fourth of July was celebrated not only in France, Italy and Belgium, but in England, as commemorating the emancipation of a self-respecting nation from the thoroughly Prussian tyranny of the German king of England, George III.

It was on July 8, 1776, that the Declaration was read to a large number of the inhabitants of Philadelphia and "was received with general applause and heartfelt satisfaction." In the evening the coat of arms of the late king was brought from the hall in the statehouse and burnt.

The Declaration was received by Washington at his headquarters in New York on July 9. Immediately the brigades were formed in hollow squares on their respective parades and the Declaration was read to them. One of these brigades was encamped on the "commons," where the New York city hall now stands. The hollow square was formed about the spot where the park fountain stands. Washington was within the square on horseback, and the Declaration was read in a clear voice by one of his aides. When it was concluded three hearty cheers were given. The same evening the equestrian statue of George III., which had been set up in 1770, was pulled down and, being mostly composed of lead, was subsequently made into bullets for the colonial army.

At Boston on the 18th there was a big military display, and the cannon roared from Fort Hill, Dorchester Neck, the Castle, Nantasket and Point Alderton, thirteen shots each, which were followed by the firing of salutes of thirteen rounds by each of the thirteen divisions into which the military had been divided.

The Declaration reached New Hampshire on July 18, and there were a military display, ringing of bells, firing of salutes and shouting at Portsmouth.

The celebration at Savannah, Georgia was elaborate. When the council received the Declaration on August 10 it gathered the people into the square before the assembly house and read it to them, after which the military fired salutes. Then both the military and the civil authorities paraded to the Liberty pole, where they were met by the Georgia battalion, which, after a second reading of the Declaration, discharged its fieldpieces and fired in platoons. After this it proceeded to the battery at the trustee's gardens, where the Declaration was read for the third and last time and the cannon of the battery discharged. This was followed by a dinner under the cedar trees, at which

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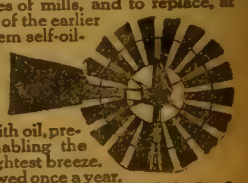
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SEASONABLE PRESERVING RECIPES

Strawberry Sunshine.

Use equal weights of berries and sugar, packing in alternate layers in large granite pan or kettle to four inches in depth. Place on stove, and let come slowly to boiling point. Skim. Boil 10 minutes. Pour into large platters two inches deep. Set in a sunny window, in an unused room for five days. Then scrape this thick "jelly" into glasses, cold, and seal. Best of all preserves.

Strawberry Jam.

For jam use about two cups sugar to a quart of berries; letting them set over night in the sugar and cook till syrup begins to thicken slightly; seal.

Spiced Crab Apples.

Six pounds apples chopped fine, two pounds raisins chopped fine, six pounds sugar, two oranges with peel, two teaspoons cassia, one-half tea spoon cloves, one pint vinegar. Heat vinegar, sugar and spices, add other ingredients. Boil slowly 25 minutes.

Plum Preserves.

The small red or yellow plums are on the market now and make a preserve of very good flavor, the color of the yellow plums being very clear and attractive.

Allow three-fourths pound of sugar for a pound of fruit, or if liked very sweet, one pound.

Pick the plums over, removing the stems, wash and weigh; pour one cup of cold water in the preserving kettle, add the plums, then the sugar; place over a very moderate fire and cook gently until the plums are soft and of a rich, dark color. Seal immediately.

Quince Preserves.

Pare and core, cut in quarters and wash after they are prepared. Weigh fruit and sugar, allowing one-half as much sugar as fruit. Use enamel pan, the larger the better. Fill pan about half full of boiling water, put in just enough fruit to swim; boil till they can be easily pierced with a fork. Then lift out on plates and put in more. Continue till all are boiled. Strain water they were boiled in. Put back over fire; when it boils again put in sugar and boil until clear. Then put in all the fruit and cook slowly about one hour, or till they are an even color through and through. Take up in stone jars or glass jars.

Conserve.

One quart rhubarb, not peeled, one pint red raspberries, one pint red currants, one pound raisins cut up, two oranges with peel cut up. To each pound of fruit add one pound sugar. Boil till thick like jelly. May add one pound of walnuts.

Rhubarb Preserve.

To one pint chopped, peeled pieplant add one pint sugar and juice of two large lemons. Cook slowly until very thick. Another way is to use one pint chopped pineapple and juice, instead of the lemons.

Cherry Preserve.

Cherries may be prepared as the strawberries were, but are easiest done as follows: Make a heavy syrup of one pint sugar to one-quarter pint water; boil till it is almost wax, then pour in one pint stoned cherries, and cook 10 minutes. Still another way is to use currant jelly, dropping the cherries in just as jelly is done, and boiling 10 minutes.

Strawberry Cordial.

In canning strawberries there is always some juice left and as I am a great believer in saving everything I can, I make a nice beverage of the juice. To one quart of juice add equal measure of sugar and three ounces of tartaric acid, stir well and when the sugar is dissolved strain, bottle, and cork tightly. Using one-half or two-thirds water and some broken ice you will find this a refreshing summer drink.

"VINEGAR BEES" HAVE LITTLE VALUE

Housewives can avoid being stung by "vinegar bees" or "beer bees" if they will keep in mind that the product advertised under these and other names is only a wild yeast of little value, say the specialists of the United States bureau of chemistry, Many inquiries recently received indicate that some enterprising individuals and firms are advertising this wild yeast under the names of "vinegar bees," "wine bees," "Australian bees," and various other designations. Extravagant claims are made for the product, and a fancy price out of all proportion to its original cost or actual worth is asked, say the yeast specialists of the department.

In some advertisements the sellers assert that the substance, when mixed with water and molasses or sugar, will produce vinegar, beer, or wine. Other promoters go as far as to say that the fermented mixture is beneficial in the treatment of rheumatism and kidney trouble—claims which have no foundation in fact.

The primitive process for making "bees" was to expose to the air a mixture of corn meal and molasses until it became impregnated with wild yeast and bacteria. The ferment so produced was employed locally in making a sort of vinegar or certain alcoholic solutions by adding it to a mixture of water and either brown sugar or molasses, which was then allowed to work or ferment.

In the opinion of the department specialists, a product made by catching yeast and bacteria indiscriminately from the air may contain harmful as well as desirable organisms, and the specialists state that great care should be exercised in both the preparation and the use of such a product. In their judgment "bees" is not as suited for fermentation as is the ordinary yeast cake which can be obtained from any grocer at much less than the fancy price asked for "vinegar bees," and they can not recommend "bees" at all for making vinegar.

SPONGING, PRESSING AND REMOVING SPOTS

Dark colored suits, when not badly soiled, can be sponged and pressed. To do this brush them well with a good stiff brush to remove all loose dust and dirt. Then sponge thoroughly till they are moistened, with a lukewarm mixture of one part of household ammonia to three parts of water; brush well with a good brush, hang up to dry, and finally press with a heavy iron, laying a cloth over the goods. Any grease spots not yielding to this process may be removed by using gasoline.

To sponge new cloth, take a heavy cotton cloth, wet it thoroughly and wring it out. Spread your goods on a table, folded into four thicknesses, and lay the damp cloth over it, ironing with a heavy iron until one side is done; repeat on the other side.

When removing a spot do not begin to work right on the spot, but start some distance away and gradually work toward it, using a good brush. In this way you will avoid leaving a ring.

Dark colored garments which have had the color entirely removed in spots by acids may be restored by an application of ammonia, and to those which have been spotted by alkalies, an application of diluted acetic acid is beneficial. A garment spotted by the rain may be freshened by laying the garment over an ironing board and steaming it. This is done by placing a damp cloth over the article and ironing.

To remove blood stains, or glue stains on woolen, cotton, linen or silk, wash with warm water to which one teaspoon of soda to each quart of water has been added.

To remove varnish or paint on wool, cotton or linen, rub carefully with gasoline and soap; on silk use gasoline.—Hazel Zimmerman, Home Demonstration Agent, Pima and Pinal Counties, Arizona.

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We picture two types of Auto-Wheels. The Auto-Wheel Coaster at the top and the Convertible Roadster at the bottom. The Convertible Roadster has patented convertible sides. Turn up the sides when you want to coast or turn them down when you need a roadster for hauling. It's new and has made a hit with fellows everywhere.

Both Auto-Wheel Coaster and Auto-Wheel Convertible Roadster are noted for their speed as well as strength. They simply can't be beat in a race. Ask any fellow who owns an Auto-Wheel.

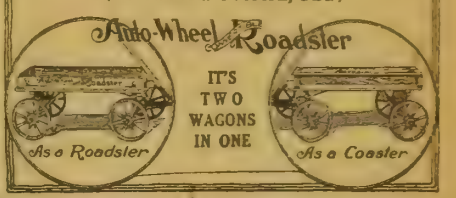
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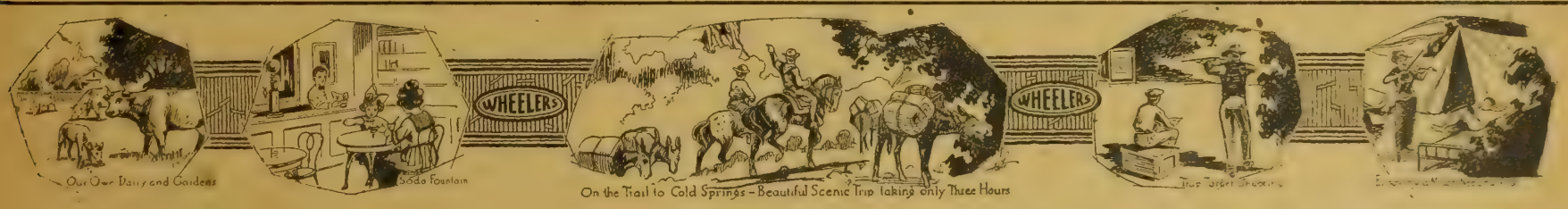
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MARKETS

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made for weight of standard grain bags. Wheat grading under No. 3 and mixed or smutty wheat will be purchased according to merit.

Mill Feed (per ton): Bran 43.00@44.00; mill run, 42.00@43.00; Rolled barley, 52.00@54.00. Linseed oil cake meal, nominal; cocoanut cake or meal, 41.00@42.00 per ton.

HAY

Under date of June 21, Scott, Magner & Miller says:

Receipts of hay for the past week were 1686 tons, being about a 30 per cent increase over last week's arrivals. New crop hay is now coming in freely. Old hay maintains the prices formerly quoted but feels the effect of the new hay coming in and sales are slow. No fixed basis of prices can be quoted as yet for the new hay as purchasers are doubtful of its condition and afraid of buying hay that is not properly cured. Interior demand is very light by reason of temporary local supplies being available in most sections. The chief activity is in alfalfa which is being purchased at various points available to meal mills.

We quote today wholesale prices in carload lots for old hay as appear from dealers' transfers upon the hay market—for prices to consumers charges of cartage, commission and handling expenses must be added according to conditions:

Fancy Wheat Hay	
(light 5 wire bales)	19.00@21.00
No. 1 Wheat or Wheat and Oat Hay	16.00@18.00
No. 2 Wheat or Wheat and Oat Hay	12.00@15.00
Choice Tame Oat Hay	17.00@19.00
Other Tame Oat Hay	12.00@15.00
Wild Oat Hay	11.00@14.00
Barley Hay	11.00@14.00
Alfalfa Hay	15.00@19.00
Stock Hay	11.00@13.00
New first cutting Alfalfa, in order	10.00@13.00
No. 1 Barley straw, bale	50@80

Citrus Markets

Los Angeles, June 25, 1919.

Imperial Valley cantaloupes and Eastern grown small fruits are filling the market and this has held back the demand for Valencias and price has materially suffered. There are something over 9000 cars yet to go forward, but as there are four months of Valencia season yet to come, it is presumed the market will recover.

The warm weather has given the lemon market a trend entirely contrary to that of oranges.

The demand is keen and prices entirely satisfactory.

Shipments

Shipments of citrus fruits to date since November 1, 1918: Southern California: Oranges, 26,054 cars; lemons, 6978; total, 33,032. To same date last season: Oranges, 11,373; lemons 3773; total, 15,146. Central California this season: Oranges, 4410; lemons, 354; total, 4764. Last season to same date: Oranges, 2533; lemons, 115; total, 2648. Northern California: Oranges, 244; lemons, 2; last year same date, 203.

AT THE AUCTIONS

June 23

New York: 55 or., 5 lem. Val. 2.20-6.35, grapefruit 2.40, Sweets, 2.30-3.65.

Boston: 21 or., 5 lem. Val. 2.05-5.65, grapefruit 1.55-2.10, lem. 5.75-7.65.

Cleveland: 7 or., 3 lem. Val. 2.95-4.95, lem. 3.50-6.90.

St. Louis: 4 or., 4 lem. Val. 2.25-4.55, lem. 5.40-7.30.

June 24

New York: No sale on account of strike.

Boston: 20 or., 2 lem. Val. 2.30-5.45, grapefruit 1.50-4.10, Mikes halves 2.25, lem. 6.40-7.75.

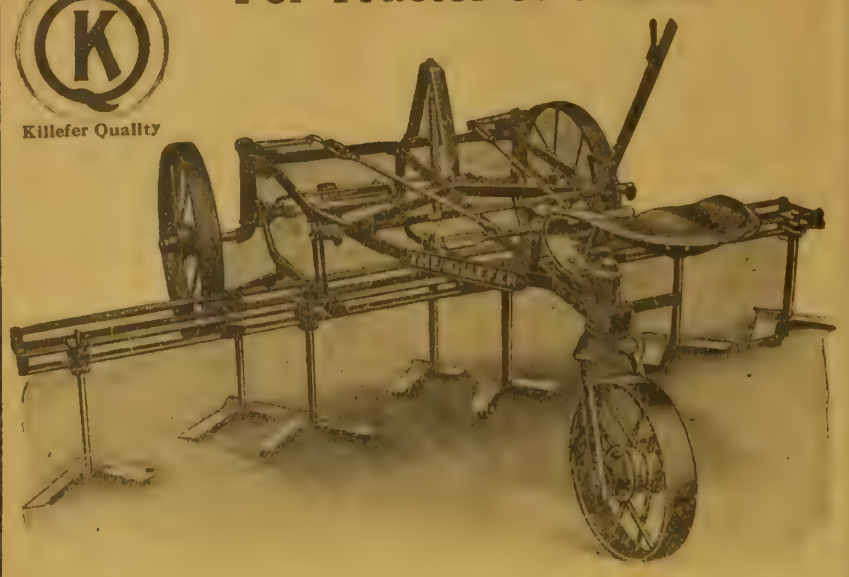
Philadelphia: 8 or., 4 lem. Val. 2.70-5.55, lem. 4.60-5.75.

Florida orange growers have suffered much inconvenience through scarcity of shook supplies.

Four Row Bean Cultivator

For Tractor or Teams

Killefer Quality



Conserve man power—One man cultivates four rows of beans as easily as two with this tool

This Cultivator, like most of our implements, has been developed at the request of Dealers and Ranchers for a strong, simply controlled cultivator, capable of doing their work deeper and better than possible with the lighter tools. The frame is one piece of high carbon steel without joints to work loose or sag and holds the wheels always true and in line with the rest of the machine. The double frame bar gives ample clearance between the standards and eliminates the tendency to clog in trashy ground. This frame bar has a double lifting device which holds it rigidly on both sides. A man's weight on the extreme end will not spring it out of line. The seat is set far enough back to give an unobstructed view of the four rows and the foot control is very easy on the driver. Built to cultivate any width row from 20 inches to 36 inches wide.

Write for Catalogue and book on deep tillage.
Specify Width Rows When Ordering

The Killefer Manufacturing Co.

2209-21 Santa Fe Ave. Los Angeles, Cal.

Just like getting a check



-30 cents of each dollar saved!

HASSLERS *for all* Ford Passenger Cars

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The Hassler Guarantee: "Absolute satisfaction or your money back."

SUPPOSE your garageman gave you a check for 30 cents every time you spent a dollar for tires and repairs? Suppose he gave you a check each year for a third of the depreciation you know has taken place in your Ford Car or Ford One-Ton Truck? It amounts to exactly the same thing when you equip with Hassler Shock Absorbers. At least 30% of your tire and repair cost is saved outright, because the road shocks and vibrations are cushioned before they reach the vital and weighty parts of the machine. This elimination of vibration also reduces the depreciation loss in the same proportion. There is real economy—a real worth while saving! Of course, you know how much more satisfactory your car will ride if you have Hasslers on it. The added comfort alone is worth far more than they cost.



10 DAY TRIAL OFFER

Don't ride without Hasslers because someone tries to discourage you. They are a quality product—worth their price. The Hassler dealer in your vicinity will put them on for 10-days' trial. Your money refunded if you say so. Write for name of dealer and Trial Blank.

ROBERT H. HASSLER, Inc.
1173 Naomi St. Indianapolis, Ind.
Canadian Factory, Hamilton, Ontario

For Ford One Ton Trucks, Too!

The Cultivator Costs Only $1.00 Per Year

LAND SETTLEMENT

Most Californians are gratified that the advanced position taken by this state in land settlement is affording a basis, or at least lending encouragement, for action by congress. There has been introduced in the house of representatives a bill by Mr. Mondell: "To provide employment and rural homes for those who have served the military and naval forces, through the reclamation of lands to be known as "National Soldier Setlement Act.' Here are some of the provisions of the bill:

The bill provides homes for farm workers. The California act introduced that idea in this country.

It provides that only landless men shall obtain homes. This is in the California act.

The payment periods on land, on improvements and on loans are the same as the California act.

The initial payments on land and improvements are copied from the California statute.

The provision requiring approval of sales or leases for the first ten years so as to protect the government from speculative filings and the settler from being tempted to sell out when offered a small profit are based on the California act, but are not so good.

One important provision permits the short time loans on live stock. We quote entire section eight:

"The secretary is also authorized to make short time loans from the fund, not to exceed $800 at any one time, to a soldier settler for the purchase of necessary live stock and equipment, and provision shall be made for the repayment of such loans during the period not to exceed five years with interest on deferred payments at four per cent per annum, payable annually, computed from date of contract: Provided, that no such loans shall exceed 60 per cent of the cost of the live stock and equipment purchased."

COCKROACHES

Some time ago we referred to the extermination of cockroaches by the feeding of plaster of Paris mixed with flour. When eaten by the roaches the moisture of the intestines was supposed to cause the plaster to set and the bug to turn to stone. Bronte A. Reynolds, editor of the Monthly Bulletin of the state commission of horticulture writes:

"After extensive experiments by the United States department of agriculture, this beautiful theory was pronounced to be absolutely fallacious for the reason that some unknown quality in the digestive apparatus of the said cockroaches prevents the plaster of Paris from setting."

Mr Reynolds also sends copy of Farmers Bulletin 658, "Cockroaches," written by C. L. Marlatt, entomologist and assistant chief of the bureau of markets of the U. S. D. A., at least he was at the time of writing the bulletin—he is now at the head of the national quarantine board. In this bulletin we find sodium fluoride is given credit for being the most effective and simple means of ridding premises of roaches. Commercial fluoride is used either pure or diluted one-half with some inert substance such as powdered gypsum or flour. Another poison recommended is powdered borax one part to three parts of finely pulverized chocolate. Pyrethrum, sold in California usually under the name of buhach, is one of the best repellants. When applied freely while fresh will paralyze or even kill the pest. Sulphur is another repellant when freely scattered.

THE HARVEST IS GREAT

Continued from Page 859

and acquaintance with the local press, can do more than anyone else to bring the matter before the farmer and urge action.

In Kings County the farm bureau has had a committee at work on the labor situation, which has resulted in the adoption of a

Scale of Wages

GENERAL RANGH

With board—$3.00 per 10 hour day.
Without board — $4.00 per 10 hour day.

HAY

With board—$3.50 per 10 hour day.
Without board—$4.50 per 10 hour day.

CUTTING APRICOTS

40 lb. box Royal cots, 15c per box.
40 lb. box Peach cots, 10c per box.
50 lb. box Royal cots, 19c per box.
50 lb. box Peach cots, 12½c per box.

CUTTING PEACHES

40 lb. box, 5c per box.
50 lb. box, 6½c per box.

PRUNE SHAKING AND PICKING

40 lb. box, 10c per box.
50 lb. box, 12½c per box.

A scale adopted by a conference in Sacramento much earlier in the season by delegates from the counties of Merced, El Dorado, Sacramento, San Joaquin, Stanislaus, Solano, Yolo, Butte, Sutter and Placer resulted in:

GENERAL FARM WORK

A day of nine hours with board, per day, $2.25; including orchard and vineyard work, corn and bean harvest, irrigation of field crops, miscellaneous work.

GRAIN AND HAY HARVEST

A day of ten to twelve hours, as per local custom. Haying, including board, per day, $3; grain harvesting, including board, per day, $4 to $7.

FRUIT AND VEGETABLES

Per hour, without board, 30 to 40 cents; including picking, grading, cleaning and packing.

PIECE WORK

Picking: Cherries, per pound, two cents; plums, per 100 pounds, 25 cents; peaches and pears, per 100 pounds, 20 cents. Packing: Cherries, double faced, 15 cents; cherries, cartons, 18 cents; peaches, two and one-half cents; pears, with tender, six cents; without tender, including lidding, seven cents; plums and crate peaches, six cents; grapes, cleaned, six cents.

"The California Fruit Workers Association," an organization of workers recently formed in Watsonville, Santa Cruz County, according to the Pajaronian has issued the following manifesto:

We, the fruit workers of the State of California, are organizing for the betterment of ourselves and our worthy employers.

This is a free country and many of us have served in the great war just ended, and some of us have sacrificed life itself on the altar of our country.

We make this announcement through the county newspapers that our employers may be informed of our plans for the future to secure the proper reward for our honest labor and honest pay for the same. Our labor and the labor of all workers is for the profit of the employer. Without labor the employers' profit would come to a sudden stop. So we take this method of advertising our determination to enjoy the fruits of the golden opportunity of the present day ourselves, as well as our fellow friend, the employer.

This association receives as members ladies as well as men. All fruit workers, such as packing houses, canneries, dryer employes, orchard workers and apple haulers. Our monthly dues are 25 cents per month. Headquarters at No. 832 Walker street.

MARKETS

See Page 875 for Markets.

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See Pages 878 and 879 for Index to Volume LII.

Care of the Small Flock

For the family which wishes to keep poultry for home consumption rather than for the market the so-called general purpose breeds are better suited than what are known as the egg laying breeds. Plymouth Rocks, Wyandottes, Rhode Island Reds and Orpingtons are all good varieties for the average person who does not intend to go into the poultry business on a considerable scale. These breeds are good layers and they also make good table poultry. Furthermore they will hatch their own eggs and brood their own chickens whereas the Leghorns and other breeds of the egg laying class do not sit, and the use of expensive incubators and brooders is necessary in order to perpetuate these flocks.

The prime essentials for a small poultry house are fresh air, dryness, sunlight and space enough to keep the birds comfortable. For the general purpose breeds about four square feet of floor space should be allowed for each bird. The fowls should also have as much outside space as possible to run in. If this area is too small the ground quickly becomes foul and in time makes it difficult to rear chickens with good success. In order to avoid foulness it is advisable to divide the lot and to sow part of it to the quick growing grains such as oats, wheat or rye. The hens are turned on to the growing grain when it is a few inches high. Under this method the yards may be changed every three or four weeks during the growing season. A combination that has proved successful consists of six or seven bushels of equal parts of oats and wheat to the acre, wheat alone being used for the last seeding in the fall. For the convenience of those who have only small areas at their disposal, it may be stated that an acre contains 43,560 square feet.

To secure a satisfactory number of eggs the fowls should be fed both a dry mash and a scratch ration. The dry mash may consist of equal parts of corn meal, bran, middlings and beef scrap. This should be kept before the birds in a hopper all the time. A good scratch ration is made up of equal parts of corn, wheat and oats, fed in a litter four to five inches deep, twice daily. It is desirable that the birds should eat about as much of this as of the mash. This means feeding about one quart of mixed grain daily to 12 Plymouth Rock hens or to 14 Leghorns, and an equal weight of mash. Usually waste table products will also be available, and these may be made up into a moist mash in place of the dry mash. In this case the table scrap, if it contains much meat, is substituted for the beef scrap. If it does not contain any considerable portion of meat it should merely be added to the dry mash already described.

The eighth Year Book of the Rhode Island White Club of America is just out. This is the 1919 Annual and is up to the usual standard of this live specialty club. The records of achievement of the Rhode Island Whites in the several egg laying contests have attracted much attention to this breed. The club is the active exponent of the breed and there are members in nearly every state and in Australia and Canada. H. E. Caldwell of Canutillo, Texas, is president and M. E. Bemis of Phoenix, Arizona, is secretary-treasurer. The Year Book contains the standard of the breed with illustrations, also the constitution and bylaws of the club as well as list of all members. The price of the book is 25 cents.

Book Review

Protective Poultry Husbandry

"Productive Poultry Husbandry," a complete text book dealing with the principles and practices involved in the management of poultry, by Harry R. Lewis, poultry husbandman, New Jersey agricultural experiment station, published by J. B. Lippincott Company, Philadelphia, at $2.00 net.

The exceedingly large and ever increasing demand for poultry and poultry products is causing the poultry business to become so profitable when conducted upon a scientific basis that no reader can afford to lack the latest knowledge of the best methods in all its branches.

The great need in poultry literature is for a work which covers the subject in a thoroughly scientific yet practical manner, giving the reader the results of research at the various experiment stations and the methods that are the most successful in present day practice. The author has made an earnest effort to help build the foundation for a systematic, scientific and greater poultry industry.

A number of pages and illustrations have been added to this third edition of what has become a standard text book for the farmer and the agricultural school and college. There is no phase of poultry keeping which the book does not fully meet. It brings the subject absolutely up-to-date. Choosing a poultry farm, equipment, feeding, breeding, anatomy, incubation and brooding, care of stock in all stages, marketing, exhibiting and judging, diseases and enemies, business management, and how to secure high egg production, are among the subjects handled clearly and authoritatively.

Every farmer and agricultural school should make use of this book, and it is invaluable for systematic reading courses adopted by granges and poultry associations.

COOPERATION IN POULTRY

All records for business were broken by the Tulare Cooperative Poultry Association for the month ending June 10, the total receipts amounting to $31,489.55 as against $30,000 for the highest record for any other 30 days in the history of the association. The amount represented $16,000 for eggs, $3000 for poultry and $3500 for baby chicks. The feed and supply department did a business of $9000 for the period. The baby chick business was especially large, running over $100 per day and showing the great demand for more fowls in this district. Most of the deliveries were on orders placed at least a month ahead, the demand being so strong that all orders must be placed far in advance. Poultry association officials estimate that their organization handles one-third of the poultry and egg shipments from the city of Tulare.—F. A. G.

A new gin is being installed in Blythe, Palo Verde Valley.



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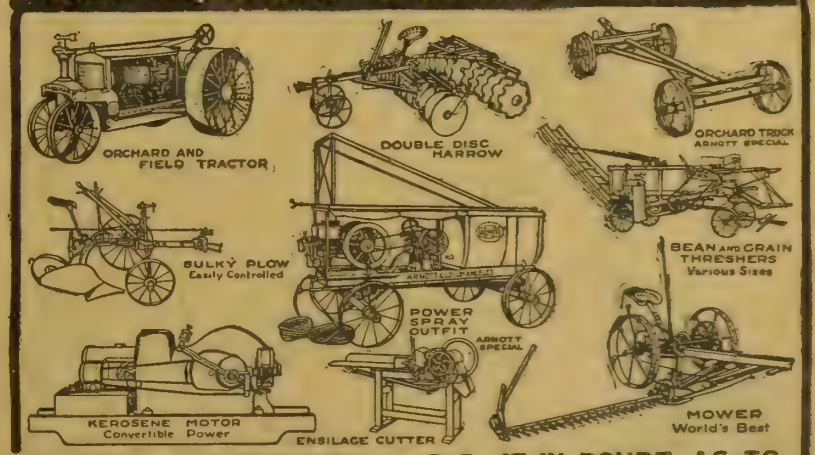
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Here is the famous Sperry Standard Bread Recipe which has proven good in many practical kitchen tests by our home-baking experts. It will insure your getting a perfect loaf every time if you will only follow the directions carefully.

SPERRY WHITE BREAD

1 cup Boiling Water
1 tablespoonful Melted Shortening
1 tablespoonful Sugar
½ yeast cake dissolved in ¼ cup of lukewarm water
1 Teaspoonful Salt
Between 3 and 3½ cups Sperry Flour

All measurements should be level. Flour should be sifted before measuring.

METHOD OF PREPARATION

Put shortening, sugar and salt in boiling water; let stand until luke warm. Add dissolved yeast and Sperry Flour gradually, beating well until too stiff to stir. Then turn on moulding board and knead in remaining flour until mixture is smooth and elastic to touch, and bubbles may be seen under the surface. Return to well greased bowl, brush dough over with melted shortening, cover and allow to rise in a warm place to twice its original bulk, then cut down. This is accomplished by cutting through and turning over several times with a case knife. Let rise again, when the dough will be ready to shape into loaves or rolls. Place in well greased pans, having them about half full. Brush over loaves or rolls with melted shortening or milk, let rise again to double its bulk and bake in a hot oven about forty-five minutes for a medium sized loaf; twenty minutes for rolls.

This quantity is for one loaf of bread and with the amount of yeast given, to each cup of liquid, bread can be made and completed in about five hours. If a longer period be given to the rising process less yeast will be required. One-fourth cake to a cup of liquid may be used if bread is set over night. In either case the same method is used. Also the liquid can be half milk and half water or all milk if desired.



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